

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



ANNUAL REPORT

2023-24

MNS University of Agriculture, Multan

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Vice Chancellor's Message

I am pleased to present the Annual Report for the year 2023-24 that unravels success stories pertaining every aspect of Muhammad Nawaz Shareef University of Agriculture, Multan. The realignment of the institute's vision and mission has positively impacted the research, innovation as well as quality of education. With a mindful vision, mission and a set of core values, various initiatives were undertaken and new ideas were implemented for the betterment of the Institution. Our substantial and sincere efforts have set the benchmark of academic excellence, and problem oriented/demand driven research with principle focus on community service and knowledge based economy.



The switch towards interdisciplinary degree programs, research based and interactive learning with technological interventions has opened up several new horizons. Our academic canvas is expanding day by day, as we are introducing new degree programs to cope with evolving demands of our stakeholders. Students are encouraged to explore alternative perspectives and acquire a broad spectrum of knowledge through our emphasis on interdisciplinary learning, internship, and research. We have created a strong sense of promoting an innovative research culture where scientific dreams are being transformed into reality. Our research ethics are purely based on integrity, accountability, and equal opportunities for all.

During the year under consideration, teaching and research facilities have been elevated through the development of infrastructure, procurement of scientific equipment and improvement of learning resources etc. New faculties have been established and there are a large number of recruitments in various teaching departments and I proudly own the highly-qualified faculty of MNSUAM. Faculty and students also attended several National and International workshops/seminars/symposiums/conferences to develop networks and share knowledge in different scientific fields. We are committed to fostering an environment where each person feels appreciated, respected, and motivated to reach their best potential. We firmly believe that promoting creativity, innovation, and knowledge requires a diverse and inclusive learning environment. Training workshops for the faculty help them to learn from the experienced resource persons. Young and vigorous faculty members learn from these workshops, about workplace harmony and work dedication, which has always been at the top of my priority list. Physical infrastructure has also been improved and the construction work of Girls Hostel, National Crop Genomics and Speed Breeding Centre, and Central Mosque is in its full swing.

Quality Enhancement Cell, Office of Research, Innovation and Commercialization, Business Incubation and Agricultural Entrepreneurship Center, Department of Continuing Education and Outreach are functional and striving hard to achieve the deliberated goals. We recognize the value of entrepreneurship in today's competitive market. Our Business Incubation Center facilitates translation of research into commercialization through strong industry-academia linkages and entrepreneurship. Strong industrial linkages of the University and the bond we share with the local and international community has made it possible for us to avail new avenues in every sector and strata of the farming community and industry. Memorandums of Understanding were signed with various national and International organizations for cooperation in academics and research.



Vice Chancellor's Message

Community based services were launched to fulfill one of the prime objectives and moral obligations of the University. Apart from these offices, a plethora of co-curricular opportunities along with character and skill building programs that are being offered from the platform of Graduate Research Center, Directorate of Students Affairs, Senior Tutor Office, Career Development Center, facilitate in nurturing and nourishing the well-being of our students.

All our achievements whether in academia, research, construction, land development or administration have virtually no limits; and we have to go much further in the near future. Credit for achieving these targeted milestones goes to my brilliant team whose sincere devotion has made our success possible. By the grace of Almighty, we were able to create an academic environment, functional administration, discipline and peace in the Campus.

As an agriculturist, I have profound concerns for the energy crisis and adverse effects of deforestation on the environment. Standing true to its tradition of Green Pakistan, MNSUAM's "Plant for Pakistan" campaign ran in full swing in the Multan Campus planting about 1500 plants in Spring. MNSUAM extended the campaign to the outskirts of Multan and established a Model Plantation Block covering 30 acres and containing 30000 trees in Jalalpur Pir Wala Campus. In pursuit of environmental sustainability, our campus is harnessing the benefits of solar energy to meet our electricity requirements. Interfaith harmony holds a special place in my heart and to inculcate tolerance and love towards humanity in the students, my staff and faculty members leave no stone unturned to arrange seminars on peace and to celebrate events like Christmas. I ensure that our students are active in co-curricular activities as much as their involvement in their academic pursuits. To this end, we have established different fully-functional societies and clubs which guarantee students' participation. Events like Sports Gala and HEC-Intervarsity Tournaments were successfully arranged in the University this year and I was overwhelmed to see that a number of institutions from across the country had participated in that event.

At the end, we as a team commit that we will relentlessly strive for excellence in all aspects of education, use of modern techniques and embracing relevant innovations, exceptional campus environment, student and community services. Insha Allah, MNSUAM will continue to play its prominent role for the cause of agriculture and socio-economic development in this region by producing trained agricultural professionals, scientists and entrepreneurs.

Prof. Dr. Ishtiaq Ahmad Rajwana
Vice Chancellor



EXECUTIVE SUMMARY

Agriculture sector in Pakistan is the major contributor to the GDP and exports, thereby boosting the country's economy. MNS-University of Agriculture is the institute which connects the farmers with researchers, students with field men, academicians to industries and community to the greater cause; community engagement and active citizenship. From developing the state of the art campus, to fighting with the perks of pandemic, the challenges never came slow but our resilience as a team and hard work had paid it all. It is the efforts of our institute that made it possible for this University to secure the top rank in the country as the most sustainable university of Pakistan. The annual report summarizes the journey of this year.

The first chapter covers the Academic Activities describing the degree programs offered and some details of faculties and departments beside key achievements which include the initiation of new degree programs such as BS Biotechnology, M.Sc. (Hons.) Agricultural Extension, M.Sc. (Hons.) Agro-Industrial Engineering Technology, Biotechnology, Energy System Engineering, MS Zoology, Ph.D. Biotechnology, Computer Science, Zoology. MOU was signed between Xingjaing Agricultural Vocational Technical College China and MNS-University of Agriculture Multan to mutually launch Livestock Assistant Diploma. Establishment of the Institute of Computing is another significant achievement. Foreign academic linkages have been strengthened this year and University is in connection to renowned foreign universities like University of California Davis, USA, University of Adelaide, Australia, Eberswalde University of Sustainable Development, Germany, Huazhong Agricultural University, Wuhan, China, Istanbul Gelisim University, Türkiye, Universiti Putra, Malaysia and many others.

Research and Developmental activities including research projects, publications, workshops, seminars and conferences are discussed in the second chapter. During 2023-24, nine competitive research grants worth PKR 105.74 million have been won by the faculty from various national/international funding agencies, industry/private sector and NAVTTC. The research projects worth PKR 9.00 million from international funding agencies, PKR 91.86 million from national funding agencies, PKR 83.04 million from the industry/private sector and PKR 4.45 million from NAVTTC were awarded to the faculty for the proliferation of scientific culture and innovative research. The execution of 33 ongoing research projects worth PKR 774.17 million is in progress. The research activities of 7 international projects (PKR 109.51 million), 26 national projects (PKR 664.65 million) and 19 industry/private sector projects (PKR 106.18575 million) are being undertaken by the faculty. Moreover, ORIC has also facilitated the faculty for the successful completion of 12 research projects worth PKR 38.85 million. The availability of a conducive research and working environment enabled the faculty to publish 264 research articles in well-reputed national and international peer-reviewed journals and contributed as authors of 89 chapters in the books published by internationally recognized publishers. ORIC strived to secure revenue of PKR 65.89 million including events sponsorships (PKR 52.20 million), consultancy services (PKR 2.27 million), university overhead from research grants (PKR 11.27 million) and lab analytical services (PKR 0.15 million). Similarly, ORIC has extended support to teaching departments in organizing eight national and international conferences, nine student's poster/plant centric meal/dish making and business competitions, and 52 national and international Seminars/Webinars.



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It also covers information related to University, ORIC, BIEAC ranking, patent filing, research linkages, farmer advisory and industry consultancy activities, working with communities through social action plans on multiple socio-economic opportunities.

Chapter three focuses on Quality Assurance and reflects tireless efforts towards ensuring quality of education and research at the University. The Quality Enhancement Cell (QEC) of the Varsity is mandated to ensure quality teaching and research through keen assessment for better outcomes. This year, QEC has assisted the faculty to use different platforms (Zoom, ERP, Google meet) and interactive sessions with the students through various platforms. This Chapter also highlights the details about the initiation of new postgraduate degree programs, annual technical review of TTS faculty, plagiarism checking, self-assessment of academic programs and capacity building of faculty and students as well as impact of quality assurance at the campus. Teacher evaluation information is regularly collected from both undergraduate and postgraduate students. Whether it is capacity building, accreditation of undergraduate programs or preparation of curriculum for Outcome Based Education or Hybrid/Blended Learning, the QEC had always been an active and adept part of University administration.

The fourth chapter encompasses details of faculty development trainings/workshops to nurture their teaching, research, and leadership skills. During 2023-24, faculty members benefited from 101 faculty/staff trainings/workshops, 14 pre-service and in-service faculty members were endowed with the facility of faculty development programs (both foreign and local MS/PhD) this year.

Chapter five elaborates quick facts about discipline-wise and gender-wise student enrollment etc. Basic enrollment during 2023-24 was 2430 with 1647 male and 783 female students, respectively. The maximum enrollment of 350 and 306 students was observed in B.Sc. (Hons.) Agriculture and Livestock Assistant Diploma programs, respectively. Furthermore, 345 students were enrolled in M.Sc. programs, and 38 scholars started pursuing doctorate degrees. The total number of faculty reached to 149, out of which 102 possess doctorate degrees.

Chapter six (Universities Building Economies) contains information about liaisons developed by the University with local and foreign institutions/organizations like FAO, Nestlé Pakistan; Mahmood Group, Multan; Pioneer Aqua's Pvt. Ltd.; Indus Sugar Mills, Rajanpur; Khawaja Mineral Industries, Multan; Hussain Salman Chemicals, Multan; Oil and Gas Development Company Limited (OGDCL), Pakistan; Alkhidmat Foundation South Punjab, Pakistan; Guard Agriculture Research & Services, Lahore, Pakistan. In this Chapter, the collaborative activities, events like Mango Festivals, AFS Venture Spark, Establishment of South Punjab Agricultural Forum, Stakeholders Dialogue on Developing Business Networks and Community Outreach in Mango Sector, consultancy activities executed through ORIC with Industry, Commerce or Government and patents filed are discussed in detail.

Strengthening of physical infrastructure plays a vital role in the development of any educational institute.



EXECUTIVE SUMMARY

On the other hand, strengthening of technological Infrastructure is also essential as it brings new opportunities and advanced means for improving access and quality of higher education. Chapter seven provides the information regarding the developmental projects initiated by the University at main campus and Jalalpur Pirwala Experimental Farm and success stories in this regard. University has come a long way from its humble suburban beginning to its current state and its planned expansion to a new state of the art campus and MNS University of Agriculture, Multan Phase-II has also been initiated. Construction of National Crop Genomics and Speed Breeding Center, Masjid Fatima-Tu-Zahra, Female Hostel, and Sports Gymnasium is underway. Next chapter provides details of ICT infrastructure and automation services including computer labs, multimedia classrooms, digital library, PERN services, video conferencing facilities, wireless LAN, biometric attendance system, and various online systems of the Varsity, New Video Conference rooms are fully equipped and functional.

Chapter nine is about “University Building Communities” that reveals information about the farming and scientific community service-oriented activities, which the Varsity considers as its obligation. University has an active policy of public service and vigorously engages the community in all its academic and non-academic activities. Some major events/activities during this year include inauguration of MNSUAM Display Corner, skill development programs, recruitment drives, stakeholder conferences, celebrations events and festivals, skill development programs, awareness seminars, and peace promotion etc.

Besides education, Sports and co-curricular activities are helpful in developing strong personalities and instilling various traits in students. The sports events organized / participated by the University during the year 2023-24 are elaborated in Chapter ten. Whereas, Chapter eleven 'Universities Building Leadership' mentions achievements and success stories which have made the MNSUAM family proud. This chapter also features various activities carried out by different Student Societies and Clubs, established to inculcate a sense of leadership in students, under the umbrella of Directorate of Students' Affairs. The details of activities carried out by Career Development Center and Placement Bureau for providing guidance/counseling to students are also part of this Chapter. Chapter twelve provides financial information about development and non-development budget and expenses made by the University, while Chapter thirteen gives a glimpse of University's topnotch governance and meetings of various statutory bodies held during 2023-24.

Chapter fourteen tells about Office of Resource Generation and Development, its initiatives and future plans. Information regarding scholarship programs is also part of this Chapter. During 2023-24, an amount of 55.04 million rupees was distributed by Financial Aid Office of MNSUAM among 979 students of undergraduate and postgraduate programs for financial support.

Chapter fifteen entitled 'External Linkages' specifies the MoUs/agreements signed between MNSUAM and national/international institutions/organizations for promoting R&D activities through external collaboration.



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During the 2023-24, 14 (10 academia and 4 industries) AoCs/ MoUs / MoCs with International organizations and 18 (2 academia, 10 industries and 6 corporate sector) AoCs/ MoUs / MoCs are signed with national private and public sector partners from Pakistan.

Health education builds students' knowledge, skills and positive attitudes about health. Health education teaches about physical, mental, emotional and social health and the final chapter, chapter sixteen has elaborated University's efforts to educate students and ensure health provisions to staff and the students. Therefore, free ambulance service, routine check-ups for the students and faculty, first aid to the students and employees of the University are the available medical facilities in the campus. Wellness Clinic has been Initiated, Public Health Society has been established and Surveillance of mosquitoes especially Dengue vectors carried out from the whole of the University, every week throughout the year.



MULTTAN: THE CITY OF SAINTS

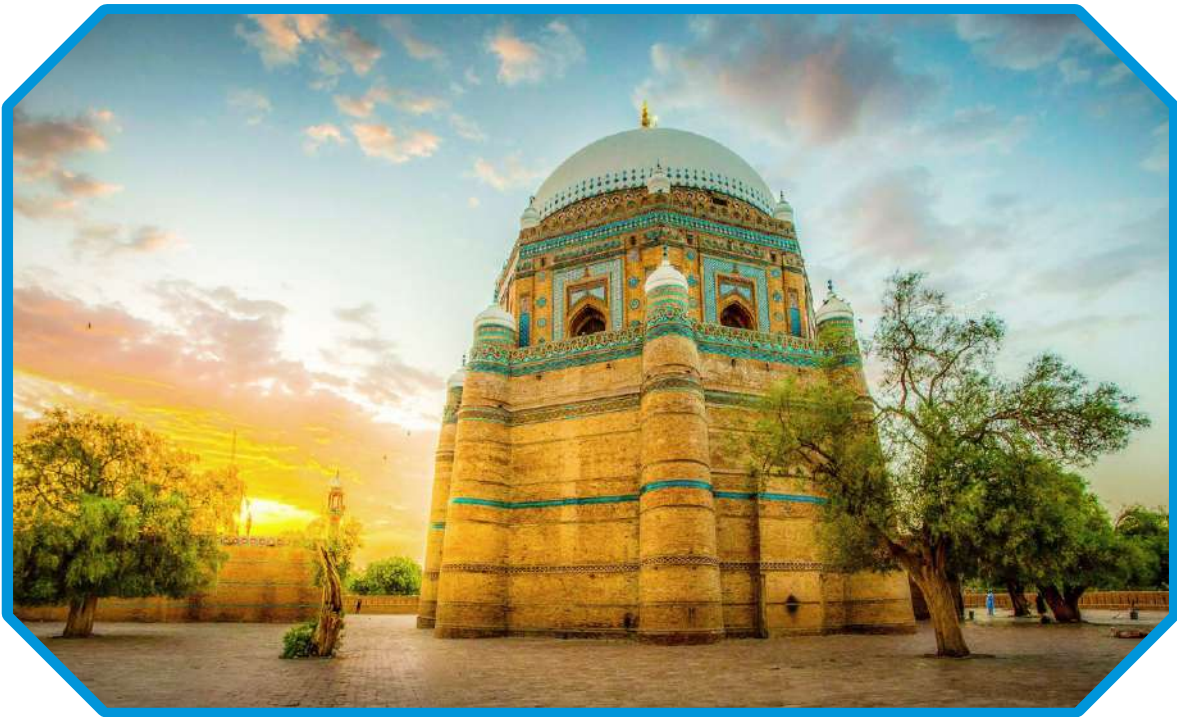
Welcome to the city of saints; rich of culture, colors, history, and an epitome of modernization. Multan has a population around 2,106,000. It is considered to be one of the oldest cities of Pakistan and its history fades away in the mists of myth and mythology. Multan is the birthplace of renowned Sufis like Baba Farid and it is the resting place for many like Sheikh Bahauddin Zikria, Bibi Pak Daman, Shah Shams Tabrez and Shah Rukn-e-Alam. It has a significant contribution to rich Sufi culture in the subcontinent. The aforementioned Sufis preached the teachings of Islam and are considered to be the flag bearers of peace and harmony among the region. The Sufi culture of Multan is a fresh blow of air to the otherwise hot weather of the region. The shrines and mausoleums that are considered to be the identity of the city are adorned with the touch of blue and white Mongolian art, the famous blue pottery which is embedded in the culture of Multan. Famous and historically significant mosques in the city like Jamia Mosque, the first mosque to be built here by Muhammad Bin Qasim when he conquered this city, Sawi Mosque, Mosque Baqarabadi, and Mosque Ali Muhammad Khan stand in gratitude to the Creator. Taking in account the history of this city, one cannot forget to mention the famous gates of Multan known as Lohari Gate, Pak Gate, Haram Gate, Daulat Gate, Bohar Gate and Delhi Gate. Old bazars like Hussain Agahi, narrow streets that blanket these gates add to the richness of cultural heritage of this city. From Qilla Qasim fort to the Ghanta Ghar chowk, or Clock tower, there is a patch that covers the history of this city from old sufi saints to the influx of British Raj in the subcontinent.

Say two words, “Multan” and “Winters” in front of a food-lover, and the next thing you will hear will definitely be Sohan Halwa. Sohan Halwa is to winter what mangoes are to summer, except the former is not limited just to the winters. This famous sweet which has become the defining symbol of Multan is available and carried through all over the country any time of the year. When talking about the treat for the people of Multan in summers, it is the king of the fruits, the Mango. Mango orchards on the eastern side of the city blossom throughout the summer season. Out of 150 varieties of mangoes grown in Pakistan, their major production is carried out in Multan. Anwar Ratol, Langra, Dussehri, and the infamous Chaunsa, all are widely cultivated in Multan. The ripening season of Chaunsa lasts from July till late August.

Multan has the second oldest medical institute built by Sardar Abdul Rab Nishtar, known as Nishtar Hospital, which was extended to Nishtar Medical College and later upgraded as Nishtar Medical University. It has various departments and considered to be Punjab's largest hospital in terms of area. Talking about old institutes in Multan, let's not forget Bahauddin Zakariya University named after the Sufi saint Hazrat Bahauddin Zakariya. Established in 1975, BZU is one of the largest universities in Punjab. MNS University of Agriculture is another emerging institute in Multan, which is environmentally the most sustainable university in the country and ranked 1st among Pakistan. It has covered a long and toilsome journey to move from its humble suburban vicinity to the present state of the art campus. Agriculture-based research and highly qualified staff of this university is a blessing for the farmers and this institute plays a vital role in introducing modern techniques to the traditional practices in the field of agriculture. Another gigantic structure that adds to the beauty of this city is the State Bank of Pakistan's building located in the heart of the city. Neighboring some other significant structures like Multan Arts Council, Multan Chamber of Commerce, and Sports Complex, the building was completed in 1998 and is an epitome of modernity and adroit architect.

MULLTAN: THE CITY OF SAINTS

Talking about all other metropolitans of Pakistan, Multan is considered to be the most peaceful city, with a well-developed infrastructure. Big investors are now making investments in this city and it is developing rapidly as different housing societies, malls, industries, and restaurant chains are coming to Multan, taking it to the next level of development and modernization. Overall, if you want to connect to the history and enjoy the aspects of the modern world, Multan is definitely one of the best cities to visit in Pakistan.







Muhammad Nawaz Shareef University of Agriculture

The MNS University of Agriculture, Multan (MNSUAM) is an HEC recognized higher education institution established in 2012. Within a short span of time, the University has made rapid progress in terms of expanding its academic programs, students' enrolment, physical infrastructure, campus network, and hiring highly qualified and experienced academic and administrative staff. As a matter of fact, MNSUAM is considered as one of the fastest growing academic institutions of Pakistan, which is evident in the reports and comments made by officials from HEC, NAEAC, Agriculture Department, Representatives of the Government, and local and foreign experts, who visit the varsity from time to time. The main campus of the University is located at Old Shujabad Road, Multan, neighboring several different wings and formations of Punjab Agriculture Department positioned within a radius of 2-3 kilometers. These include Mango Research Institute, Central Cotton Research Institute, Cotton Research Station, Agricultural Mechanization Research Institute, Soil and Water Testing Laboratory, Directorate of Water Management, Agricultural Extension Wing, Pest Warning and Quality Control of Pesticides, Fisheries Department, Federal Seed Certification and Registration Department. All these offices and the University have combined into an "Agriculture Complex" with a common agenda of facilitating the farming community of the region. The University's main campus is spread on an area of 180 acres at a prime location in Multan and consists of purposefully built buildings including Academic Block, Administration Block, Girls and Boys hostels, Library, Faculty and Staff residences etc. For carrying out agricultural research activities, the University has established a separate graduates block, centralized labs system, agricultural farms at the main campus as well as at Jalalpur Pirwala comprising 500 acres.

Over the years, the University has introduced several new degree programs to provide multidisciplinary education to the students with innovative approaches. The University has strengthened its teaching resources by hiring new qualified faculty through regular, TTS and IPFP appointments following a transparent and rigorous process of recruitment. The administrative offices have also been manned with qualified and experienced staff members to provide necessary support to the University for carrying out its functions. The University has instituted a Center for Agricultural Sustainability in South Punjab (CAS-SP) and Department of Outreach and Continuing Education this year to strengthen its research and outreach initiatives. The Office of Research, Innovation and Commercialization (ORIC) is working for capacity building of the faculty for enhancing research activities. The Quality Enhancement Cell (QEC) is mandated to ensure quality teaching and research through continuous assessment for better outcomes. The Directorate of Students Affairs provides all necessary support to students with respect to their admission, selection of subjects, registration, financial support etc., whereas the Career Development Center helps them and suitable jobs after completion of their degrees. It is worth mentioning here that the University manages more than 60 percent of its final semester internships as paid internships which provide an excellent learning environment to the young graduating students.

Muhammad Nawaz Shareef University of Agriculture

Furthermore, overwhelming employability of MNSUAM graduates in the private sector shows the competitive strength of the university graduates. The University regularly conducts national and international events including conferences, seminars, workshops, and festivals. Some activities have now become the trademark of this University such as Dice AFS, Sino-Pak International Cotton Conference, Climate Smart Agriculture Conference, Smart Plant Protection Conference, Spring Festival, Kisan Mela, Fish Mela, Annual Cotton Seminar and Mango Festival. The University has the honor of among the top 5 teams in the national Microsoft Imagine Cup during the last two consecutive years. Acknowledging the efforts for developing a Sustainable Campus, the UI GreenMetric World University Rankings 2023 has ranked MNSUAM at number 1 among the universities across Pakistan. With a vision to highlight a positive image of our country onto the canvas of the world and lure international markets for bilateral trade, investment and business, the University is actively playing its part to explore new horizons for economic betterment of Pakistan.



Academic Activities



Chapter 1 Academic Activities



Chapter 1 Academic Activities



Chapter 1 Academic Activities





CHAPTER-1

ACADEMIC ACTIVITIES

In order to ensure production of trained human resources and to meet a wide array of needs of scientists, experts and extension workers in the rapidly growing agriculture sector, allied trades and industries, the University offers integrated teaching and research programs in agriculture and allied sciences. The University has come a long way from its humble beginning to its current state as an expanded campus with fully operational teaching Labs, research farms, and a well-equipped Graduate Labs Block. During the short span of its existence, the University has escalated its existing academic programs while offering several new degree programs to provide multidisciplinary education to the students with innovative approaches. We relentlessly strive for excellence in all aspects of education, use of modern techniques and embracing relevant innovations, exceptional campus environment, student and community services. University is progressing well in the blended education system. We have put our students' education and experience at the heart of our decision-making. To meet the modern pedagogical standards, we are progressing well in the blended learning system and citizenship education. The faculty, students, and administration are committed to fulfilling their responsibilities to achieve academic aspirations.

1.1. Faculties & Departments

- Faculty of Agriculture and Environmental Sciences
 - Department of Agronomy
 - Department of Horticulture
 - Department of Soil and Environmental Sciences
 - Institute of Plant Breeding and Biotechnology
 - ✓ Biotechnology
 - ✓ Plant Breeding and Genetics
 - ✓ Seed Science and Technology
 - Institute of Plant Protection
 - ✓ Entomology
 - ✓ Plant Pathology
 - ✓ Post-harvest
 - ✓ Weed Science
- Faculty of Agricultural and Bio-Systems Engineering and Technology
 - Department of Agricultural Engineering
- Faculty of Social Sciences and Humanities
 - Department of Agribusiness and Applied Economics
 - Others Supporting Departments
 - ✓ Department of Agricultural Extension
 - ✓ Department of English
 - ✓ Department of Islamic Studies
 - ✓ Department of Outreach and Continuing Education
 - ✓ Department of Statistics
 - Institute of Agribusiness and Entrepreneurship
 - Center for Agricultural Sustainability in South Punjab
- Faculty of Sciences



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- Faculty of Food and Home Sciences
 - Department of Food Science and Technology
 - Department of Human Nutrition and Dietetics
 - Department of Home Sciences
- Faculty of Veterinary and Animal Sciences
 - Department of Anatomy
 - Department of Animal Feed and Production
 - Department of Biochemistry and Biotechnology
 - Department of Clinical Sciences
 - Department of Fisheries and Aquaculture
 - Department of Pathobiology
 - Department of Pharmacology and Physiology
 - Department of Poultry Sciences
- Institute of Computing
 - Department of Computer Science
 - Department of Information Technology
 - Department of AI and Data Science

1.2. Degree Programs Offered

1.2.1. Undergraduate

The undergraduate programs offered by the University with duration and requisite qualification are given below:

Sr. No.	Degree	Academic Qualification	Marks Requirements
1	B.Sc. (Hons.) Agriculture	Intermediate Science (Pre-Medical/ Pre-Engineering)/ Pre Agriculture DAS on reserved seats only	
2	B.Sc. (Hons.) Environmental Science	Intermediate Science (Pre-Medical/ Pre-Engineering)/ or Equivalent qualification	
3	BBA Agribusiness	Intermediate	
4	B.Sc. (Hons.) Agricultural and Resource Economics	Intermediate Science (Pre-Medical/Pre-Engineering) or ICS with Economics or I.COM /A-Level	



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5	BS Computer Science/BS Data Science /BS Information Technology	1. F.Sc. (Pre -Engineering/Pre-Medical)/ ICS/ A-level students (with Mathematics/Biology) 2. Minimum 50% marks in intermediate 3. DAE (specialized in electrical, mechanical, electronics and Telecommunication) (two (02) reserved seats only). Note: Students of F.Sc. (Pre -Medical)/ A-level students (with Biology) must have to take deficiency courses of Mathematics of 6 credit hours within one year of their regular studies.	
6	B.Sc. (Hons.) Home Economics	F.Sc. Pre -Medical/ Pre Engineering/ FA Home Economics/A-Level	Minimum 50% of total mark
7	B.Sc. Agro-Industrial Engineering Technology	F.Sc. (Pre -Engineering, Pre-Medical, Pre-Agriculture)/ICS/A-Level/DAE (Three Years)	
8	BS Poultry Science	F.Sc. (Pre -medical) Candidates having F.Sc. Pre -Engineering with 50 % marks will be eligible subject to study deficiency course in Biology BIO-301, 3(2-1) (Essentials of Biology) Candidates having F.Sc. Pre -Agriculture with 50 % marks will be eligible subject to study deficiency course in Biology BIO-301, 3(2-1) (Essentials of Biology)	
9	B.Sc. (Hons.) Animal Science	A candidate must have passed F. Sc. (Pre -Medical) or standard equivalent examination with at least 50% marks from University or Boards with Physics, Chemistry, Biology. Candidates having F.Sc. Pre -engineering and FSC Pre -Agriculture degree are eligible for admission subject to qualify the deficiency course in Biology: Essentials of Biology BIO-301, 3(2-1).	
10	BS Microbiology	Intermediate science (Pre-medical) or Equivalent with 50% marks	
11	BS Zoology	F.S.c. (Pre -Medical) or Equivalent with 50% marks	
12	BS Biochemistry	F.Sc. (Pre -Medical) or Equivalent with 50% marks	
13	BS MLT	F.Sc. (Pre -Medical) or Equivalent with 50% marks	
14	BS Public Health	FA/F.Sc. (Pre -Medical) Pre-Engineering) or Equivalent with 50% marks	
15	BS Biotechnology	F.Sc. (Pre -Medical) or Equivalent with 50% marks	
16	B.Sc. (Hons.) Human Nutrition and Dietetics	Intermediate science (Pre-medical), A-Level	Minimum 60% of total marks



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1.2.2. Postgraduate

Sr. No.	Degree/ Discipline	Program	Duration (Semester)		Eligibility Criteria
			Minimum	Maximum	
1	M.Sc. (Hons.) Agronomy, Entomology, Horticulture, Human Nutrition and Dietetics, Food Science and Technology, Postharvest Management Technology, Plant Breeding and Genetics, Plant Pathology, Soil Science, Weed Science	Regular	4	6	<ul style="list-style-type: none"> B.Sc. (Hons.) Agri. with major in relevant field of study from any HEC recognized university / DAIs. At least Second Division or CGPA not less than 2.50 / 4.00. Qualified Entry Test
2	Master of Science (Hons.) Agriculture Economics	Regular	4	6	<ul style="list-style-type: none"> B.Sc. (Hons.) Agricultural Economics / B.Sc. (Hons.) Agriculture and Resource Economics / BBA Agribusiness / BS Agribusiness and Marketing At least Second Division or CGPA not less than 2.50 / 4.00 Qualified Entry Test
3	M.Sc. (Hons.) Seed Science and Technology	Regular	4	6	<ul style="list-style-type: none"> B.Sc. (Hons.) with major in Seed Science and Technology, Agronomy, Entomology, Food Science & Technology, Horticulture, Plant Breeding & Genetics, Soil Science, Biotechnology, Plant Pathology, from HEC recognized Universities/DAIs. (Deficiency courses will be offered to the admitted students on the recommendation of the



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					<ul style="list-style-type: none"> department if required) At least Second Division/CGPA not less than 2.50 / 4.00. Qualified Entry Test
4	Master of Science (MS) Zoology	Regular	4	6	<ul style="list-style-type: none"> A candidate must have BS/BSc (Hons) or equivalent degree with minimum CGPA 2.50/4.00 2nd Division. Qualified Entry Test
5	Master of Science (Hons.) Biotechnology	Regular	4	6	<ul style="list-style-type: none"> B.Sc. (Hons.) Agriculture with all majors/ BS or M.Sc. in relevant subject from HEC recognized Universities/DAIs. (Deficiency courses will be offered to the admitted students on the recommendation of the department if required) At least Second Division or CGPA not less than 2.50 / 4.00. Qualified Entry Test
6	M.Sc. (Hons.) Climate Change	Regular	4	6	<ul style="list-style-type: none"> Sixteen years of Education in any of the following disciplines: Agricultural Sciences (All majors)/ B.Sc. (Hons.) Soil and Environmental Sciences/ Agri. Engineering/Environmental Engineering/ Environmental Sciences, /Agri. Economics / Food Science and Technology/ Dairy Technology/ Dairy Science and Technology/ DVM / Animal Husbandry/ Poultry Sciences/ Fisheries/ Agri. Business with minimum CGPA:



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					2.50/4.00 or at least 2nd division.
					<ul style="list-style-type: none"> • (Deficiency courses will be offered to the admitted students on the recommendation of the department if required) • Qualified Entry Test
7	Master of Science (Hons.) Agricultural Extension	Regular	4	6	<ul style="list-style-type: none"> • A minimum CGPA of 2.50 out of 4.0 in semester system with 4 years Bachelor B.Sc. (Hons) Agriculture Extension or any major of Agriculture. • Student having B.Sc. (Hons) Agriculture other than Agricultural Extension major will have enroll deficiency courses as per recommendation of supervisory committee with approval of BoS. • Qualified Entry Test
8	Master of Science (Hons.) Agro-Industrial Engineering Technology	Regular	4	6	<ul style="list-style-type: none"> • Four years Bachelor's degree in Agro-Industrial Engineering Technology, Industrial Engineering Technology, Chemical Engineering Technology, Mechanical Engineering Technology, Food Science and Technology, Energy Engineering Technology and Industrial Engineering, Industrial Manufacturing Engineering, Industrial Engineering Management, Agricultural Engineering, Chemical Engineering, Mechanical Engineering, Energy Systems/Energy Engineering, Environmental



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						Engineering, Food Engineering from HEC recognized University/Institute.
						<ul style="list-style-type: none"> Minimum CGPA of 2.50 out of 4.0 in four-year bachelor's degree programs. Students from the annual system must have a minimum score of 60%. The percentage score will be considered only if the CGPA is not recorded/mentioned on the transcript.
						<ul style="list-style-type: none"> Qualified Entry Test
9	Master of Science (Hons.) Energy System Engineering	Regular	4	6		<ul style="list-style-type: none"> Eligibility Criteria for Master of Science (Hons.) Energy Systems Engineering Entry/Admission Requirement All four year Engineering Programs accredited by Pakistan Engineering Council Minimum CGPA of 2.50 out of 4.00 and Student from annual system have minimum score of 60%
						<ul style="list-style-type: none"> Qualified Entry Test
10	Master of Science (Hons.) Agricultural Engineering	Regular	4	6		<ul style="list-style-type: none"> Four years bachelor's degree in Agricultural/Civil/Mechanical/ Water Resource Engineering from HEC recognized University/ Institute. Minimum CGPA of 2.50 out of 4.0 in bachelor's degree programs. Student from annual system must have minimum score of



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11	Master of Science (MS) Computer Science	Regular	4	6	<p>60%. The percentage score will be considered only if the CGPA is not recorded/mentioned on the transcript.</p> <ul style="list-style-type: none"> • Qualified Entry Test • BS (CS) 4-Years Degree Program (minimum 130 credit hours), or Computer Science Conversion Course 2 Years Degree Program referred to as "MCS" or M.Sc. (Computer Science). • BCS 3-Years Degree Program-Student will be required to complete the deficiency of difference of total earned credit hours and 130 credit hours. • Candidates having Computer Engineering/Bachelor of Science in Software Engineering / Bachelor of Science in Information Technology / Bachelor of Engineering in Information Technology / Bachelor of Engineering (Computer & Information System) / B.Sc. Computer System Engineering (16-year education) and MIT are also eligible but have to qualify deficiency course(s). Deficiency courses will be offered to admit students by the departmental committee in the light of HEC guidelines. • All degrees should be from HEC recognized Universities/DAIs.
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12	MS (Specialization Agribusiness)	Management in	Regular	4	6	<ul style="list-style-type: none"> • At least Second Division/CGPA not less than 2.50 / 4.00. • Qualified Entry Test
						<ul style="list-style-type: none"> • BBA (Agribusiness)/B.Sc. (Hons.) Agricultural Economics / Agricultural and Resource Economics, Marketing and Agribusiness Major. (Four years degree programs) • MBA (Agri. Business) (two years degree program) • M.Sc. (Economics) (with deficiency courses of one semester as decided by the department) • General BBA (4-year) (with deficiency courses of one semester as decided by the department) • B.Sc. (Hons .) Agri. (all other majors)/ B.Sc. (Hons.) A.H./ DVM/ B .Sc. (Hons.) Food Sciences/ B.Sc. (Hons.) Agri. Engineering (with deficiency courses of one semester as decided by the department). • BS Agribusiness and Marketing (4 -year degree program). • All degrees should be from HEC recognized Universities/DAIs. • At least Second Division/CGPA not less than 2.50 / 4.00. • Qualified Entry Test



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13	Master of Science (MS) Poultry Science	Regular	4	6	<ul style="list-style-type: none"> B.Sc. (Hons.)/ BS Poultry Science, B.Sc. (Hons.) Agriculture Sciences with Animal Sciences as major subject, B.Sc. (Hons.) Animal Sciences or DVM (registered with veterinary council) with 2.5/4.00 CGPA or 2nd Division Qualified Entry Test
14	Master of Science (MS) Fisheries and Aquaculture	Regular	4	6	<ul style="list-style-type: none"> A candidate must have BS /B.Sc. (Hons.)/ M.Sc. Zoology, Marine Sciences, Applied Microbiology, Biotechnology, B.Sc. (Hons) Animal Sciences, DVM (registered with veterinary council) or *equivalent degree with minimum CGPA 2.5/4.00. or 2nd Division Qualified Entry Test *Equivalence status will be determined by the department.
15	Master of Science (MS) Public Health	Regular	4	6	<ul style="list-style-type: none"> DVM (registered with veterinary council), BSc (Hons)/ BS in Animal Sciences/Human Nutrition and Dietetics/ Food Technology/ Microbiology/Biochemistry / Zoology or equivalent degree with 2.5/4.00 CGPA MBBS/BDS (registered with PMDC)- (16 years) BS/B.Sc. (16-years) in Nursing, Pharm-D or *equivalent (Registered with Pharmacy Council) B.Sc. Paramedic (4-Yrs), BS Physiotherapy or



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					<ul style="list-style-type: none"> *equivalent. • At least Second Division/CGPA not less than 2.50 / 4.00. • Qualified Entry Test • * Equivalence status will be determined by the department
16	Doctor of Philosophy (Ph.D.) Agronomy, Entomology, Horticulture Food Science and Technology, Plant Breeding and Genetics, Plant Pathology, Soil Science, Human Nutrition and Dietetics, Agriculture Economics, Biotechnology, Zoology, Seed Science and Technology	Regular	6	10	<ul style="list-style-type: none"> • M.Sc. (Hons.) / M.Phil. / MS (18 years of education) in relevant subject from HEC recognized Universities/DAIs. • First Division/CGPA not less than 3.0/4.0 • Qualified Entry Test/Subject GRE • A Research proposal.
17	Doctor of Philosophy (Ph.D.) Computer Science	Regular	6	10	<ul style="list-style-type: none"> • To be eligible for admission in PhD, a candidate shall possess MS/ MPhil degree in (Computer Science, Information Technology, Software Engineering Data Science, Information Security, Artificial Intelligence. Computer & Information System and Engineering) subject from recognized universities/DAIs. • Minimum CGPA of 3.00/4.00 in Semester System and 70% in Annual System. • Qualified Entry Test/Subject GRE • A Research proposal



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1.3. Directorate of Graduate Studies

1.3.1. Mission

The mission of the Directorate of Graduate Studies is to streamline the admission and research process of postgraduate students and provide all possible guidelines regarding course work, GS-10, synopsis and thesis preparation and submission. Moreover, to facilitate the students timely collection, approval and processing of their documents.

1.3.2. Vision

To enhance the quality of research, to automate the system of admission of postgraduate students and minimize the document's processing time through the use of available technology.

1.3.3. Functions

- To process the approval of new/revised postgraduate courses through Graduate Study Research Board (GSRB)/Board of Advanced Studies and Research (BASR).
- Processing of applications for admission to M.Sc., M. Phil./MS/M.Sc. (Hons.) and Ph.D. programs.
- Collection of course work and enrolment forms (GS/10) of postgraduate students in each semester.
- Scrutiny of the synopsis and thesis, course work and supervisory committees of M.Sc./MS/M.Sc. (Hons.) and Ph.D. students and arranging their approval by BASR.
- Scrutiny of the thesis of postgraduate students to ensure their proper format as laid down by BASR.
- Preparation of agenda and conduct of meetings of BASR.
- Execution of the policies and decisions of BASR.

1.4. Graduate Resource Center

MNS University of Agriculture Multan initiated a novel initiative in the form of a Graduate Resource Center (GRC) during October 2017 after discussion and approval of the Executive Committee of the University. The GRC is an interdisciplinary platform to break the barriers between the graduate students of different subjects of agricultural and allied sciences for their scientific and professional skills developments. The GRC performs activities under the umbrella of Directorate of Graduate Studies and emphasizes on four major sections:

- a) Postgraduate research skills development
- b) Scientific/community seminars
- c) Leadership and interpersonal skills development
- d) Annual graduate research day with a slogan to "make your research visible"

1.4.1. Aims

The program aims to enhance the quality of graduate training to make young researchers effective intellectuals and growing leaders to cope with challenges of the agriculture market in the country and around the world.

1.4.2. Functions

- Graduate Resource Center activities are held every Wednesday at 9:40 a.m. in seminar Hall of the University or via online platforms like Zoom.
- Membership and participation of all PhD scholars at MNSUAM is compulsory, while all interested master or undergraduate students can participate voluntarily.



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- All faculty members and scientists from South Punjab Agriculture Forum can contribute and participate voluntarily.
- The Year 2023 was rightly utilized by GRC to develop the post graduates skills and to make them able to cope with current scientific scenario and also providing them effective systems and leadership for professional learning. More than 2000 persons attended the sessions across the year.

1.4.3. Activities of Graduate Resource Center

Ph.D. Thesis Defense /Synopsis Defense

Ph.D. Synopsis Defense	Acclimatization and optimization of plant nutrition and post-harvest practices for <i>Pepino Melon</i> cultivars Ms. Asia Bibi (2021-uam-3703), Ph.D. Scholar in the Department of Horticulture, MNSUAM	04.07.2023
Ph.D. Thesis Defense	Effect of tillage and organic amendments on soil health and productivity of cotton-wheat cropping system. Mr. Hafiz Muhammad Waleed Iqbal (2018-uam-1012), Ph.D. Scholar in the Department of Agronomy, MNSUAM	21-08-2023
Ph.D. Thesis Defense	Genetic basis of heat tolerance and characterization of BAG gene family in maize Mr. Babar Farid (2017-uam-925) Ph.D. scholar in the Institute of Plant Breeding and Biotechnology, MNSUAM	28-08-2023
Ph.D. Thesis Defense	Use of Soil Survey to define soil management areas for site specific farming in Tehsil Jalalpur Pirwala Mr. Muhammad Ashfaq (2017-uam-925), Ph.D. scholar in the Department of Soil and Environmental Sciences, MNSUAM	30-08-2023
Ph.D. Thesis Defense	Expression analysis of HaTIP genes in sunflower under water deficit environment Ms. Tania Safdar (2018-uam-908), Ph.D. Scholar in Institute of Plant Breeding and Biotechnology, MNSUAM	27-10-2023
Ph.D. Thesis Defense	Improving phosphorus nutrition in cotton through thermo-tolerant phosphorus solubilizing bacteria and biochar Mr. Suleman Haider Shah (2018-uam-914), Ph. D scholar in the Department of Soil and Environmental Sciences, MNSUAM	17-11-2023
Ph.D. Thesis Defense	Genetic diversity of sea-buckthorn and wheat for iron, zinc, vitamin C and water use efficiency Ms. Sadia Hakeem (2014-uam-02), Ph.D. scholar in the Institute of Plant Breeding and Biotechnology, MNSUAM	10-01-2024
Ph.D. Synopsis Defense	Exploring the nutritional and functional properties of legume protein-based meat analogues Ms. Ushna Momal (2016-uam-166), Ph.D. scholar in the Department of Food Science & Technology, MNSUAM	18-01-2024
Ph.D. Synopsis Defense	Characterization of causal agents and epidemiological factors of cotton blackening and its management Ms. Iqra Mushtaq (2020-uam-2741), Ph.D. scholar in the Institute of Plant Protection, MNSUAM	18-01-2024



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Pre- Ph.D. Thesis Defense	Microbial Management of Fungus Growing Termites: <i>Odontotermes</i> spp Ms. Hafiza Tahira Gul (2017 -uam-921), Ph.D. scholar in the Institute of Plant Protection, MNSUAM	19-01-2024
Ph.D. Synopsis Defense	Genetic evaluation of <i>Gossypium hirsutum</i> L. for thermo-tolerance and yield related traits. Mr. Muhammad Asim Bhutta (2022 -uam-3704), Ph.D. scholar in the Institute of Plant Breeding and Biotechnology, MNSUAM	22-01-2024
Ph.D. Thesis Defense	Potential of Buckwheat as multipurpose crop under agroclimatic conditions of Multan. Mr. Mahmood Alam Khan (2018-uam-1013), Ph.D. scholar in the Department of Agronomy, MNSUAM	22-01-2024
Ph.D. Synopsis Defense	Genomics and Metabolomics approaches to study cotton leaf curl disease resistance Mr. Zulqarnain Abbas (2014-uam-69), Ph.D. scholar in the Institute of Plant Protection, MNSUAM	26-01-2024
Ph.D. Synopsis Defense	Genome wide association studies for mapping genetic variation associated with grain yield contributing traits in bread wheat. Ms. Fatima Javeria (2019-uam-2720), Ph.D. scholar in the Institute of Plant Breeding and Biotechnology, MNSUAM	29-01-2024
Ph.D. Synopsis Defense	Immunomodulatory effects of Asteraceae perennial herbal extracts for food application Mr. Ali Hamza (2019-uam-2790), Ph.D. scholar in the Department of Food Science & Technology, MNSUAM	30-01-2024
Ph.D. Synopsis Defense	Formulation and Evaluation of Phosphorus-Solubilizing Bacteria for Efficient Phosphorus Utilization in Maize Ms. Marina Qayyum (2014-uam-151), Ph.D. scholar in the Department of Soil and Environmental Sciences, MNSUAM	01-02-2024
Ph.D. Synopsis Defense	Value addition of mango using foam mat drying technique Mr. Naqi Abbas (2019-uam-2791), Ph.D. scholar in the Department of Food Science & Technology, MNSUAM	02-02-2024
Ph.D. Synopsis Defense	Screening of rice residue decomposing bacteria for improving soil fertility and wheat yield Name: Mr. Muhammad Saleem Ullah (2019-uam-2701), Ph.D. scholar in the Department of Agronomy, MNSUAM	16-02-2024
Ph.D. Synopsis Defense	Genetic variability and nanoparticles-based management of mungbean infecting begomoviruses Ms. Seema Kanwal (2016-uam-84), Ph.D. scholar in the Institute of Plant Protection, MNSUAM	16-02-2024
Ph.D. Synopsis Defense	Postharvest Management of Fruit Softening and Quality of Jamun (<i>Syzgium cumini</i> Skeels) Ms. Farzana Rafeeq (2016-uam-153), Ph.D. scholar in the Department of Horticulture, MNSUAM	29-02-2024
Ph.D. Synopsis Defense	Exploring Genetic Variability and Nanoparticles Based Management of Mungbean Infecting Begomoviruses Name: Ms. Seema Kanwal (2016-uam-84), Ph.D. scholar in the Institute of Plant Protection, MNSUAM	20-03-2024



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Ph.D. Synopsis Defense	Integrated Approaches for Containerized Mango Nursery Production Mr. Muhammad Umair (2015-UAM-316), Ph.D. scholar in the Department of Horticulture, MNSUAM	21-03-2024
Ph.D. Synopsis Defense	CRISPER mediated metabolic engineering of monoterpenes biosynthetic pathway in cotton for insect tolerance Ms. Zarmeena Amjad (2018-uam-944), Ph.D. scholar in the Institute of Plant Breeding and Biotechnology, MNSUAM	07-05-2024
Ph.D. Thesis defense	Bio effector as a modulator of heat stress in wheat Ms. Zahra Batool (2014-uam-197), Ph.D. scholar in the Department of Soil and Environmental Sciences, MNSUAM	17-05-2024
Ph.D. Thesis defense	Improving Soybean Heat Tolerance through Biostimulant and Nutrients Application in Maize-Soybean Intercropping System Mr. Sohail Irshad, (2020-uam-3701), Ph.D. scholar in the Department of Agronomy, MNSUAM	31-05-2024
Ph.D. Thesis defense	Evaluation and Management of Cluster Bean (<i>Cyamopsis tetragonoloba</i> L.) Genotypes Under Salt Conditions Mr. Shahzad Ahmad Junaid (2017-uam-917), Ph.D. scholar in the Department of Agronomy, MNSUAM	03-06-2024
Ph.D. Synopsis defense	Anti-diabetic potential of flavonoids from the peel of local citrus cultivar Ms. Areeba Usman (2022-uam-3712), Ph.D. scholar in the Department Human Nutrition and Dietetics, MNSUAM	04-06-2024
Ph.D. Thesis defense	Genetic variability and spatiotemporal dynamics of major RNA viruses infecting onion and garlic crops in Punjab, Pakistan Mr. Muhammad Zubair Hamza (2019-uam-903), PhD scholar in the Institute of Plant Protection, MNSUAM	05-06-2024
Ph.D. Thesis defense	Monitoring and Biological Risk Management Mr. Adnan Fareed, Ph.D. scholar in the Department of Soil and Environmental Sciences, MNSUAM	07-06-2024
Ph. D. Synopsis defense	Multi-omic integration of Polyacrylamide treated tomato under water deficit Ms. Sawera Rehman, Ph.D. scholar in the Department of Horticulture, MNSUAM	24-06-2024
Ph. D. Synopsis defense	Exploring the potential of Moringa oleifera to enhance infant nutrition Ms. Rimsha Umar (2015-UAM-354), Ph.D. scholar in the Department of Food Science and Technology, MNSUAM.	28-06-2024
Ph. D. Synopsis defense	Extraction and application of Bitter Apple's cucurbitacin to combat diabetes Ms. Noshaba Fiaz (2019-uam-2783), Ph.D. scholar in the Department of Food Science and Technology, MNSUAM	28-06-2024



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Scholarship Awareness

Webinar	Undergraduate Exchange Program UGRAD Scholarship Application Dr. Fawad Ahmad Khan -Fulbright Alumnus and Assistant Professor, MNSUAM Dr. Haleema Qamar is serving at Habib University Karachi as an Assistant Professor in Dhanani School of Science and Engineering. She is also a UGRAD alumnus at Florida Gulf Coast University, USA.	05-09-2023
Webinar	SUSI (Study of the U.S. Institutes) exchange program Mr. Hamza, a distinguished alumnus of MNSUAM	11-10-2023
Webinar	Fulbright Scholarship 2025 Application Process Dr. Fawad Ahmad Khan -Fulbright Alumnus and Assistant Professor, MNSUAM	14-12-2023
Webinar	How to prepare yourself to get Erasmus+ Exchange Student Program Ms. Eisha Hassan student of M.Sc. (Hons.) Food Science & Technology, MNSUAM	03-01-2024
Webinar/ Seminar	IVLP Reflections: Connecting Cultures, Building Bridges Dr. Muhammad Asaf Khan, Associate Professor at Institute of Plant Breeding and Biotechnology, MNSUAM	11-01-2024
Webinar/ Seminar	Turkish Scholarship for master's and Ph.D. Studies and Visa Process Dr. Muhammad Nadir Naqqash, Assistant Professor at Institute of Plant Protection, MNSUAM.	26-06-2024

Seminar/Webinars (National)

Webinar	ChatGPT Pros and Cons Dr. Zaheer Ahmad, Head Learning Resource Center (LRC) University of Management and Technology (UMT), Lahore	19-07-2023
Webinar	A multi-omics Integrative Network Map of Maize Mr. Babar Farid, Lecturer, at Institute of Plant Breeding and Biotechnology MNSUAM	02-08-2023
Webinar	A Preliminary Overview of WGS Data Analyses of 40 Pakistani Cotton Varieties Dr. Muhammad Faisal, Assistant Professor, at Institute of Plant Breeding and Biotechnology, MNSUAM	09-08-2023
Webinar	One Health Approach to Address Sewerage Water Pollution in Irrigation Canals in Multan Dr. Ahmad Mahmood, Assistant Professor, at Department of Soil and Environmental Sciences, MNSUAM	23-08-2023
Webinar	Modeling for Research and Decision Making in Agriculture Dr. Muhammad Habib Ur Rahman, Associate Professor (Seed Science & Technology), at Institute of Plant Breeding and Biotechnology, MNSUAM.	30-08-2023
Webinar	Mitigation of Salinity-Induced Negative Effects on Soybean Germination and Growth by Calcium Application and Metal Oxide Nanoparticle Mediates Resistance to <i>F. oxysporum</i> in Soybean (<i>Glycine max</i>) Anam Masood and Farah Masood MSc (Hons) Biotechnology student at Institute of Plant Breeding and Biotechnology, MNSUAM	13-09-2023



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Webinar	Challenges and Prospects of Colored Cotton for Textile Industry Dr. Akash Fatima, Assistant Professor, at Institute of Plant Breeding and Biotechnology, MNSUAM	27-09-2023
Webinar	Critical Thinking and Research Philosophy Dr. Amar Matloob, Associate Professor, at Department of Agronomy, MNSUAM.	04-10-2023
Webinar	Regenerative Agriculture Dr. Muqarrab Ali, Assistant professor, at Department of Agronomy, MNSUAM	08-11-2023
Webinar	Housefly: A global pest of public health importance Dr. Nadir Naqqash, Assistant Professor, Entomology Institute of Plant Protection, MNSUAM	15-11-2023
Webinar	SMOG - Causes, Impacts, Management, Mitigation Strategies, Solutions Dr. Ahmad Mahmood, Assistant Professor, at Department of Soil and Environmental Sciences, MNSUAM	06-12-2023
Webinar/ Seminar	Emerging Mango Industry and Recent Trends in Pakistan The Department of Horticulture MNS University of Agriculture, Multan	14-12-2023
Webinar	How to Keep Indoor Plants Healthy Dr. Gulzar Akhtar, Assistant professor, at Department of Horticulture, MNSUAM	19-12-2023
Webinar	Smart Irrigation system for yield assessment of Zea Mays L. under varied water application Mr. Altaf Hussain, student in Institute of Computing, MNSUAM	20-02-2024
Webinar	Hermetic Seed Storage Technology for enhancing Seed Storage Life Mr. Muhammad Muazzam, Institute of Plant Breeding and Biotechnology, MNSUAM	06-03-2024
Webinar/ Seminar	Industry Collaborative Innovative Research Ideas for potential funding from PSF Prof. Dr. Junaid Ali Khan (PO -ORIC), Office of Research, Innovation and Commercialization (ORIC), MNSUAM	13-03-2024
Webinar/ Seminar	Management of Dengue Mosquitoes using Cigarette Butt Waste Mr. Zain Khizar, M.Sc. student in Institute of Plant Protection, MNSUAM	13-03-2024
Webinar	Criteria to Select HEC Recognized Journals for the Award of PhD Degree at MNSUAM Dr. Mohsin Nawaz, Department of Agricultural Engineering and representative from the Directorate of Graduate Office, MNSUAM	24-04-2024
Webinar/ Seminar	Usage of GraphPad prism (Software to present data in graphical form) Ms. Misbah Ul Ain, Institute of Plant Breeding and Biotechnology, MNSUAM	15-05-2024

Seminar/Webinar (International)

Webinar/ Seminar	First International Congress on Biotech Solutions for Sustainability in collaboration with Gebze Technical University, Kocaeli, TURKIYE Institute of Plant Breeding and Biotechnology, MNSUAM	08-05-2024 09-05-2024 10-05-2024
Webinar	Biomass from Energy Crops: an Untapped Resource for the Bioeconomy Speaker: Dr. Yasir Iqbal (Associate Professor in Hunan Agricultural University)	15-05-2024



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Awareness sessions

Webinar	Unethical Behavior a Way of Harassment at Workplace Dr. Plosha Khanum, Lecturer, at Institute of Plant Breeding and Biotechnology, MNSUAM.	18-10-2023
Webinar	Building Confidence for Public Speaking Ms. Saira Fatima, student at Institute of Plant Breeding and Biotechnology, MNSUAM	01-11-2023
Webinar	Rules of Thumb for Writing Research Articles Ms. Amna Kiran, Student of M.Sc. (Hons.) Plant Breeding and Genetics at Institute of Plant Breeding and Biotechnology, MNSUAM	24-01-2024
Webinar	Revolutionizing Food Industry with Blockchain Transparency Ms. Nimra Khan, Institute of Computing, MNSUAM	28-02-2024
Webinar/ Seminar	Documents Attestation Process for Scholarships Mr. Muhammad Usama Hasnain student of MSc (Hons) Plant Breeding and Genetics at Institute of Plant Breeding and Biotechnology, MNSUAM	20-03-2024

1.5. Academic Calendar (2023-24)

Sr. No.	Particulars/ Activity	Date
A	Enrollment Winter Semester 2022-2023	04-09-2023 to 12-09-2023
1.	Commencement of Classes	11-09-2023
2.	Mid-Term Examination	06-11-2023
3.	Final Term Examination	08-01-2024
4.	Break	20-01-2024 to 28-01-2024
B	Enrollment Spring Semester 2023	29-01-2024 to 02-02-2024
1.	Commencement of Classes	05-02-2024
2.	Mid-Term Examination	01-04-2024
3.	Final Term Examination	03-06-2024
4.	Break	15-06-2024 to 23-06-2024
C	Enrollment Summer Session 2023	24-06-2024 to 28-06-2024
1.	Commencement of Classes	24-06-2024
2.	Mid-Term Examination	22-07-2024
3.	Final Term Examination	19-08-2024
4.	Break	24-08-2024 to 01-09-2024



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1.6. Academic Achievements

- All ongoing postgraduate programs have attained NOC from HEC
- HEC Undergraduate Education Policy v. 1.1 has been opted at University level for all ongoing and future undergraduate degree programs. Scheme of studies have been thoroughly revised in alignment with the aforementioned policy and have been approved from statutory bodies after due deliberation.
- All ongoing B.Sc. (Hons.) Agriculture programs have been accredited by National Agriculture Education Accreditation Council (NAEAC)
- Initiation of online classes through Learning Management System, and video conferencing tools like Zoom and Google Meet for all courses in accordance with the “Online Preparedness Guidelines” of HEC and University's SoPs.
- Following new undergraduate degree programs have been approved by Academic Council:
 - ✓ BS Biotechnology
- Following new postgraduate programs were launched
 - ✓ M.Sc. (Hons.) Agricultural Extension
 - ✓ M.Sc. (Hons.) Agro-Industrial Engineering Technology
 - ✓ M.Sc. (Hons.) Biotechnology
 - ✓ M.Sc. (Hons.) Energy System Engineering
 - ✓ MS Zoology
 - ✓ Ph.D. Biotechnology
 - ✓ Ph . D. Computer Science
 - ✓ Ph.D. Zoology
- Following Diploma Program has been launched by FVAS
 - ✓ Three year's Livestock Assistant Diploma in Collaboration with Xinjiang Agricultural Vocational Technical College (XAVTC), China
- MOU signed with Association of Biorisk Management and Faculty of Veterinary and Animal Sciences MNSUAM for future mutual collaborative work.
- The Faculty of Social Sciences got approval from Academic Council to start MBA as a new postgraduate program.
- The FSS&H got approval from the Academic Council for the establishment of the Institute of Agricultural Economics (IAE) and the Institute of Agribusiness and Entrepreneurship Development (IAED) .
- Successful completion of the Review Meetings of NCEAC for BS Information Technology degree programs.
- The numbers of faculty members have been increased to 149 (102 Ph.D. and 47 Non Ph.D.).

1.7. Foreign Academic Linkages

1.7.1. Faculty of Agriculture and Environmental Sciences

- University of California Davis, USA
- Iowa State University, USA



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ACADEMIC ACTIVITIES

- Razbio Ltd., UK
- Swansea University, UK
- University of Greenwich, UK
- Hochschule Geisenheim University, Germany
- Uni kassel Versitat, Germany
- University of Bonn, Germany
- Huazhong Agricultural University, Wuhan, China
- Industrial Crop Research Institute (ICRI), Yunnan Academy of Agri. Sci., China
- HortResearch, South Africa
- College of Agriculture and Biotechnology, Zhejiang University, China
- School of Environmental Science and Engineering, Shandong University, China
- Tonglu County local/district government, Zhenjiang, China
- BGI Genomics Co., Ltd. China
- Biotechnology Research Institute Chinese Sciences of Agricultural Science Beijing, China
- Tianjin Modern Vocational Technology College, China
- Sivas University of Science and Technology Sivas, Türkiye
- Okinawa Institute of Science and Technology School Corporation, Japan
- University of Tasmania, Australia
- Australian Centre for International Agricultural Research
- National Agricultural Technology Institute Cordoba, Argentina
- Ghazi University Ankara, Türkiye
- Department of Plant Protection, Higher Educational Complex of Saravan, Islamic Republic of Iran
- Silk Road Asia Europe University Alliance (Vocational Educational)

1.7.2. Faculty of Social Sciences and Humanities

- ACIAR
- Charles Sturt University, Australia
- Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia
- Monash University, Australia
- Murdoch University, Australia
- University of Adelaide, Australia
- University of Canberra, Australia
- Osmaniye Korkut Ata University, Türkiye
- Selcuk University, Türkiye
- Istanbul Gelisim University, Türkiye
- Kırşehir Ahi Evran University, Türkiye
- ICBA, UAE
- Distinguished Innovation Collaboration and Entrepreneurship (DICE), USA
- Wuhan University of Technology, China

1.7.3. Faculty of Agricultural, Biosystems Engineering and Technology

- Kyungpook National University, South Korea



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1.7.3. Faculty of Agricultural, Biosystems Engineering and Technology

- Kyungpook National University, South Korea
- Universiti Putra, Malaysia
- University of Agriculture in Krakow, Poland
- Agricultural Research Center of the Ministry of Agriculture and Land Reclamation, Egypt
- Kyungpook National University, South Korea
- Universitas Sebelas Maret, Indonesia
- Kyushu University, Japan
- Yunnan University Kunming, China
- SKF Boilers and Dryers Manufacturer International, Mangalore, Karnataka, India

1.7.4. Faculty of Veterinary and Animal Sciences

- Eberswalde University of Sustainable Development, Germany
- Faculty of Pharmacy, University of Copenhagen, Denmark
- Xinjiang Agricultural Vocational Technical College, China

1.7.5. Faculty of Food and Home Sciences

- University of Minnesota, USA
- Hunan University of Science and Engineering, China (MOU)
- Analysis and Testing center (ATC) Chinese Academy of Tropical Agriculture (CATAS), China

1.8. Institutional Linkages

1. Agricultural Mechanization Research Institute, Multan
2. Air University, Multan Campus
3. Ali Akbar Group of Industries
4. AMRI, Multan
5. Association of Biorisk Management, Peshawar
6. Ayub Agricultural Research Institute, Faisalabad
7. Bahauddin Zakariya university, Multan
8. Bayer Crop Science
9. Best Technologies, Multan
10. Central Cotton Research Institute, Multan
11. Centre for Global Strategic Studies, Islamabad
12. COMSATS University, Islamabad
13. Cotton Research Institute, Multan
14. CropLife Pakistan, Karachi
15. Dept. of Civil Engg., NUST
16. Doaba Foundation



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17. Engro Fertilizers Ltd., Pakistan
18. Evyol Group of companies
19. FAO, Pakistan
20. Fatima Fertilizers Company Ltd., Pakistan
21. Federal Urdu University of Arts, Sciences & Technology, Islamabad
22. Federation of Pakistan Chambers of Commerce & Industry, Karachi
23. Food and Agriculture Organization of the United States
24. GIFT University, Gujranwala
25. Horticulture Research Station, Bahawalpur
26. Islamia University, Bahawalpur
27. Jaffer Agro Services (Pvt.) Ltd.
28. Japan Machine Ltd.
29. Khawaja Fareed University of Engineering and Information Technology, Rahim Yar Khan
30. Mango Research Institute, Multan
31. Mehran University of Engineering and Technology, Jamshoro
32. MNS University of Engineering and Technology, Multan
33. National University of Science and Technology, Islamabad
34. National Vocational and Technical Training Commission
35. NCBA&E, Multan Campus
36. Nestle, Pakistan
37. NFC Institute of Engineering and Technology, Multan
38. Nishtar Medical University, Multan
39. Noori Agrolines, Multan
40. Pakistan Crop Protection Association, Multan
41. Pakistan Institute of Development Economics, Islamabad
42. Pakistan Meteorology Department, Islamabad
43. Pesticide Quality Control Lab, Multan
44. Potato Research Institute, Sahiwal
45. Punjab Irrigation Research Institute, Lahore
46. Punjab Mango Research and Development Board
47. Punjab Postharvest Research and Development Board
48. Qayyum & Company
49. Roomi Foods (Pvt.) Ltd.
50. SAWIE systems
51. Shahid Javed Burki Institute of Public Policy, Lahore
52. Soil and Water Testing Laboratory, Multan
53. Syngenta Pakistan Limited
54. The Govt. Sadiq College Women University, Bahawalpur
55. U.S.-Pakistan Centre for Advanced Studies in Energy
56. University of Agriculture, Faisalabad
57. University of Education, Multan
58. University of Engineering and Technology (UET), Lahore
59. Women University, Multan



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ACADEMIC ACTIVITIES

60. Karakoram International University Gilgit-Baltistan
61. Global Climate Change Impact Study Center, Islamabad
62. Rise AG Group Pvt. Ltd, Multan Pakistan
63. World Wild Fund Pakistan
64. Pakistan Horticulture Development and Export Company

1.9. Honors and Awards

- Prof. Dr. Asif Raza, Dean, FVAS was awarded Quaid-E-Azam Gold Medal by Istehkam-E-Pakistan Foundation.
- Dr. Ayesha Hakim and Dr. Nadeem Iqbal from Institute of Computing won National and Regional titles at She loves tech, PITB, National Idea Bank and Falling Walls Foundations Berlin Germany for their innovative projects namely SMARTRAP, A Blockchain and AI-based Food Traceability System and AI-Based Bee Hive and PestiBot: An Automatic Weed Detection and Spraying mechanism which were headed by Dr. Ayesha Hakim and Dr. Nadeem Iqbal respectively.
- Dr. Ayesha Hakim from Institute of Computing won Best University Teaching Award.
- Dr. Muqarab Ali from Department of Climate Change won Green Gown Award .

1.10. Good Practices Implemented

- Faculty Student Interaction
- Class monitoring
- Curriculum revision regarding course objectives, contents and learning resources
- Outcome based learning
- Blended/Hybrid teaching
- Use of learning management system
- Discussion and visual aids for Teaching (Videos, Presentations and hands on activities)
- Module based teaching system
- Maintenance of course files
- Lecture shortage
- Strengthening of teaching labs and field infrastructure
- Engagement of undergraduate students in research activities by attaching them with postgraduate students
- Alumni database and Annual Meetup
- Career counseling sessions for students
- International seminars/conferences/workshops
- Hands-on Training of faculty and students
- Internship of B.Sc. (Hons.) 8th Semester students at private sector companies and farms
- Annual thesis displays
- Orientation session for new comers

Research and Development



Chapter 2 Research and Development



Chapter 2 Research and Development



Chapter 2 Research and Development



Chapter 2 Research and Development





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RESEARCH AND DEVELOPMENT

The Office of Research, Innovation and Commercialization (ORIC) has been functioning since 2015 to facilitate students and faculty to support and organize research and commercialization activities at the University. The office also helps in prioritizing research and innovations according to educational, industrial, social, and economic needs in accordance with the University's vision to become a center of innovation, high-impact research and commercialization. It also facilitates intellectual property (IP) protection, implementation of operational and quality standards, and translation of research into commercialization through strong industry-academia linkages and entrepreneurship. The ORIC believes in reciprocal understanding, which is indispensable for coordination between academia and industry to uplift a standardized and well-acclaimed innovation and commercialization ecosystem.

ORIC facilitated the faculty during the fiscal year (2023-24) for submission of 162 research projects to various national and international funding agencies, including ALP-PARC, Bill & Melinda Gates Foundation, DAP, EFS-UAF, Foundation for Food and Agriculture Research (FFAR), Planning & Development Board (Government of the Punjab), ICESCO research grants, International Center for Genetic Engineering and Biotechnology (ICGIB), International Centre for Integrated Mountain Development (ICIMOD), Asian Disaster Preparedness Center (ADPC), Muhammad Bin Zayed Species Conservation Fund, PARB, PODB, PSF-NSFC, PSF-NSLP, RASTA Competitive Grants Program, Royal Society of Tropical Medicine and Hygiene (RSTMH), The AGCO Agriculture Foundation, USAID, Wellcome career grant, Wellcome Discovery Awards, Wellcome Early Career Award and other government, corporate, industry and private sector organizations.

During the year, nine competitive research grants worth PKR 105.74 million have been won by the faculty from various national/international funding agencies, industry/private sector and NAVTTC. The research projects worth PKR 9.00 million from international funding agencies, PKR 91.86 million from national funding agencies, PKR 83.04 million from the industry/private sector and PKR 4.45 million from NAVTTC were awarded to the faculty for the proliferation of scientific culture and innovative research. The execution of 33 ongoing research projects worth PKR 774.17 million is in progress. The research activities of 7 international projects (PKR 109.51 million), 26 national projects (PKR 664.65 million) and 19 industry/private sector projects (PKR 106.18575 million) are being undertaken by the faculty. Moreover, ORIC has also facilitated the faculty for the successful completion of 12 research projects worth PKR 38.85 million.

The availability of a conducive research and working environment enabled the faculty to publish 207 research articles in well-reputed national and international peer-reviewed journals and contributed as authors of 79 chapters in the books published by internationally recognized publishers. Faculty was facilitated by ORIC for filing of six patents to IPO Pakistan. On the other hand, 32 Agreement(s) of Cooperation (AoCs) have been signed with various national and international organizations and ORIC is striving for the successful implementation of these AoCs with the partner organizations in collaboration with the Director External Linkages and concerned Focal Person(s).



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Similarly, ORIC has extended support to teaching departments in organizing eight national and international conferences, nine students poster/plant centric meal/dish making and business competitions, and 52 national and international Seminars/Webinars. The capacity building and mentoring activities including 29 faculty trainings/workshops and six trainings of students/researchers under the Central Lab System were carried out. Other 43 outreach, recreational and civic engagement events including Mango Festivals at Islamabad, Multan and Lahore, AFS Venture Spark, farmer advisory and industry consultancy activities were organized for the benefit of the agroindustry, the community, and relevant stakeholders. ORIC strived to secure revenue of PKR 65.89 million including events sponsorships (PKR 52.20 million), consultancy services (PKR 2.27 million), university overhead from research grants (PKR 11.27 million) and lab analytical services (PKR 0.15 million).

The University has participated in several national and international rankings. In the UI GreenMetric World University Rankings 2023, MNSUAM secured 1st place nationally and 183rd globally for its green campus and sustainability practices. In the World University Rankings for Innovation (WURI) 2024, it consistently led among Pakistani agricultural universities and achieved global rankings, including 7th in industrial application and 16th in Symbol (Promotion) and Social Responsibility. The University also performed well in the Times Higher Education (THE) Impact Rankings 2024, ranking 4th nationally in the subject category of agriculture and forestry and 801-1000 worldwide, with top national ranks in SDGs such as 1st in SDG-6 Clean Water, 2nd in SDG-7 Affordable and Clean Energy, and 3rd in SDGs 2, 12, 13, and 15. In addition, ORIC has been ranked 5th amongst nationwide recognized ORICs. The Business Incubation & Agriculture Entrepreneurship Centre has been ranked 7th among all Pakistani universities securing the highest HEC category 'W'. MNSUAM has also signed 'The SDG Accord' with the Environmental Association for Universities and Colleges (EAUC), joining 24 Pakistani institutions in promoting the Sustainable Development Goals. In the 2024 Green Gown Awards, MNSUAM's project, "Enhancing Biodiversity with Conservation Strips in Agricultural Landscapes," led by Dr. Fawad Zafar Ahmad Khan Assistant Professor, was shortlisted as a finalist in the 'Nature Positive' category out of 95 finalists from 28 countries.

2. PROJECTS

2.1. Research Projects Awarded

2.1.1. International Project Awards

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Green Technology Integration and Mode Construction of Highland Barley in Tibet	Dr. Shoaib Ur Rehman	3.38	Chengdu Institute of Biology, Chinese Academy of Sciences
2	Cultivation of Major New Varieties of Green and High efficiency Wheat	Dr. Shoaib Ur Rehman	2.98	Chengdu Institute of Biology, Chinese Academy of Sciences



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RESEARCH AND DEVELOPMENT

3	Isolation of Wheat Cultivars with Higher Ferulic Acid Contents in Grain	Dr. Shoaib Ur Rehman	3.00	Pinduoduo Agricultural Research Fund	China University
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2.1.2. National Project Awards

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Using Artificial Intelligence from Illness to Eco-Wellness	Dr. Nadeem Iqbal	3.63	HEC-PERIDOT
2	Taxing the Rental Incomes in Agriculture: Analysis of Alternate Options	Prof. Dr. Irfan Ahmad Baig	3.56	RASTA-PIDE
3	Standardization of Sugarcane Juice as a Value-Added Product	Dr. Ambreen Naz	13.35	SRDB
4	Agronomic Interventions and Postharvest value addition to promote millets for crop diversification, nutritional security and Climate Smart Agriculture	Dr. Amar Matloob	29.98	PARB
5	Development and Commercialization of Tomato Developed by Inter and Intra Specific Hybridization for Tolerant to Virus, Heat, Frost and Improvement in Shelf Life in Punjab	Dr. Tanveer Ahmad	35.64	PARB
6	Impact of Climate Change and Public Sector Research Investment on Total Factor Productivity	Prof. Dr. Nasir Nadeem	5.70	PARB

2.1.3. Industrial Research Project Awards

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Role of Hermetic Technology in the Reduction of Postharvest Losses of Biofortified Zinc Wheat in South Punjab	Prof. Dr. Umar Farooq	3.61	Global Alliance for Improved Nutrition
2	Water Regeneration & Environmental Sustainability	Mr. Mahmood Alam	5.00	Nestle, Pakistan
3	Colorful Cotton Cultivation: Unveiling Genomic Secrets	Dr. Akash Fatima	3.60	Mahmood Group Textiles, Multan



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4	Harvesting Sustainability: Strengthening Agricultural Resilience through Enhanced Soil and Water Management	Dr. Umair Riaz	1.21	PepsiCo Pakistan
5	Development and Consumer Acceptability of Fish Based Value Added Products	Dr. Nida Firdous	1.77	Pioneer Aqua's Pvt. Ltd
6	Micropropagation and Varietal Improvement of Sugarcane Against Red Rot Through Tissue Culture	Dr. Plosha Khanum	10.70	Indus Sugar Mills, Rajanpur, Pakistan
7	Beautification and pollution control of Khawaja Mineral Industries using ornamental plants	Dr. Gulzar Akhtar	1.17	Khawaja Mineral Industries, Multan
8	EcoVigilance: Innovating Dual -Action Traps for Monitoring and Management of Aedes (Dengue) Mosquitoes and exploring their diversity in Multan.	Dr. Farrukh Baig	1.26	Hussain Salman Chemicals, Multan
9	Development and Promotion of Hybrid Cotton Seed Production for Increasing Quality and Quantity of Cotton in Pakistan	Dr. Zulqurnain Khan	33.92	Guard Agriculture Research and Services Multan & BRI, CAAS, China
10	State of the Art Mango Drying Facility at MNS - University of Agriculture, Multan	Mr. Bilal Ahsan	18.72	Export Development Fund

2.1.4. Industrial CSR Project Awards

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Establishment of a Miyawaki Urban Forest at MNS University of Agriculture Multan to Address Climate Change	Dr. Muqarrab Ali	1.00	OGDCL, Pakistan
2	Enhancing Aesthetic Beautification through Tree Plantation	Dr. Gulzar Akhtar	1.10	Alkhidmat Foundation South Punjab, Pakistan



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2.1.5. Startup Project Awards

Sr. No.	Project Title	Focal Person	Total Amount (Million PKR)	Funding Agency
1	Bio Stimulant Formulation and Marketing	Ms. Ammer Qandeel	9.72	Seed Fund Grant - HEC Pakistan
2	Triple Repulsion Electric Motors (Private) Limited)	Mr. Umar Farooq	9.74	Seed Fund Grant - HEC Pakistan
3	Nutraceutical Formulations for the Management of PCOS: A Women Entrepreneurship Model	Ms. Umrah Zaffar	0.40	PKNC-UAF

2.1.6. Skill Development Project Awards

Sr. No	Project Title	Focal Person	Total Amount (Million PKR)	Funding Agency
1	Prime Minister Youth Skills Development Program (Batch-I)	Dr. Rana Binyamin	2.20	NAVTTTC
2	Prime Minister Skills Development Program "Skills for All" Batch-IV	Dr. Fawad Zafar Ahmad Khan	2.25	NAVTTTC

2.2. Ongoing Research Projects

2.2.1. International Projects

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Adopting to Salinity in the Southern Indus Basin (ASSIB)	Prof. Dr. Irfan A. Baig	7.40	ACIAR
2	Accelerating Genetic Gain in Wheat through Hybrid Breeding in Bangladesh, Ethiopia and Pakistan	Prof. Dr. Asif Ali	77.11	ACIAR
3	Green Technology Integration and Mode Construction of Highland Barley in Tibet	Dr. Shoaib Ur Rehman	3.38	Chengdu Institute of Biology, Chinese Academy of Sciences
4	Cultivation of Major New Varieties of Green and High Efficiency Wheat	Dr. Shoaib Ur Rehman	2.98	Chengdu Institute of Biology, Chinese Academy of Sciences



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5	Developing Competitive and Inclusive Value Chains of Pulses in Pakistan	Dr. Mubashir Mehdi	6.37	ACIAR
6	Genetic Adaptability and Water - fertilizer Intelligent Regulation Mechanism of Climate Smart Varieties	Dr. Zulqarnain Khan	9.20	PSF-NSFC
7	Isolation of Wheat Cultivars with Higher Ferulic Acid Contents in Grain	Dr. Shoaib Ur Rehman	3.06	Pinduoduo China Agricultural University Research Fund

2.2.2. National Projects

Sr. No	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Enhanced Alfalfa Seed Production through Conservation of Native Insect Pollinators , Germplasm Development and Agronomic Management	Dr. Mudssar Ali	22.30	PARB
2	Development of Soybean in Pakistan to Reduce the Import Bills	Prof. Dr. M. Hammad Nadeem Tahir	17.94	PARB
3	Advancement in Saline Agricultural Technology related Interventions for Food Security, Climate Change Resilience and its Dissemination to Stakeholders (Treatment of Brackish Water for Growing of Vegetables and Irrigation Management of Mango Orchards)	Dr. Tanveer Ul Haq	7.49	PARB
4	Import of High Value Germplasm and Technologies of Elite Exotic Fruits, Vegetables and Medicinal Crops for Diversification and Sustainable Production in Punjab	Dr. Kashif Razzaq	4.84	PARB
5	Production of High-Yielding and Heat-Tolerant Hybrid Seed of Chili	Dr. M. Abu Bakar Saddique	11.02	PARB



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6	Identification and Management of Unknown Blackening of Cotton Leaves Disease	Prof. Dr. M. Ashfaq	3.36	PARB
7	Development and Commercialization of Tomato Developed by Inter and Intra - Specific Hybridization for Tolerant to Virus, Heat, Frost and Improvement in Shelf Life in Punjab	Dr. Tanveer Ahmad	3.92	PARB
8	Agronomic Interventions and Postharvest Value Addition to Promote Millets for Crop Diversification, Nutritional Security and Climate Smart Agriculture	Dr. Amar Matloob	28.98	PARB
9	Impact of Climate Change and Public Sector Research Investment on Total Factor Productivity	Prof. Dr. Nasir Nadeem	5.70	PARB
10	Biofortification of Fodders with Selenium to Improve Milk Yield and Quality in Dairy Cattle	Prof. Dr. Abdul Ghaffar/ Dr. Fahim Nawaz	4.14	PSF
11	Development and Commercialization of Indigenous Technology for Production of Moringa Seed Oil and Food Ingredient	Dr. M. Shahbaz	4.05	PSF
12	Design and Development of Integrated Partial Automatic Potato Digger	Dr. Umair Sultan	4.87	PSF
13	Development of Indigenous Low Distribution Manure Injection Machine for the Enrichment of Soil Nutrients	Dr. Sarfraz Hashim	4.70	PSF
14	Design and Development of Indigenized Compost Windrow Turner for the Enrichment of Soil Nutrients	Engr. Dr. Sarfraz Hashim	10.13	PARC-ALP
15	Taxing the Rental Incomes in Agriculture: Analysis of Alternate Options	Prof. Dr. Irfan Ahmad Baig	3.58	RASTA-PIDE



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16	Thinking beyond the Herbicide Efficacy Box: Appraising Herbicide Resistance, Leaching, Persistence and Carryover in Cotton-Wheat Cropping System	Dr. Amar Matloob	5.02	HEC-NRPU
17	Genetic Transformation of Potato (<i>Solanum tuberosum</i>) with <i>Ipomoea batatas</i> orange (<i>lbOr</i>) for Enhanced Photosynthesis and Productivity	Dr. Ummara Waheed	5.29	HEC-NRPU
18	Design and Development of Self-Propelled Energy Efficient Multi-Grain Crop Planter	Dr. Umair Sultan	3.89	HEC-NRPU
19	Role of Ornamental Plants to Mitigate Soil Heavy Metal Pollution	Dr. Gulzar Akhtar	3.07	HEC-NRPU
20	Production of Certified Mango Nursery for Small Tree System	Dr. Kashif Razzaq	6.49	HEC-NRPU
21	Supply Chain Management and Value Addition of Jaman Fruit (<i>Syzygium cumini</i>)	Dr. Sami Ullah	2.97	HEC-NRPU
22	Smart Traps for Detection and Monitoring of Flying Insect Pests (aka SmarTrapS)	Dr. Ayesha Hakim	28.65	HEC-TTSF
23	Using Artificial Intelligence from Illness to Eco-Wellness	Dr. Nadeem Iqbal	3.62	HEC-PERIDOT
24	Standardization of Sugarcane Juice as a Value-Added Product	Dr. Ambreen Naz	13.35	SRDB
25	National Crop Genomics and Speed Breeding Center for Agriculture Sustainability	Prof Dr Hammad Nadeem Tahir	450.00	Government of Punjab Agriculture Department
26	Potential Risks of Glacier Lake Outburst Floods under Climate Change along China-Pakistan Economic Corridor (CPEC)	Dr. Muhammad Saif Ullah	5.23	PSF-CRP



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2.2.3. Industrial Projects

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Establishment and Propagation of Miscanthus and Sisal as Pulp and Energy Crops	Dr. Baqir Hussain	7.92	Bulleh Shah Packaging, Lahore
2	Infestation Assessment and Ecofriendly Management of House Fly and Common House Ant in Multan	Dr. Naeem Iqbal	1.61	Nuchem, Pvt Ltd, Multan
3	Production Technology and Shelf Line Standardization of Dried Mango	Prof. Dr. Umar Farooq	1.69	Green Agriculture Services
4	Establishment of True to Type Mango Nursery Certified from Federal Seed Certification Department	Dr. Sami Ullah	1.53	Mahmood Group
5	Development and Shelf Stability of Dehydrated Apple Snacks	Prof. Dr. Umar Farooq	1.56	Mahmood Group
6	Promoting Regenerative Agriculture in Wheat-Rice Cropping Systems in Punjab, Pakistan	Dr. Abid Hussain	3.71	Syngenta Pakistan
7	Establishment of R&D Lab for Mass Production of Technical Grade Biostimulant at MNS University of Agriculture, Multan	Dr. M. Arslan Khan	5.10	Rise AG, Multan
8	Role of Hermetic Technology in the Reduction of Postharvest Losses of Biofortified Zinc Wheat in South Punjab	Prof. Dr. Umar Farooq	3.60	Global Alliance for Improved Nutrition
9	Water Regeneration & Environmental Sustainability	Mr. Mahmood Alam	5.00	Nestle, Pakistan
10	Colorful Cotton Cultivation: Unveiling Genomic Secrets	Dr. Akash Fatima	3.59	Mahmood Group Textiles, Multan
11	Harvesting Sustainability: Strengthening Agricultural Resilience through Enhanced Soil and Water Management	Dr. Umair Riaz	1.20	PepsiCo Pakistan
12	Development and Consumer Acceptability of Fish Based Value Added Products	Dr. Nida Firdous	1.77	Pioneer Aqua's Pvt. Ltd



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13	Micropropagation and Varietal Improvement of Sugarcane Against Red Rot Through Tissue Culture	Dr. Plosha Khanum	10.69	Indus Sugar Mills, Rajanpur, Pakistan
14	Beautification and pollution control of Khawaja Mineral Industries using ornamental plants	Dr. Gulzar Akhtar	1.16	Khawaja Mineral Industries, Multan
15	EcoVigilance: Innovating Dual -Action Traps for Monitoring and Management of Aedes (Dengue) Mosquitoes and exploring their diversity in Multan.	Dr. Farrukh Baig	1.25	Hussain Salman Chemicals, Multan
16	Establishment of a Miyawaki Urban Forest at MNS University of Agriculture Multan to Address Climate Change	Dr. Muqarrab Ali	1.00	OGDCL, Pakistan
17	Enhancing Aesthetic Beautification through Tree Plantation	Dr. Gulzar Akhtar	1.10	Alkhidmat Foundation South Punjab
18	Development and Promotion of Hybrid Cotton Seed Production for Increasing Quality and Quantity of Cotton in Pakistan	Dr. Zulqurnain Khan	33.91	Guard Agriculture Research and Services Multan & BRI, CAAS, China
19	State of the Art Mango Drying Facility at MNS - University of Agriculture, Multan	Mr. Bilal Ahsan	18.72	Export Development Fund

2.3. Completed Projects

Sr. No.	Project Title	Principal Investigator	Total Amount (Million PKR)	Funding Agency
1	Optimizing Production Practices and Fruit Quality of Pomegranate in Southern Punjab	Prof. Dr. Ishtiaq Ahmad Rajwana	6.66	HEC-NRPU
2	Digital Value Chain Solutions for Smallholders Pulses Farmers in Pakistan	Prof. Dr. Mubashir Mehdi	2.90	ACIAR
3	Genetic Variability and Molecular Characterization of RNA Viruses Infecting Cucurbits in Punjab, Pakistan	Prof. Dr. Muhammad Ashfaq	5.26	HEC-NRPU



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4	Improving Chickpea Production on Sandy Soils by Using Biochar Produced from Cotton Sticks at Different Temperatures.	Prof. Dr. Tanveer UI Haq	2.62	HEC-NRPU
5	Evaluation of Toxicological and Morphological Effects of Different Chemosterilants on Fruit Fly	Prof. Dr. Shafqat Saeed	1.00	HEC-SRGP
6	Development of Nutritious Energy Dense Emergency Relief Food Products for Disastrous Areas of Pakistan with Special Reference to Protein Energy Malnutrition (PEM)	Dr. Ambreen Naz	2.51	HEC-NRPU
7	Vegetable Grafting against Soil Borne Diseases, Salinity and Drought	Dr. Hafiz Nazar Faried	3.48	HEC-NRPU
8	Investigations on Crop Productivity, Commercial Potential and Market Constraints of Guar Bean Industry	Dr. Muqarrab Ali	2.22	HEC-NRPU
9	Sero-Epidemiological, Geographical and Molecular Investigations of Crimean-Congo Hemorrhagic Fever Virus Among Cattle and Tick Population in Southern Punjab, Pakistan	Dr. Aziz-ul-Rahman	1.21	RSTMH-UK
10	Development of Production and Formulation Technologies for Eco-Friendly Entomopathogenic Fungus for Managing Fruit Fly	Dr. Mirza Abdul Qayyum	4.95	HEC-NRPU
11	Effect of Replacing Crude Protein with Synthetic Amino Acids on Growth Performance, Hematological Profile, Carcass Traits and Nutrient Digestibility in Quail, Broiler Chickens and Fancy Birds	Dr. Atif Rehman	1.00	HEC-SRGP
12	Genetic Analysis of Naturally Colored Cotton in Relation to Drought Stress	Dr. Akash Fatima	1.00	HEC-SRGP



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2.4. Facilitation for Filing of Patents

The ORIC facilitated the following faculty members in completing documentation for filing of patents during 2023-24.

Sr. No.	Name of Faculty	Department / Institute	Innovation	National / International
1	Dr. Nadeem Iqbal Kajla	Institute of Computing	Artificial Intelligence based Beehive to Control Colony Collapse Disorder	National
2	Dr. Farrukh Baig	Institute of Plant Protection	An Ecofriendly Solution for the Management of House Flies	National
3	Dr. Sarfraz Hashim	Department of Agricultural Engineering	Double PTO Uni-shredder	National
4	Dr. Gulzar Akhtar	Department of Horticulture	Floral preservative solution for vase life longevity of cut flowers	National
5	Dr. Umair Sultan	Department of Agricultural Engineering	Energy-Efficient Potato Digger Cum Loader System: Sustainable Potato Harvesting	National
6	Dr. Umair Sultan	Department of Agricultural Engineering	Small Tractor Functional Propulsion System Design using 200cc Gasoline Engine	National

2.5. Seminars/Webinars

Sr. No.	Date	Title	Department / Institute	National / International
1	25-07-2023	Management Interventions for Cotton Crop under Prevailing Monsoon-2023	Agronomy	National
2	02-08-2023	Parthenium: A highly invasive and poisonous weed threatening agriculture and environment	Agronomy	National
3	21-08-2023	Awareness Session for Authorized user of Registered GLs Chaunsa and Sindhri Mangoes	IPO, Pakistan & MNSUAM	National
4	15-09-2023	Sygena goes to Campus	Sygenta Pakistan & MNSUAM	National
5	19-09-2023	Soil Pollution and SDGs	Soil and Environmental Science	National



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6	25-09-2023	System Thinking	Agribusiness and Applied Economics	National
7	19-10-2023	Digital Skills	Computing	National
8	13-10-2023	Breast Cancer awareness	Veterinary and Animal Sciences	National
9	16-11-2023	Smog awareness	Soil and Environmental Science	National
10	23-11-2023	Global Scholarship Hunt: Smart Application Strategies	Horticulture	National
11	22-11-2023	Getting Ready for Global Leadership Role in Climate Change	Climate Change / Soil and Environmental Sciences	National
12	24-11-2023	Best Version of Yourself	Directorate of Student Affairs	National
13	30-11-2023	Advances in Pest and Disease Management	Plant Protection	National
14	12-12-2023	Modern Poultry and Livestock Lighting Systems	Veterinary and Animal Sciences	National
15	08-12-2023	Scholarship and Career in Canada	MNSUAM	National
16	14-12-2024	Emerging Mango Industry	Horticulture	National
17	12-12-2023	Modern Poultry and Livestock	Veterinary and Animal Sciences	National
18	19-12-2023	AI Evolution and Ethical Considerations	Computing	International
19	14-01-2024	Life Under Water:SDG-14	Veterinary and Animal Sciences	National
20	26-12-2023	Urban Horticulture's Role in Combating Climate Change	Horticulture	National
21	26-12-2023	Invitation to Participate in Future Fest Road Show 2023-24, Gilgit to Gawadar	Horticulture	National
22	04-01-2024	Long Term Weather Forecast and Management Interventions for Wheat Crop	Agronomy / IPBB	National



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23	04-01-2024	Management of Depression and Anxiety	MNSUAM	National
24	09-01-2024	Greenhouse Farming in the Middle East: Prospects and Career	Horticulture	International
25	25-01-2024	Potential and Opportunities in Spate Irrigation	Department of Agronomy	International
26	22-02-2024	Seminar on Risks of Glacier Lake Outburst Floods Under Climate Change	Agricultural Engineering	National
27	23-02-2024	Ethical Use of Social Media to counter Religious Extremism in HEIs	Food Science and Technology	National
28	29-02-2024	HIV Prevention	Public Health	National
29	01-03-2024	Horticulture in Türkiye; Future Risks and Opportunities	Horticulture	International
30	07-03-2024	IP Policy Development for Public Sector Research Institutions	MNSUAM and CLDP	National
31	11-03-2024	Cyber Security	Computing	National
32	14-03-2024	Setting Up for Ramadan	DSA	National
33	15-03-2024	Youme Tahafuze Namoos-e-Risalat PBUH	Qirat and Naat Club	National
34	15-04-2024	Agricultural Transformations in the Kazakhstan-China Borderlands: Chokepoints of Chinese Development and Path-Dependencies of Soviet Modernization	Veterinary and Animal Sciences	National
35	25-04-2024	Future of Pakistani Agriculture Graduates and Money Making opportunities in North America (Invited Lecture)	Plant Protection	National
36	26-04-2024	Enhancing Nutrition Through Sun Academia & Research Network (SUNAR)	Human Nutrition and Dietetics	National
37	29-04-2024	"Awareness Seminar" for Various Job Opportunities Advertised by Pakistan Air Force for IT, Computer Science, Engineering and other Discipline Graduates of Muhammad Nawaz Shareef University of Agriculture, Multan	MNSUAM	National



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38	02-05-2024	Breaking Boundaries celebrating abilities for Special Persons	Rotaract Club	National
39	07-05-2024	Nutraceutical and Health	Human Nutrition and Dietetics	National
40	15-05-2024	Developing a Sustainable Business Model & Empowering Innovation	BIAEC	National
41	15-05-2024	Biomass Energy Crops	Soil & Environmental Sciences,	International
42	16-05-2024	Digital Literacy as an Initiative of State Bank of Pakistan	MNSUAM	National
43	16-05-2024	Empowering Innovation Through Entrepreneurship in Agro-based Technologies	BIAEC / Agricultural Engineering	National
44	17-05-2024	Awareness session of the UI GreenMetric Ranking	ORIC	National
45	23-05-2024	Future Prospects and Success Stories of Being Home Economist	Home Sciences	National
46	21-05-2024	Best Version of Yourself	DSA	National
47	23-05-2024	Food Security in South Asia: Academic and Policy Gaps	Agricultural and Resource Economics	National
48	30-05-2024	Writing motivational letters and resume	Plant Breeding and Biotechnology / Veterinary and Animal Sciences	International
49	31-05-2024	Spate Irrigated Agriculture	Agronomy	National
50	07-06-2024	World Food Safety Day	Food Science & Technology	
51	13-06-2024	Cotton Production as a Profitable Business for Farmers	Plant Breeding and Biotechnology	National
52	12-06-2024	Sensitization of Community for Effective Management of Animal Waste Produced during Eid-al-Adha	Soil and Environmental Science	National



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2.6. Conferences

Sr. No.	Date	Title	Department / Institute	National / International
1	23-24.10.2023	Fodder Production in Climate Shift Paradigm: Better Nutrition for better Dairy Production	Plant Breeding and Biotechnology	International
2	28.09.2023	Reshaping Cotton Production in Punjab: learning from Global Best Practices	Plant Breeding and Biotechnology	International
3	13-14.12.2023	Artificial Intelligence and Emerging Technologies: Shaping the Future through Innovation	Computing	International
4	15-16.02.2024	Smart Plant Protection	Plant Protection	International
5	16-17.04.2024	Soil, Plant and Environmental Health under Changing Climate	Soil and Environmental Sciences	International
6	20-05-2024	Bee Pollination and Conservation	Plant Protection	International
7	08-10.05.2024	Sustainable Biotech Solutions (Hybrid)	Plant Breeding and Biotechnology	International
8	24.04.2024	Agricultural Innovations Towards Food Security: Challenges and Opportunities	Agronomy	National

2.7. Other Outreach/Recreational/Capacity Building Activities

2.7.1 Competitions

Sr. No	Date	Title	Department
1	09-07-2023	Mango Dish making show during Mango Festival at DHA Multan	Food Science and Technology
2	07-09-2023	Plant Centric Meal Competetion (Pulses based Value Addition)	MNSUAM
3	29-11-2023	AFS Venture Spark Business Plan Competition - 2023	BIAEC
4	05-12-2023	Poster Competetion	Food Science and Technology



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5	19-12-2023	Fish Dish Competition	Home Sciences
6	25-01-2024	Creative Art Competition	Home Sciences
7	29-02-2024	Poster Competition and Seminar on HIV Prevention	Public Health Society
8	28-03-2024	Live Poster Competition on Food Waste Reduction	Food Science and Technology
9	09-05-2024	Traditional Recipe Development Competition	Food Science and Technology

2.7.2 Faculty and Staff Trainings/Workshops Organized

Sr. No	Date	Title	Department / Institute
1	10.08.2023	CABI's Plantwiseplus Policy Dialogue Workshop on Pesticides Risks Reduction in Pakistan	MNSUAM
2	07.08.2023	Criteria and Data Collection Software for focal persons of universities in South Punjab Region for the HEC National Universities Ranking-2023	HEC & MNSUAM
3	28.08.2023 To 01.09.2023	Faculty Professional Development Training Program	MNSUAM
4	18-22.10.2023	05 day Cutting Edge Digital Pakistan Cyber Security Hands on workshop	MNSUAM and Computer Science
5	16.11.2023	One Day Workshop on "Wheat Productivity Enhancement"	Agronomy
6	16.11.2023	Safe Use of Chemicals and Pesticides	ORIC
7	24-25.11.2023	Hands on training on Qualitative Survey Techniques	FST
8	06-07.12.2023	Cutting Edge Digital Pakistan Cyber Security Hands on workshop	Computing
9	09.12.2023	One day Workshop on Flutter	Computing
10	26-27.12.2023	Hands on training Bioinformatics Tools for plant Breeding	IPBB
11	15.12.2023	Training Session on Export Documentation and Procedures for Agriculture Products	BIAEC
12	21.12.2023	Online Training Session on Cropwise	ORIC



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13	02.01.2024	Training Workshop on Urban Pest Management strategies in food industry for Food Security	FST
14	06-07.01.2024	Qualitative Survey Techniques	FF&HS
15	12.01.2024	Remote Sensing and Pest Modeling Forecasting	MNSUAM
16	13-14.02.2024	Two Days Training Workshop on Implementation of HACCP in Food Business	FST
17	21-22.02.2024	Workshop on "Droughts over Pakistan in the Changing Climate	IPBB
18	06.03.2024	Training workshop on "Outcome Based Education"	Agricultural Engineering
19	07.03.2024	Hands on BCS Training	FVAS
20	19.03.2024	Workshop on Emergence of Crimean-Congo Haemorrhagic fever Virus in one Health Perspective	FVAS
21	18-19.04.2024	A training under FAO funded project "Ground Water Modeling and Information Products for Khanewal Area"	MNSUAM
22	18.04.2024	Preparation of implementation Plan and Action Taken of SAR	QEC
23	25.04.2024	Basic Techniques of Biosafety and Biosecurity	FVAS
24	23.04.2024	Training Session on Smart Traps	Computing
25	07.05.2024	Training workshop on Efficient Use of Training for Checking Similarity Index and Plagiarism	QEC
26	08-09.05.2024	Training Session on Customer Segmentation, Customer Validation and Value Proposition	BIAEC
27	15-16.05.2024	Training Session on Developing a Sustainable Business Model & Empowering Innovation	BIAEC
28	22.05.2024	One Day Workshop on "Indoor Plants, Identification, Care and Management	Horticulture / Home Sciences
29	29.05.2024	One Day Workshop under ACIAR funded project (ASSIB)	MNSUAM

2.7.3 Students Training under Central Lab System

Sr. No.	Date	Title	Name of Trainer
1.	19-09-2023	Hands on training on "Kjeldhal Digestion, Distillation and Soxhlet aApparatus"	Dr. Shabbir Ahmad
	10-10-2023		
	31-10-2023		
	21-11-2023		
	12-12-2023		
	09-01-2024		



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2.	26-09-2023 16-10-2023 22-11-2023 22-12-2023 17-01-2024 18-02-2024	Hands-on Training on GCMS	Dr. M. Asif Farooq
3.	06-09-2023 13-09-2023 20-09-2023 27-09-2023 01-01-2024 08-01-2024 30-01-2024	Hands on Training on "Slide Making and Micrometry"	Dr. Unsar Naeem-Ullah
4.	26-09-2023 03-10-2023 24-10-2023 07-11-2023	Hands-on Training on Atomic Absorption Spectrophotometer	Dr. Muhammad Baqir Hussain
5.	18-10-2023 22-11-2023 27-12-2023 24-01-2023	Training on Seed Germination Testing	Dr. Muhammad Amir Bakhtavar
6.	28-12-2023 29-12-2023	Hands on training on ELISA	Mr. Furqan Ahmed Dr. Umar Akram

2.7.1 Celebrations / Interactive Sessions

Sr. No.	Date	Title	Department / Institute
1	07-09.07.2023	Mango Festival 2023 - Multan	MNSUAM
2	14-17.07.2023	Mango Festival 2023-Centaurs Mall Islamabad	MNSUAM
3	06-08-2023	Annual Meeting of Rotaract Clubs of South Punjab Region	MNSUAM
4	14-08-2023	Pakistan Independence Day	MNSUAM
5	27-09-2023	Professional Ethics in Food Industry: an interactive session	Food Science and Technology
6	05-10-2023	Seerat Un -Nabi- Talk of Pirzada Muhammad Raza Saqib Mustfai	MNSUAM



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7	09- 13.10.2023	Central Library and HEC Digital Resources Awareness/Orientation Sessions	MNSUAM
8	13.10.2023	World Egg Day	Veterinary and Animal Sciences
9	16.10.2023	World Food Day Celebrations and Inauguration Ceremony of Freshco Sensory Lab	Food Science and Technology
10	08.11.2023	Sensory Evaluation Session	Food Science and Technology
11	05.12.2023	Celebration of World Soil Day 2023	Soil and Environmental Sciences
12	13.12.2023	Winter Festival	MNSUAM
13	13.12.2023	Sports Gala.2023	MNSUAM
14	15.12.2023	Academic Excellence Symposium	Veterinary and Animal Sciences
15	27.12.2023	Interactive Session on Stat Bank Pakistan	MNSUAM
16	22.12.2023	Young Food Technologist Emotional Intelligence and Professional Career	Food Science and Technology
17	29.12.2023	Role of Youth for Brighter Future	MNSUAM
18	08.03.2024	International Women's Day.2024	MNSUAM
19	01- 15.03.2024	Interactive/Training Session For Faculty Members On ERP System	MNSUAM
20	07.03.2024	Recruitment Drive for Evyol Group Pvt. Ltd.	MNSUAM
21	07.03.2024	Spring Flower Festival	MNSUAM
22	07.03.2024	Gibs Pasta Festival	Food Science and Technology
23	21.03.2024	World Planting Day	MNSUAM
24	25.04.2024	Wheat Harvesting Events (JPP)	MNSUAM
25	03.05.2024	Interactive session of Music Passionate with American Singers Band "Raining Jane"	Students MNSUAM
26	08.05.2024	5 th South Punjab Bilingual Declamation	MNSUAM
27	08.05.2024	South Punjab Library Festival	MNSUAM
28	13.05.2024	International Day of Plant Health	MNSUAM
29	22.05.2024	International Day for Biological Diversity	Outreach and Continuing Education
30	29.05.2024	Graduate Research Day	MNSUAM



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31	31.05.2024	Unlocking the Future: Exploring IT Scope and Opportunities in the Modern Business World and Higher Education	MNSUAM
32	05.06.2024	World Environment Day.2024	Soil & Environmental Sciences
34	14.06.2024	World Dengue Day	Plant Protection

2.7 Research Linkages

2.7.1 International

Sr. No.	Organization	Country	Signing Date
1	Tashkent State Agrarian University, Uzbekistan	Uzbekistan	17.07.2023
2	Xinjiang Academy of Husbandry, Xinjiang, Uygur Autonomous Region, China	China	18.07.2023
3	Zhangir Khan West Kazakhstan Agrarian. Technical University	Kazakhstan	19.07.2023
4	EMIA, the African University of Science and Technology Dakar, Senegal	Senegal	12.08.2023
5	Nestle Pakistan (International)	Switzerland	22.08.2023
6	Andijan Institute of Agriculture and Agrotechnologies, Andijan, Uzbekistan	Uzbekistan	22.09.2023
7	The Technische Hochschule Lubeck, Department of Electrical Engineering and Computer Science	Germany	11.11.2023
8	Hunan University of Science and Engineering, China	China	16.02.2024
9	Sakarya University of Applied Sciences, Turkiye	Turkiye	01.03.2024
10	The United Nations Educational, Scientific And Cultural Organization (UNESCO)	France	29.03.2024
11	University of Science and Technology of China (USTC)	China	18.04.2024
12	Energy & Security Group, LLC (USAID)	USA	06.05.2024
13	Syngenta Pakistan Limited	China	30.05.2024
14	Guard Agriculture Research & Services (Pvt) Ltd. & Biotechnology Research Institute, CAAS, China	China	04.06.2024

2.7.1 National

Sr. No.	Organization	Signing Date
1	Pakistan Meteorological Department, Islamabad, Pakistan	17.07.2023



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2	ACN Private Limited, Pakistan	21.07.2023
3	Agriculture Research and Facilitation Complex, Military Family Rehabilitation Organization (MFRO) Bahawalpur, Pakistan	11.08.2023
4	Gold Tree Miller Pvt, Pakistan	04.09.2023
5	Alltech Pakistan Pvt Limited, Pakistan	25.09.2023
6	Mahmood Group of Textiles, Pakistan	10.10.2023
7	Indus Sugar Mills Ltd. (ISML) Rajanpur, Pakistan	22.12.2023
8	The Lahore University of Management Sciences (LUMS), Pakistan	25.12.2023
9	Shakarganj Limited, Jhang, Pakistan	04.01.2024
10	Sojhal Savail Farmers Foundation (SSFF) , Pakistan	12.01.2024
11	Khawaja Mineral Industries Multan, Pakistan	22.02.2024
12	Hussain Salman Chemicals, Multan, Pakistan	15.03.2024
13	Oil And Gas Development Company Limited, Pakistan	18.03.2024
14	Cholistan University of Veterinary and Animal Sciences, Bahawalpur, Pakistan	03.04.2024
15	On.Farm Water Management, Punjab Agriculture Department (PAD) , Pakistan	05.04.2024
16	Alkhidmat Foundation South Punjab, Pakistan	26.04.2024
17	Patron Chemicals, Multan, Pakistan	24.05.2024
18	Dakhlay.com, Pakistan	30.06.2024

2.7 Awards Won

During the reported year, following faculty members won national / international level awards:

Sr. No.	Title of Award/ Honor	Forum/ Conferring Authority/ Organization	Name, Designation and Department of Award Winner
1	2023 Responsible Research Fellow	Health Security Partners	Prof. Dr. Asif Raz a Faculty of Veterinary and Animal Sciences
2	Green Gown Award	Green Gown Award International	Dr. Muqarab Ali Climate Change
3	Australia Awards	Department of Affairs and Foreign Trade, Asutralia	Muhammad Bilal Ahsan, Agribusiness and Entrepreneurship Development
4	Best University Teaching Award	MNSUAM	Dr. Ayesha Hakim Institute of Computing
5	Regional Winner (1st)	She Loves Tech	Dr. Ayesha Hakim Institute of Computing
6	Provincial Winner	She Loves Tech	Dr. Ayesha Hakim Institute of Computing
7	3 rd National Winner	She Loves Tech	Dr. Ayesha Hakim Institute of Computing



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8	Provincial Winner (1 st)	National Idea Bank (NIB).III	Dr. Ayesha Hakim Institute of Computing
9	1 st National Level	Falling Walls Foundation	Dr. Nadeem Iqbal Institute of Computing
10	Special National Level Prize	AFS Venture Spark MNSUAM	Dr. Nadeem Iqbal Institute of Computing
11	Best Women-led Startup	NSIT/ PITB/ CBD	Dr. Ayesha Hakim Institute of Computing
12	Society Fellowship	Royal Society Entomological	Dr. Fawad Zafar A. Khan Institute of Plant Protection

2.7 ORICs Self-Assessment Scorecards Evaluation Report (2022.23) by HEC

Higher Education Commission Islamabad introduced ORIC Policy 2021 for recognition of ORICs to enhance research quality, relevance and competitiveness and promote innovation and Commercialization at HEIs. Accordingly, ORIC MNSUAM was recognized by HEC on 11.10.2021 and achieved the status of 2nd recognized ORIC at the national level and 1st recognized ORIC in Southern Punjab.

The HEC measures the performance of all recognized ORICs through a 'Self. Assessment Scorecard' on a financial year basis. For the year 2022.23, HEC. recognized ORICs were asked to furnish their performance on a scorecard having the key performance indicators under the following major aspects:

A. Human Resource Operations	10
B. Research Excellence	45
C. Innovation Commercialization	30
D. Sustainability Capacity Building	15
Total	100

The Key Progress Indicators are derived from HEC's ORIC Policy 2021, which, in summary, include: ORIC human resources, infrastructure and governance, assistance/research support, research proposal submissions, joint research projects run, contract research agreements, policy advocacy consultancy, agreements signed for collaborations, linkages established with HEIs/corporate sector, MoUs signed with HEIs, commercialization of research, IP/Research Policy status, MoUs with industries/chambers for industrial linkages, patents filed and granted, liaison with industry, revenue generated, strategic plan, workshops, training and showcasing organized. Higher Education Commission, Islamabad evaluated the performance of all the universities across Pakistan on the basis of prescribed key performance indicators for the financial year 2022.2023. ORIC.MNSUAM has been placed in category "X" and has secured 1st amongst all the South Punjab Universities and 5th amongst all the Universities of Pakistan.

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2.11 Revenue Generated

ORIC has been facilitating faculty for the execution of national/international/industrial projects, commercialization activities, lab training and conduct of various events that involve revenue generation. A summary of revenue generated by ORIC from these services during the reported year is as follows:

Particulars	Revenue (Million PKR)
Sponsorships for events	52.20
ORIC Overhead from Research Projects	11.27
Consultancies provided	2.27
Lab Sample Analysis	0.15
Total	65.89

2.12 Facilitation to HEC Indigenous Awardee(s)

ORIC facilitated 19 PhD awardees of HEC Indigenous.5000 Fellowships, enrolled in various departments of MNSUAM for the accomplishment of their research work through timely disbursement of funds from the Treasurer Office.



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2.13 Promotion of Research and Consultancy Culture

ORIC is striving hard to promote the culture of research and consultancy by creating a research ecosystem. During the reported year, Eight faculty members provided consultancies to various agencies/industries e.g., WWF, Doaba Foundation, DevCon Development Consultants (Pvt) Limited, Gold Tree Millers Pvt. Ltd, PepsiCo Pakistan & Mumtaz Agro Industries (Pvt.) Limited. Moreover, keeping in view the need of the local community, especially the farmers and industrialists, this University has taken the following revolutionary steps:

1. All faculty members of the University are encouraged to take part in need . based research and consultancy.
2. Students are motivated for research and consultancy in the form of paid work.
3. Liaisons are being established among the researchers and extension workers to work for a common target like the establishment of the South Punjab Agriculture Forum.
4. For the benefit of the local community, the University encourages the provision of funds from its own resources to researchers to carry out problem . oriented research.

2.14 Business Incubation and Agricultural Entrepreneurship Center (BIAEC)

Business Incubation and Agricultural Entrepreneurship Center (BIAEC) is aimed to initiate the business culture among the youth, including students and career professionals of South Punjab. The overall focus of this initiative is to mobilize the new generation toward economic development by launching businesses and social enterprises. The BIAEC provides excellent counseling to students. The BIAEC helps students to convert their innovative ideas into valuable businesses.

2.14.1 Current developments at BIAEC

- Top ranked Business Incubation Centre in Pakistan at “W category”
- BIAEC two startups (Microbiome and Triple Repulsion Motor) won ISF Award 2023 with the funding of \$ 35000 each
- 13 companies are registered with SECP, 1 Patent registered with USA and 4 Trademarks registered with IPO.
- MoU signed with LUMS Tabeer Project
- Collaboration with Code to Change for training and curriculum development of incubates
- Collaboration with Dakhlay.com to facilitates entrepreneurship and admissions
- Collaboration with Kohsar University Murree for joint Bootcamp for incubates
- Successfully organized Business Plan competition “Agriculture Food Security (AFS) Venture Spark” for the year 2023.
- Commercial linkages of the accelerating companies (Green Agriculture Services with Mehmood Group and mango clusters)



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- Commercial linkages of Faculty-led startup (Colored Cotton Produce with Mehmood Group)
- 50+ mentors from Industry and Academia are part of BIAEC, MNSUAM.

2.14.2. Capacity building sessions for incubates

• Entrepreneurial Workshops

- Training Session on Digital Marketing Strategies and Importance of Graphic Designing in Branding (03 Aug 2023)
- Training Session on Social Media Marketing and Product Positioning (04 Aug 2023)
- Training Session on Social Media Marketing and Market Segmentation (07 Aug 2023)
- Entrepreneurial Workshop on Startup Small Medium Enterprise (SME) (18 Oct 2023)
- Training Session on Minimum Viable Product and One.on.One Coaching (02 May 2024)
- Training Session on Customer Segmentation and Customer Validation (08 May 2024)
- Entrepreneurial Workshop on Competitive Landscape Analysis (09 May 2024)
- Training Session on Designing a Sustainable Business Model (15 May 2024)
- Training Session on Sales and Marketing Strategies (22 May 2024)
- Training Session on Branding Strategies for BIAEC Incubatees (26 Jun 2024)

• Domain Specialist Sessions

- Training Session on Unlocking Success for Launching Agriculture-based Startups on Digital and Ecommerce Platforms (20 Jun 2024)
- Training Session on Enhancing Brand Profile on Social Media through YouTube Marketing by SEMDA (09 Aug 2024)
- Training session on “Elevate your SME Pitch Effective Techniques for Engaging Investors and Fundraising Training Session” (24 Aug 2024)
- Training Session on Export Documentation and Procedures for Agricultural Products by SMEDA (15 Dec 2024)
- Workshop on “Empowering Innovation Through Entrepreneurship in Agro-based Technologies” (16 May 2024)

• Mentorship Sessions

- Training session on designing a Sustainable Business Plan for the startups of Cohort.III by Ms. Benish Sarfraz, Manager BIAEC (27 Dec 2023)
- Online Session on “Empowering Startups: Navigating Guidelines and Maximizing Facilities at BIAEC” for Cohort.III startups incubated at BIAEC by Prof. Dr. Mubashir Mehdi, Director BIAEC (30 Jan 2024)
- Orientation Session of Cohort.III in collaboration of BIAEC and Code to Change (26 Mar 2024)



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2.14.3. Business Competitions

- Cohort-III Selection (20 Feb 2024)
- Agriculture Food Security (AFS) Venture Spark” (29 & 30 November 2023)

2.14.4. BIAEC Startups

Sr. No.	Name of Startup	Idea	Sector / Field
1	Zoom Urban Care	Horticulture	Horticulture
2	PCOS Nutrition Supplements & Vending Machine	Women Health Tech	Women Health Tech
3	Slow Release Urea for Sustainable Agriculture	Agri Tech	Agri Tech
4	Colored Cotton Produce	Eco.Friendly Textile	Eco.Friendly Textile
5	Tech For Bees	Agri Tech	Agri Tech
6	Ababeel (Agricultural Drone)	Agri Tech	Agri Tech
7	Solar Splitting Agri.Voltaics	Renewable Energy	Renewable Energy
8	Fuel Ignition Pellets	Renewable Energy	Renewable Energy
9	Diabetic Friendly Bars	Food Business	Food Business
10	Revitalize your joints Galangal blend tea	Food and Beverage Business	Food and Beverage Business
11	AgriMart: Online Crops Auction Platform	Online Crops Auction Platform	Online Crops Auction Platform
12	Sustainable Building Solutions	Green Building Materials	Green Building Materials
13	Smart Glove for Sign Language Communication	Health.Tech	Health.Tech
14	Verdant Agriculture	Agribusiness	Agribusiness
15	Ecotex Fibers	Eco.Friendly Textiles	Eco.Friendly Textiles
16	Centralized Health System	Online digital platform	Online digital platform
17	Biological Waste Management System for CLS	Waste Managemen	Waste Managemen
18	Greeno Sum	Renewable Energy	Renewable Energy
19	Eco Glue	Sustainable material business	Sustainable material business



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20	TasTea Sip (Antidepressant Tea)	Food and Beverage Business	Food and Beverage Business
21	Plant Growth Promoter Fertilizer	Bio.fertilizer	Bio.fertilizer
22	Trash Power Fertilizer	Bio.fertilizer	Bio.fertilizer
23	Therapeutic Meal Portal	Health.tech	Health.tech
24	Eco Bricks	Green Building Materials	Green Building Materials
25	Orange Tea	Food and Beverage Business	Food and Beverage Business
26	Preparation of Cumin Cookies for Diabetic Patient	Food Business	Food Business
27	Choco Nut Orbs	Food Business	Food Business
28	Faheem Foods	Online food business	Online food business
29	Organic Oasis	Green Technology	Green Technology
30	Organic bloom fertilizer	Bio.fertilizer	Bio.fertilizer
31	Agri health Hub	Agri Tech	Agri Tech
32	Two way power source remote	Tech accessories	Tech accessories
33	Conversion of Poultry Manure into Valuable Organic Fertilizer	Agribusiness	Agribusiness
34	DeepWeed Solutions	Agri Tech	Agri Tech
35	Soymilk Production	Food Business	Food Business
36	Garden and Flower Experts	Horticulture	Horticulture
37	Quinoa Cerelac	Food Business	Food Business
38	Agri.Tech Solutions	Agri Consultancy Services	Agri Consultancy Services
39	Jasmine Aesthetics	Creative Retail Business	Creative Retail Business

2.14.5. University Enterprises (SECP registered)

Startup Name: Puchick (Pvt.) Ltd.		Startup Name: Pioneer Aqua's Pvt.Ltd (value added fish products)
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	Startup Name: Proti.N Enterprises (Multigrain Flour)		Startup Name: Stress Savors Pvt. Ltd.
	Startup Name: Triple Repulsion Electric Motors		Startup Name: HONEY WORLD H.W ENTERPRISE (SMC) PRIVATE LTD
	Startup Name: RAVAL MANGO		Startup Name: Microbiome
	Startup Name: Snack Spark		Startup Name: Photon.AI (parent company of Smart Traps)
			
Startup Name: HORTI DOCTORS			



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2.15 University Rankings

MNSUAM is well recognized in the agricultural sector that was the key objective of vision 2023. MNSUAM achieved considerable success both nationally and internationally. Universities are globally ranked based on several distinct criteria including academic and employer reputation. This reputation was based on the opinions of experts and stakeholders in the field. Research output in terms of publications, innovations and their impact on society were also significant contributors to university ranking. Additionally, student.to.faculty ratio and international student and faculty diversity are often taken into ranking consideration. Finally, financial resources and alumni success also play a role in determining university's ranking. Despite being a young university, MNSUAM is in the process of making an impact in global rankings such as Times Higher Education World University Ranking and QS World University Ranking. We are proud that our university is on the right track and has won several distinctions in various national and international rankings. Currently, *MNSUAM* has won accolades in the following rankings:

- UI GreenMetric World University Rankings
- World University Rankings for Innovation (WURI)
- Times Higher Education (Impact Rankings)
- Ranking of ORIC and BIAEC by the HEC

2.15.1. UI Greenmetric World University Rankings

The UI GreenMetric World University Ranking is based on green campus and environmental sustainability initiatives undertaken by the universities. The ranking agency prudently allocates the rankings to the universities by assessing their environmental commitment and initiatives through 39 ranking indicators in six domains. MNSUAM secured 1st position at the national level and 183rd world.wide. We aim to increase awareness towards sustainability. The primary objective is to control carbon footprints and protect the natural atmosphere from the impact of drastic climate change.

MNSUAM nation.wide and global ranking status by UI GreenMetric

Ranking	2018	2019	2020	2021	2022	2023
National	5 th	4 th	3 rd	1 st	4 th	1 st
Worldwide	361 st	311 th	243 rd	154 th	203 rd	183 rd

MNSUAM nation.wide ranking status by UI GreenMetric

Rankings Domains	2018	2019	2020	2021	2022	2023
Setting and Infrastructure	13 th	9 th	5 th	5 th	6 th	6 th
Energy and Climate Change	11 th	9 th	10 th	10 th	10 th	13 th
Waste	2 nd	1 st	5 th	5 th	1 st	1 st
Water	13 th	12 th	9 th	9 th	7 th	7 th
Transportation	8 th	13 th	6 th	6 th	4 th	1 st
Education and Research	3 rd	3 rd	8 th	8 th	8 th	4 th

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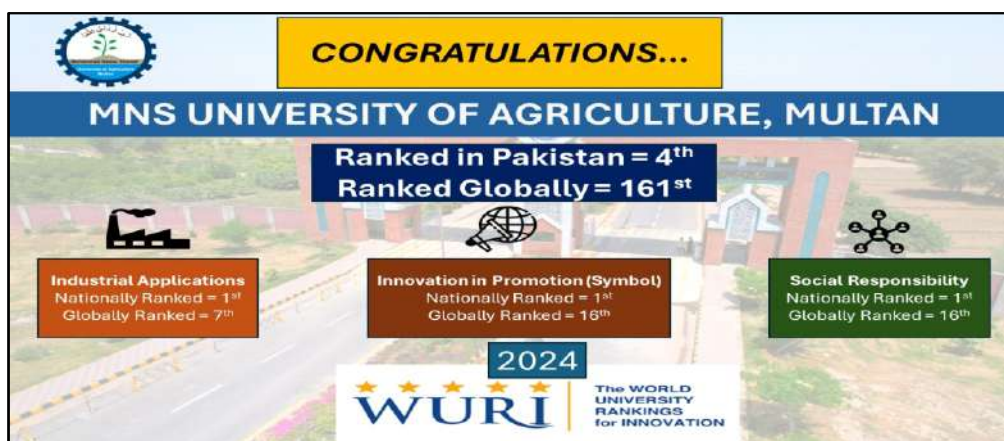


2.15.2. World University Rankings for Innovation 2024

The World University Rankings for Innovation (WURI) evaluates the university's real contributions to society, highlighting creative and innovative approaches of universities' research and educational programs. Our institution ranked amongst the top Innovative Universities of Pakistan and secured place among top 100 Innovative Universities of the world in Industrial Application, Innovation in Promotion (Symbol) and Social Responsibility.

MNSUAM nation-wide and global ranking status by WURI in industry led innovations

Rankings	2022	2023	2024
Pakistan Agriculture Universities	1 st	1 st	1 st
Pakistan Public Sector Universities	3 rd	5 th	4 th
Worldwide	101.200	101.200	101.200



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2.15.3. Times Higher Education Impact Rankings 2024

The Times Higher Education Impact Rankings uses a range of indicators to assess universities' performance in achieving the United Nations Sustainable Development Goals (SDGs). These goals encompass a broad range of issues, including poverty eradication, gender equality, clean energy, climate action, and sustainable cities. The ranking agency uses carefully calibrated indicators to provide comprehensive and balanced comparison across four key areas of research, stewardship, outreach, and teaching.

MNS University of Agriculture, Multan, has achieved remarkable success in the 2024 Times Higher Education (THE) Impact Rankings, placing 4th overall in Pakistan and 801.1000 worldwide. MNSUAM also excelled in the following Sustainable Development Goals (SDGs).

MNSUAM nation-wide and global ranking status by Times Higher Education Impact Ranking 2024

Number and Name of SDG	Ranked In Pakistan	Ranked Worldwide
SDG 6.Clean Water and Sanitation	1 st	201.300
SDG 7.Affordable and Clean Energy	2 nd	61 st
SDG 2.Zero Hunger	3 rd	201.300
SDG 13.Climate Action	3 rd	301.400
SDG 12.Responsible Consumption and Production	3 rd	401.600
sSDG 15.Life on Land	3 rd	401.600
SDG 4.Quality Education	5 th	401.600

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2.15.4 Ranking of ORIC and BIAEC by the HEC

HEC evaluates the performance of all universities across Pakistan using key performance indicators related to research excellence, innovation, commercialization, and capacity building. In this regard, HEC introduced the ORIC Policy 2021 for the recognition of ORICs to enhance research quality and their role in promoting innovation and commercialization. Accordingly, ORIC MNSUAM was recognized by HEC (on 11.10.2021), achieving the status of being the 2nd recognized ORIC at the national level and the 1st recognized ORIC in Southern Punjab. As per evaluation report 2022.2023, MNSUAM was placed in 'X's category and secured the 2nd position amongst all the Agriculture Universities of Pakistan, the 1st position amongst all the Public Sector Universities of South Punjab and the 5th among all the Universities of Pakistan. MNSUAM Business Incubation & Agriculture Entrepreneurship Centre was ranked 7th among all the Pakistan universities.

MNSUAM ranking category among national universities by HEC

Rankings	2021.2022	2022.2023	Category
All Pakistan Agriculture Universities	2 nd	2 nd	X
South Punjab Public Sector Universities	3 rd	1 st	
All Pakistan Universities	19 th	5 th	

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2.15.4 The SDG Accord

MNSUAM and The Environmental Association for Universities and Colleges (EAUC) have signed 'The SDG Accord' to inspire, celebrate and advance the critical role that education has in delivering the SDGs and the value it brings to governments, businesses and wider society. Out of 401 (including HARVARD, Oxford, and Leeds Universities), total 24 Institutions from Pakistan sign the accord (including UAF, NUST, WU, and MNSUAM) Accord Signatories recognize:

- The indivisible and interconnected nature of the universal set of Goals – People, Prosperity, Planet, Partnership, Peace etc.
- That, as educators, we have a responsibility to play a central and transformational role in attaining the Sustainable Development Goals by 2030.





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2.15 Miscellaneous Activities

- Provision of testing and lab analysis services to researchers/farmers/industry.
- ORIC facilitated the faculty to seek travel grants and research funding from various agencies.
- Seven meetings of Ethical Institutional Review Board were held to review the research proposals with respect to ethical and biosafety/biosecurity considerations prior to submission to funding agencies.
- Two meetings of ORIC Steering Committee were held to review the progress and seek guidance from industry members for better functioning of ORIC.
- Regular fortnightly meetings of Central Lab Advisory Committee were convened for smooth working of Central Lab system.
- ORIC annual report was presented to Board of Advanced Studies and Research and subsequently approved by the Syndicate.

2.16 Publications

2.17. Publications

2.17.1. Journal Articles

The following research papers/manuscripts were published during 2023-24.

Sr. No.	Paper	Authors' Name	Year	Journal	Volume	Page Number
1	Comparison of Extraction Techniques for Pectin from Kinnow Peel by using Convectional, Sonication, and Thermo-Sonication Techniques	Sajid T, F Hassan, MU Khalid, MS Mumtaz, MY Quddoes, S Mahmood, N Firdous, MS Raza, R Batool, I Irshad, A Raque.	2023	Front. Biomed. Technol.	3	39-43
2	Potential of Robotics Use in Food Industry and Future Prospects	Sibt-e-Abbas M, S Batool, S Ahmad, N Firdous, M Usman.	2023	J. Comput. Biomed. Inform.	5	274-279
3	Chemo-Modulatory Potential of Flaxseed Oil as Natural Anticancer Therapeutic. Advancements in Life Sciences	Batool A, U Farooq, A Shafi, Z Khan, RM Ikram, M Shahbaz, N Firdous, M Iqbal, N Abbas, Z Rafiq.	2023	Adv. Life Sci.	10	362-367



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4	Performance Evaluation of Different Grown Ber (<i>Ziziphus mauritiana</i>) Cultivars under Low Temperature Storage	Naz A, N Raza, M Shareef.	2023	Int. J. Food Prop.	1	1736-1748
5	Embryogenic Responses in Anther Derived Calli of White And Pink Flesh Guava (<i>Psidium guajava</i> L.) Cultivars	Bokhari SAM, B Fatima, M Usman, MS Khan, B Rashid.	2023	Pak. J. Agric. Sci.	60	537-546
6	Detection and Classification of Lung Nodule in CT Scan Images Using CNN	Hussain A, J Jabeen, M Wajid, M Haroon.	2023	J. Stat. Comput. Interdiscip.	5	67-81
7	Heavy Metal-Resistant Rhizobacteria Fosters to Alleviate the Cadmium Toxicity in Arabidopsis by Upregulating the Plant Physiological Responses	Naqqash T, A Aziz, M Gohar, J Khan, S Ali, E Radicetti, M Babar, MH Siddiqui, G Haider.	2023	Int. J. Phytoremediat .	26	1-10
8	Suppression of CLCuV in cotton (<i>Gossypium hirsutum</i> L.) using CRISPR/Cas9 system	Saboor T, P Khanum, M Ishtiaq, MHN Tahir, B Binyameen, M Hanif.	2023	Natl. Libr. Med.	4	0
9	ATP synthase Subunits: Structure and Role in Plants under Stress Conditions.	Iqbal N, A Masood, H Mubeen, F Deebea, R Waheed, I Noreen, A Zafar, P Khanum.	2023	Pak. J. Bot.	55	1661-1668
10	Factors Affecting the Sustainable Adoption of Oilseed Crops in Punjab: A Case Study of Distribution Layyah	Saeed U, N Nadeem, UI Ahmad, S Naseem, Abd-ur-Rehman.	2023	Agric. Sci. J.	5	63-71
11	MMP9 and MAFA Protein Molecular Docking with Novel Derivatives of Isoflavone from Cicer Arietinum L. as Anti-Diabetic and Anti-Inflammatory Agents	Parveen K, MAB Saddique, Z Khan, S Ijaz, HM Waqas, RM Ikram, MU Waqas.	2023	Int. J. Bot. Hortic. Res.	1	125-135



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12	Key Challenges and Mitigation Strategies for Date Palm Cultivation in Makran, Balochistan	Ali A, S Ullah, S Nayab.	2023	HortiMag	12	6
13	Fe and Zn-Loaded Cotton-Sticks Biochar and Organic Amendments Improves Chickpea Production by Enhancing Ionic Uptake and Chemical Properties of Sandy Soils	Ullah S, TU Haq, MA Shehzad, KS Ahmad, M Imran, A Matloob, HS Ahmad, M Arif, IM Moussa, HO Elansary, J Wang.	2023	Cogent Food Agric.	9	1-21
14	Antioxidant Rich Medicinal Plants as A Potential Candidate to Treat Gastric Ulcer	Altaf S, RZ Abbas, T Akhtar, F Siddique, MS Mahmood, MK Khan, K Ziaf, M Rafay, MA Khan, A Abbas, TU Rehman, LA Marcelino.	2023	Bol. Latinoam. Caribe Plant Med. Aromat.	22	560-580
15	Novel and Alternative Therapeutic Agents for Controlling Infectious Diseases of Poultry	Abbas A, RZ Abbas, MA Raza, TU Rehman, MA Saeed.	2023	Front. Vet. Sci.	10	1-2
16	Explicating Botanical Bactericides as An Intervention Tool towards Citrus Canker	Aslam N, M Atiq, NA Rajput, A Akram, AM Arif, GA Kachelo, A Nawaz, MM Jahangir, A Jabbar, A Ijaz.	2023	Plant Prot.	8	25-32
17	Efficacy of Green Synthesized Silver Based Nanomaterials Against Early Blight of Tomato Caused by Alternaria solani	Usman M, M Atiq, NA Rajput, ST Sahi, M Shad, N Lili, S Iqbal, AM Arif, U Ahmad, KS Khan, M Asif, FU Haider.	2023	Gesunde Pflanzen	76	105-115
18	Analyzing (Mis)representation of the Muslims' Holy Book 'Al-Quran' in Early Modern English Texts	Aslam Z, A Khan, N Iqba.	2023	Pak. J. Soc. Sci.	4	585-595



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19	Beyond the Binary: Exploring Literary Representation of Islamic Diversity through Irshad Abdulkadir's Prodigal	Khan A, HA Masood.	2023	IQAN	5	1-24
20	Mindfulness and Religiosity: Concept of Mindfulness and Spiritual Intelligence in Quran	Nisar F, A Saeed, A Khan.	2023	Migrat. Lett.	20	1183-1190
21	Unraveling the Synergistic Effects of Microbes And Selenium in Alleviating Drought Stress in <i>Camelina Sativa</i> L.	Nazim M, M Ali, X Li, S Anjum, F Ahmad, U Zulfiqar, K Shahzad, W Soufan.	2023	Plant Stress	9	1-11
22	Quality and Shelf Life of Strawberry Fruit as Affected by Edible Coating by Moringa Leaf Extract, Aloe Vera Gel, Oxalic Acid, And Ascorbic Acid	Shafique M, M Rashid, S Ullah, IA Rajwana, A Naz, K Razzaq, M Hussain, MA Abdelgawad, AH El-Ghorab, MM Ghoneim, ME Shaker, M Imran, E Al Jbawi.	2023	Int. J. Food Prop.	26	2995-3012
23	Deep-RPA: Vulnerability Classification of a Genome for RISPR/CAS9 Off-Targets	Saddique TU, SS Saloum, A Razzaq, A Husain, IA Baig, Z Ali, Z Khan.	2023	Curr. Bioinform.	18	1-15
24	An Edge Inspired Image Watermarking Approach Using Compass Edge Detector and LSB in Cybersecurity	Faheem Z, D Hanif, F Arslan, M Ali, A Hussain, J Ali, A Baz.	2023	Comput. Electr. Eng.	111	108979
25	Indoor smart Farming by Inducing Artificial Climate for High Value-Added Crops in Optimal Duration	Rehman AU, A Razzaq, A Altaf, S Qadri, A Hussain, AN Khan, T Rehman, Z Sarfraz.	2023	Int. J. Agric. Biol. Eng.	16	1-10
26	Classification of Microscopic Malaria Parasitized Images Using Deep Learning Feature Fusion	Asim, Muhammad.	2023	Lahore Garrison Univ. Res. J. Comput. Sci. Inf. Technol.	7	7



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27	Epidemiological Markers for Citrus Canker Caused by <i>Xanthomonas Citri</i> PV. Citri	Hameed A, NA Rajput, R Binyamin, F Ali, MW Alam, H MU Aslam, H Riaz, S Ali.	2023	Int. J. Phytopathol.	12	295-302
28	Morphological Characterization of Root Inhabiting Endophytic Bacteria	Rasheed R, MA Mehmood, A Hameed, S Anjum, MA Sher, S Ahmad, MA Farooq, MW Alam, R Binyamin, S Ali.	2023	Biol. Clin. Sci. Res. J.	2	631
29	CRISPR/Cas9-Based Genome Editing: A Revolutionary Approach for Crop Improvement and Global Food Security	Muha-Ud-Din G, F Ali, A Hameed, SAH Naqvi, MM Nizamani, M Jabran, S Sarfraz, W Yong.	2023	Physiol. Mol. Plant Pathol.	129	102191
30	Evaluation of Antifungal Potential of Phytoextracts and Chemicals Against Root Rot Of Soybean Caused by <i>Rhizoctonia Solani</i>	Batool A, NA Rajput, M Atiq, NA Khan, A Hameed, ME Khan, GA Kachelo, H Tariq.	2023	Plant Prot.	3	585-593
31	Effect of Co-Application of <i>Azospirillum brasilense</i> and <i>Rhizobium pisi</i> on Wheat Performance and Soil Nutrient Status under De?cit and Partial Root Drying Stress	Alhammad BA, MS Zaheer, HH Ali, A Hameed, KZ Ghanem, MF Seleiman.	2023	Plants	17	3141
32	<i>Ceratocystis fimbriata</i> Causing Postharvest Fruit Rot of Pear in Punjab, Pakistan	Muhae-Ud-Din G, E Tarafder, A Hameed, MW Alam, W Yong.	2023	Plant Dis.	23	1-9
33	Alleviation of Chromium Toxicity in Mung Bean (<i>Vigna radiata</i> L.) using Salicylic Acid and <i>Azospirillum Brasilens</i>	Ali HH, M Ilyas, MS Zaheer, A Hameed, K Ikram, WD Khan, R Iqbal, TH Awan, M Rizwan, AEMA Mustafa, MS Elshikh.	2023	BMC Plant Biol.	23	535-544



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34	Aggrandized Catalytic and Bactericidal Activity of Silver and Polyvinylpyrrolidone Capped Bismuth Oxybromide Quantum Dots: In Silico Molecular Docking Studies	Yousaf MS, A Haider, A Shahzadi, A Ul-Hamid, M Imran, MA Khan, W Nabgan, MM Al-Anazy, E El Shiekh, M Ikram.	2023	J. Inorg. Organomet. Polym. Mater.	34	533-545
35	Carbon Sphere Doped CdS Quantum Dots Served as A Dye Degradation and Their Bactericidal Behavior Analysed within Silico Molecular Docking Analysis	Ikram M, M Naz, A Haider, I Shahzadi, HU Mehboob, MA Bari, A Ul-Hamid, MM Algaradah, MM Al-Anazy.	2023	Nanoscale Adv.	6	233-246
36	Graphitic-Carbon Nitride and Poly Acrylic Acid Doped Vanadium Oxide for Efficient Catalytic and Antimicrobial Activity: in Silico Molecular Docking Studies	Ikram M, AR Butt, A Fatima, I Shahzadi, A Haider, A Ul-Hamid, T Alshahrani, and W Nabgan.	2023	J. Photochem. Photobiol. A Chem.	443	114835
37	Efficient Dye Degradation and Antibacterial Activity of Carbon Dots/Chitosan-Doped La ₂ O ₃ Nanorods: In Silico Molecular Docking Analysis.	Rasool S, M Imran, A Haider, A Shahzadi, W Nabgan, I Shahzadi, F Medina, MM Algaradah, AM Fouda, A Al-Shanini, and M Ikram.	2023	ACS Omega	8	25401-25409
38	In-Vitro Synergistic Microbicidal and Catalytic Evaluation of Polyvinylpyrrolidone/Chitosan Doped Tungsten Trioxide Nanoplates with Evidential In-Silico Analysis	Umar E, A Haider, I Shahzadi, A Ul-Hamid, H Ullah, S Khan, and M Ikram.	2023	Int. J. Biol. Macromol.	242	124815



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38	In-Vitro Synergistic Microbicidal and Catalytic Evaluation of Polyvinylpyrrolidone/Chitosan Doped Tungsten Trioxide Nanoplates with Evidential In-Silico Analysis	Umar E, A Haider, I Shahzadi, A Ul-Hamid, H Ullah, S Khan, and M Ikram.	2023	Int. J. Biol. Macromol.	242	124815
39	Catalytic Degradation of Methylene Blue and Bactericidal Action by Silver and CS-Doped Iron Oxide Nanostructures: Experimental and DFT Approaches	Muhammad Zain Ul Abidin, M Ikram, A Haider, A Ul-Hamid, W Nabgan, M Imran, S Goumri-Said, and MB Kanoun.	2023	Mater. Chem. Phys.	308	128300
40	Anomalous Catalytic and Antibacterial Activity Confirmed by Molecular Docking Analysis of Silver and Polyacrylic Acid Doped CeO ₂ Nanostructures	Ikram M, R Karim, A Haider, A Shahzadi, MM Algaradah, A Ul-Hamid, W Nabgan, AM Fouda, and S Ali.	2023	RSC Adv.	13	26149-26159
41	Hydrothermal Synthesis of Fe-Doped Cadmium Oxide Showed Bactericidal Behavior and Highly Efficient Visible Light Photocatalysis	Shahzadi I, M Aqeel, A Haider, S Naz, M Imran, W Nabgan, A Al-Shanini, A Shahzadi, T Alshahrani, and M Ikram.	2023	ACS Omega	8	30681-30693
42	Enhanced Industrial Dye Degradation and Antibacterial Activity Supported by the Molecular Docking Study of Yttrium and Carbon Sphere-Doped Lanthanum Oxide Nanostructures	Ayub A, M Ikram, A Haider, I Shahzadi, A Ul-Hamid, A Shahzadi, MM Algaradah, AM Fouda, W Nabgan, and M Imran.	2023	ACS Omega	8	37564-37572



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43	Co-precipitated Vanadium Oxide-Doped Carbon Spheres and Graphene Oxide Nanorods Serve as Antimicrobial And Catalytic Agents: In Silico Molecular Docking Study	Ikram M, MS Ali, A Haider, I Shahzadi, M Mustajab, A Ul-Hamid, A Shahzadi, W Nabgan, MM Algaradah, AM Fouda, and S Ali.	2023	J. Alloys Compd.	961	1-11
44	Chitosan Grafted Polyacrylic Acid Doped MnO ₂ Nanocomposite An Efficient Dye Degradation and Antimicrobial Agent	Waqas M, A Shahzadi, A Haider, AU Hamid, MM Algaradah, HS Abd-Rabboh, and M Ikram.	2023	Int. J. Biol. Macromol.	251	126343
45	Catalytic and Antimicrobial Properties of Ag and Polyacrylic Acid Doped Sro Nanocomposites; Molecular Docking Analysis	Shahzad, H; Imran, M; Haider, A; Naz, S; Umar, E; Ul-Hamid, A; Nabgan, W; Algaradah, MM; Fouda, AM; Haider, J; Ikram, M	2023	J. Photochem. Photobiol. A Chem.	444	114970
46	Multiple Phases of Yttrium-Doped Molybdenum Trioxide Nanorods as Efficient Dye Degradation and Bactericidal Agents with Molecular Docking Analysis	Zareen SS, S Guangmin, Y Li, M Kundi, SF Qadri, M Ahmad, AH Khan.	2023	Chemosphere	340	139855
47	Antimicrobial Potential and Rhodamine B Dye Degradation Using Graphitic Carbon Nitride and Polyvinylpyrrolidone Doped Bismuth Tungstate Supported with In Silico Molecular Docking	Rehman MA, A Hameed, Z Ahmad, S Ahmad, SW Ali, MI Tipu, FH Shah, T Mehmood, LD Bourquin, S Hussain.	2023	Sci. Rep.	13	1-16
48	Catalytic Performance and Antibacterial Behaviour with Molecular Docking Analysis of Silver and Polyacrylic Acid Doped Graphene Quantum Dots	Hussnain A, S Ahmad, S Murtaza, S Iqbal, U Farooq, MS Abbas.	2023	RSC Adv.	13	28008-28020



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49	Using Biologically Synthesized TiO ₂ Nanoparticles As Potential Remedy Against Multiple Drug Resistant Staphylococcus Aureus of Bovine Mastitis	Ul-Hamid A, N Baig, A Haider, AS Hakeem, M Ikram.	2023	Sci.Rep.	13	1-16
50	Synthesis of Curcuma Longa Doped Cellulose Grafted Hydrogel for Catalysis, Bactericidal and Insilico Molecular Docking Analysis	Shahzadi I, M Islam, H Saeed, A Haider, A Shahzadi, HA Rathore, A Ul-Hamid, HS Abd-Rabboh, M Ikram.	2023	Int. J. Biol. Macromol.	253	126827
51	Dye Degradation, Antimicrobial Activity, and Molecular Docking Analysis of Samarium Grafted Carbon Nitride Doped Bismuth Oxobromide Quantum Dots	Rani S, M Imran, A Haider, A Shahzadi, A Ul-Hamid, HH Somaily, S Moeen, M Khan, W Nabgan, M Ikram.	2023	Global Challenges	7	1-11
52	Carbon Spheres/Polyvinylpyrrolidone Doped MnO ₂ Nanorods Served As Dye Degradation And Antibacterial Activity With Evidential Molecular Docking	Khan L, M Ikram, A Haider, A Shahzadi, A Ul-Hamid, H Ullah, S Khan, MM Algaradah, HS Abd-Rabboh, W Nabgan, I Shahzadi.	2023	Surf. Interfaces	42	103372
53	Effective Catalytic and Antimicrobial Performance of Multiple Phase Agbr and Polyacrylic Acid Doped Nickel Oxide Nanostructures with In Silico Molecular Docking Study	Farooq Z, I Shahzadi, A Haider, H Alhummiyany, A Ul-Hamid, W Nabgan, MA Bajaber, M Imran, M Ikram.	2023	Surf. Interfaces	43	103489
54	Efficient Samarium-Grafted-C ₃ N ₄ -Doped - MoO ₃ Used as a Dye Degradation and Antibacterial Agent: In Silico Molecular Docking Study	Shabbir M, M Imran, A Haider, I Shahzadi, W Ahmad, A Ul-Hamid, W Nabgan, A Shahzadi, A Al-Shanini, MM Al-Anazy, M Adam.	2023	ACS Omega	8	34805-34815



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55	Conversion of Land Utilization, Chickpea to Eucalyptus on Marginal Lands for the Betterment of Countryside	Afzal S, S Gul, HMZ Mehmood.	2023	Glob. For.	2	26-32
56	Exogenous Melatonin Mitigates Chilling Injury in Zucchini Fruit by Enhancing Antioxidant System Activity, Promoting Endogenous Proline and GABA Accumulation, and Preserving Cell Wall Stability	Ali S, A Nawaz, S Naz, M Ali, S Ejaz, M Azam, K Razzaq.	2023	Postharvest Biol. Technol.	204	112445
57	Characterization of Indigenous Phalsa (<i>Grewia subinequalis</i>) Genotypes Using Morphological Traits and ISSR Markers	Jamil A, K Razzaq, IA Rajwana, A Naz, G Akhtar, S Ullah, HN Faried, SB Hussain, Y Li, M Amin, MA Sher, MT Altaf, H Hassan, MAA Ahmed, S Alfarraj, MJ Ansari.	2023	J. King Saud Univ. Sci.	34	102237
58	Cucumber Grafting on Indigenous Cucurbit Landraces Confers Salt Tolerance And Improves Fruit Yield by Enhancing Morpho-Physio-Biochemical and Ionic Attributes	Abbas F, HN Faried, G Akhtar, S Ullah, T Javed, MA Shehzad, K Ziaf, K Razzaq, M Amin, FM Wattoo, A Hafeez, AHA Rahimi.	2023	Sci. Rep.	13	1-14
59	Evaluation of new cultivars of <i>Gladiolus grandiflorus</i> grown in subtropical conditions for their post-harvest performance and growth traits	Akhtar G, MA Shehzad, HN Faried, S Ullah, K Razzaq, M Ahsan, Y Sajjad.	2023	N. Z. J. Crop Hortic. Sci.	0	1-16
60	Paclobutrazol and maleic hydrazide-induced growth inhibition in warm season turfgrasses through structural and physiological differences	Shahzad MM, G Akhtar, MA Shehzad, S Ullah, HN Faried, K Razzaq, F Nawaz, IA Rajwana, M Amin, M Ahsan.	2023	Kuwait J. Sci.	50	674-680



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61	Performance evaluation of different grown ber (<i>Ziziphus mauritiana</i>) cultivars under low-temperature storage	Naz A, N Raza, M Sharif, K Razzaq, S Ullah, MI Afzal, M Hussain, SH Al-Mijalli, AM Alsuhaibani, AH Al-Shawig, M Imran, Z Mushtaq, E Al-Jbawi.	2023	Int. J. Food Prop.	26	1736-1748
62	Utilization of mango seed oil as a cocoa butter replacer for the development of innovative chocolate	Abbas S, M Shahbaz, S Ahmad, M Imran, H Naeem, M Hussain, A Mujtaba, K Mubeen, MI Afzal, Q Akram, Z Mushtaq, MA Abdelgawad, MM Ghoneim, ME Shaker, E Al-Jbawi.	2023	Int. J. Food Prop.	26	3226-3240
63	Tillage Practices Affect Rhizospheric Moisture Availability and Performance of Chickpea (<i>Cicer arietinum</i> L.) Cultivars under Spate Irrigation in Punjab, Pakistan	Mubeen K, O Farooq, M Sarwar, M Ibrahim, M Ali, HM Ijaz, M Aziz, RM Ikram, F Nawaz.	2023	J. Arab Crops Mark.	5	81-94
64	Foliar-Applied Sorghum Water Extract Improves the Productivity of Wheat Planted at Varying Dates	Farooq O, K Mubeen, M Asif, M Ibrahim, M Sarwar, M Ali, F Ihsan, M Nasir.	2023	J. Arab Crops Mark.	5	75-80
65	Insights into physiological and metabolic modulations instigated by exogenous sodium nitroprusside and spermidine reveals drought tolerance in <i>Helianthus annuus</i> L.	Shehzad MA, I Hussain, G Akhtar, KS Ahmad, F Nawaz, HN Faried, A Mehmood.	2023	Plant Physiol. Biochem.	202	107935



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66	Aridity-driven changes in structural and physiological characteristics of Buffel grass (<i>Cenchrus ciliaris</i> L.) from different ecozones of Punjab Pakistan	Ameer A, F Ahmad, N Asghar, M Hameed, KS Ahmad, A Mehmood, F Nawaz, MA Shehzad, S Mumtaz, M Kaleem, U Iqbal.	2023	Physiol. Mol. Biol. Plants	29	1205-1224
67	Soil Application of Potassium Maintains Growth, Water Relations, Yield and Seed Quality of Quinoa in Salt Affected Soils	Ejaz M, MA Bakhtavar, S Iqbal, MA Khan, R Jabeen, N Jabeen, A Raza.	2023	J. Crop Health	76	287-295
68	Influence of Processing Stages in Cultivated Rice Varieties on the Feeding Preference of the Lesser Grain Borer, <i>Rhyzopertha Dominica</i> F. (Coleoptera: Bostrichidae)	Atta B, AM Sabir, MA Farooq, MD Gogi, T Bilal, MA Ayub, TH Awan, SS Ali, MU Saleem, A Nasiba.	2023	Plant Prot.	3	499-508
69	Field Evaluation of Slow-Release Wax Formulations: A Novel Approach for Managing <i>Bactrocera zonata</i> (Saunders) (Diptera: Tephritidae)	Gogi MD, WA Naveed, A Abbasi, B Atta, MA Farooq, M Subhan, IU Haq, M Asrar, NA Bukhari, AA Hatamleh, MAA Ahmed.	2023	Sustainability	15	1-21
70	Red-green or full-spectrum white LEDs have no effects on incubation or post-hatch production variables in broilers	Riaz MF, M Bergman, J Schober, E Oluwagbenga, K Christensen, GS Fraley.	2023	J. Appl. Poult. Res.	33	1-8
71	Impact of different light intensities to Japanese quail eggs on hatching results and post-hatch performance	Ali S, S Sherzada, M Usman, EU Khan, AU Rehman, MF Riaz, U Elahi, M Hussain, HRA Latif, K Saleem, S Ahmad.	2023	Trop. Anim. Health Prod.	55	387



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72	Incorporating dynamic schemes of canopy light extinction coefficient improves transpiration model performance for fruit plantations	Chen D, X Hu, X Duan, X Wei, L Zhuo, X Wang, J Guo, M Saifullah.	2023	J. Hydrol.	627	130397
73	Assessing the Impact of Land Use on Water Resources in the Dongwan Subbasin	Saifullah M, Z Li, S Liu.	2023	Geogr. Nat. Resour.	44	73-80
74	Estimation of changes in runoff and its sources in response to future climate change in a critical zone of the Karakoram mountainous region, Pakistan in the near and far future	Adnan M, S Liu, M Saifullah, M Iqbal, Q Saddique.	2023	Geomatics Nat. Hazards Risk	15	1-34
75	Numerical Modeling of Groundwater Dynamics and Management Strategies for the Sustainable Groundwater Development in Water-Scarce Agricultural Region of Punjab, Pakistan	Raheem A, I Ahmad, A Arshad, J Liu, ZU Rehman, M Shafeeqe, MM Rahman, M Saifullah, U Iqbal.	2023	Water	16	1-20
76	Augmented Reality based DNA Learning: An Innovative Educational Tool for Students	Aslam F, A Razzaq, NI Kajla.	2023	J. Comput. Biomed. Inform.	6	97-107
77	Empowering Agriculture: A Green Revolution with Internet of Energy-Driven Farm Energy Management for Sustainable and Eco-Friendly Practices	Ullah S, NI Kajla, AH Khan, M Sajid, Z Ahmad, H Ahmad, M Hussain.	2023	J. Popul. Ther. Clin. Pharmacol.	30	975-992
78	Transcriptomic analysis of <i>Ralstonia solanacearum</i> in response to antibacterial volatiles of <i>Bacillus velezensis</i> FZB42	Tahir HAS, Q Ali, FU Rajer, Q Shakeel, W Gillani, R Binyamin, HMA Tayyab, AR Khan, Q Gu, X Gao, H Wu.	2023	Arch. Microbiol.	205	358



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79	Evaluation of Chili Germplasm against Leaf Spot and its Management by Nutrients and Fungicides	Zainab B, S Ali, MA Zeshan, GM Sahi, Y Iftikhar, R Binyamin, MU Ghani, A Ahmad.	2023	Plant Prot.	7	509
80	Exploring the recuperative potential of brassinosteroids and nano-biochar on Growth, physiology, and yield of wheat under drought stress.	Raza MAS, MA Ibrahim, A Ditta, R Iqbal, MU Aslam, F Muhammad, S Ali, F Çiö, B Ali, RM Ikram, MN Muzamil, MHUR Rahman, MS Alwahibi, MS Elshikh.	2023	Sci. Rep.	13	1-13
81	Expression analysis and characterization of morpho physiological traits for reduced height and increased lodging resistance in barley (<i>Hordeum vulgare</i> L.) hybrids under different water regimes.	Liaqat S, Z Ali, MAB Saddique, RM Ikram, I Ali.	2023	Cereal Res. Commun.	52	1-19
82	Tillage practices affect soil moisture conservation and productivity of arugula (<i>Eruca sativa</i> L.) in hill torrent affected areas of Punjab	Nawaz F, K Mubeen, RM Ikram, MU Jamshaid, M Aziz, F Ehsan, A Khaliq, S Irshad.	2023	Int. J. Agric. Ext.	11	307-318
83	Soft Computing-Based Climate Change Monitoring System Using Multi- Sensor Dataset	Noor L, S Qadri, S Ullah, SA Nawaz.	2023	J. Comput. Biomed. Inform.	6	1-9
84	Machine learning approach for classification of mangifera indica leaves using digital image analysis	Aslam T, S Qadri, SF Qadri, SA Nawaz, A Razzaq, SS Zarren, M Ahmad, MU Rehman, A Hussain, I Hussain, J Jabeen, A Altaf.	2023	Int. J. Food Prop.	25	1987-1999



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85	Classification of Dates (<i>Phoenix Dactylifera</i> L.) Varieties Using Texture Feature Analysis	Badar HMY, S Qadri, A Hakim, J Iqbal, IA Baig, S Ullah, J Shabbir.	2023	J. Comput. Biomed. Inform.	5	347-358
86	Preparation of protein and mineral enriched chapatti using hybrid wheat, chickpea, and barley	Yaqoob S, S Ahmad, A Naz, MAR Rehman, MS Raza, K Razzaq, Z Ali.	2023	Pak. J. Sci. Ind. Res. Ser. B: Biol. Sci.	6	1-26
87	Aptamer functionalized gold nanoclusters as an emerging nanoprobe in biosensing, diagnostic, catalysis and bioimaging	Niazi S, IM Khan, W Akhtar, F Haq, I Pasha, MKI Khan, A Mohsin, S Ahmad, Y Zhang, Z Wang.	2023	Talanta	268	125-270
88	Characterizing of heavy metal accumulation, translocation and yield response traits of <i>Chenopodium quinoa</i>	Haseeb M, S Iqbal, MB Hafeez, H Baloch, N Zahra, M Mumtaz, MS Saddiq.	2023	J. Agric. Food Res.	14	1-8
89	Performance evaluation of different insecticides against thrips (<i>Frankliniella occidentalis</i>) on <i>Jasminum sambac</i>	Ahmad I, T Saeed, U Faheem, Q Abbas, MS Khan, M Hussain, T Ahmad, G Akhtar, A Hameed, M Hasnain, M Jamil.	2023	Sarhad J. Agric.	39	861-867
90	Assessment of four <i>Gladiolus</i> cultivars for the best production under Multan's agro-climatic conditions	Ahmad I, T Saeed, SA Khan, A Wahid, T Ahmad, G Akhtar, Q Abbas, S Ashraf, H Hussnain.	2023	J. Pure Appl. Agric.	8	1-9.
91	Assessing the Potential of Milk-Based Encapsulation Matrix for Improved Bio-Accessibility of Probiotics	Saeed M, M Azam, HS Kiani, M Hussain, H Ahsan, T Ahmad, HK Waseem, M Bilal, A Fatima, A Ali.	2023	Fermentation	9	1-18
92	Suppression of <i>Meloidogyne javanica</i> Infection in Peach (<i>Prunus persica</i> (L.) Batsch) Using Fungal Biocontrol Agents	Saeed M, T Mukhtar, R Ahmed, T Ahmad, MA Iqbal.	2023	Sustainability	15	1-13



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93	Optimization of gallic acid-enriched ultrasonic-assisted extraction from mango peels.	Riaz T, Z Hay at, K Akram, K Saleem, HU Rehman, M Azam, Z Tariq, SU Rehman, A Meraj, U Farooq, A Shafi.	2023	Open Chem.	21	20230116
94	Health or Taste: Understanding Consumers' Preferences Towards Cooking Mediums in Pakistan	Ullah S, CI Ali, UI Ahmed, S Nasir, A Masood.	2023	Sarhad J. Agric.	39	738-744
95	The influence of pruning intensity on physical and biochemical fruit attributes of pomegranate	Ghulam M, IA Rajwana, HN Faried, TU Haq, MA Bashir.	2023	Erwerbs-Obstbau	65	1849-1859
96	Fruit thinning improves pomegranate fruit quality by activating physical, physiological, biochemical and bioactive attributes	Ghulam M, IA Rajwana, HN Faried, TU Haq, MA Bashir.	2023	Pak. J. Bot.	55	2131-2141
97	Evaluation of the in vitro antioxidant and antitumor activity of hydroalcoholic extract from <i>Jatropha mollissima</i> leaves in Wistar rats	Muhammad OI, Y Gu, IA Khan, R Wang, J Chen.	2023	Front. Chem.	18	1-17
98	Effect of Tabata exercise on cardiometabolic and cardiorespiratory parameters in transgender people of Multan	Amina B, IA Khan, Maliha K Khan.	2023	J. Pak. Med. Assoc.	74	695-700
99	Phytochemical, antioxidant, antipyretic and anti-inflammatory activities of aqueous-methanolic leaf extract of <i>Mangifera indica</i>	Ain QU, IA Khan, Muhammad OI.	2023	Am. J. Transl. Res.	7	4353



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100	Evaluation of polyherbal gel for musculoskeletal injuries in industrial workers	Ain QU, IA Khan, MA Raza, A Anjum.	2023	WORK	78	234-239
101	Immunomodulatory Effects of Artemisia brevifolia Extract against Experimentally Induced Coccidiosis in Broiler Chicken	Kashif H, A Abbas, HAH Alanazi, AMA Alharbi, AA Alaiiri, A Rehman, MU Waqas, M Abul Rehman, R Yasin, B Ahmad, N Bano, HA Khera.	2023	Pak. Vet. J. (PVJ)	43	325-338
102	Evaluation of haematological, serum biochemical and oxidative stress parameters in cattle naturally infected with lumpy skin disease virus	Aziz UR, MF Shahid, M Zahid Iqbal, AA Channa, M Rasheed, M Adnan, R Mahmood, HM Ishaq, HA Khera.	2023	Trop. Anim. Health Prod.	55	184
103	Effect of coneflower, neem, and thyme extracts on growth performance, blood chemistry, immunity and intestinal microbial population of broilers.	Rehman A, Hussain K, Zaman MA, Faurk MAZ, Abbas A, Mero WMS, Abbas RZ, Waqas MU, Rani Z, Khan JA, Raza MA, Nadeem M.	2023	Kafkas Univ. Vet. Fak. Derg.	29	1-7
104	Monitoring insecticide resistance in Bemisia tabaci mitotypes in the South Punjab region of Pakistan	Shamraiz RM, S Saeed, MA Qayyum, Z Khan.	2023	Int. J. Trop. Insect Sci.	7	1-13
105	Integration of insecticidal plant crude protein and the entomopathogenic fungus crude protein against the whitefly, Bemisia tabaci (Homoptera: Aleyrodidae) Mitotype Asia II-1. Int J Trop Insect Sci 43, 1701-1713	Owais H, MA Qayyum, S Saeed, M Ali.	2023	Int. J. Trop. Insect Sci.	43	1701-1703



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106	Transcriptional plasticity of schizotrophic <i>Sclerotinia sclerotiorum</i> respond to symptomatic rapeseed and endophytic wheat hosts	Binnian T, Z Chen, Y Yu, Y Yang, A Fang, C Bi, Z Qu, Y Fu, MA Mehmood, C Zhou, D Jiang.	2023	Microbiol. Spectr.	11	1-22
107	Zucchini Yellow Mosaic Virus (ZYMV) as a Serious Biotic Stress to Cucurbits: Prevalence, Diversity, and Its Implications for Crop Sustainability	Ahsan M, M Ashfaq, MA Amer, MT Shakeel, MA Mehmood, M Umar, MA Al-Saleh.	2023	Plants	12	3503
108	Adsorption and electrochemical regeneration of 2D magnetic MXene nanosheets loaded with tetracycline	AA Ghani, B Kim, M Nawaz, KC Devarayapalli, Y Lim, G Kim, DS Lee.	2023	Chem. Eng. J.	467	143473
109	Seed Priming and Foliar Supplementation with aminobutyric Acid Alleviates Drought Stress through Mitigation of Oxidative Stress and Enhancement of Antioxidant Defense in Linseed (<i>Linum usitatissimum</i> L.).	Yasir TA, Ateeq M, Wasaya A, M Hussain, N Sarwar, K Mubeen, M Aziz, MA Iqbal, CC Ogbaga, I Al-Ashkar, MA Rahman.	2023	Phyton	11	3113-3131
110	Observing pollinator attraction to winter annual flowering plants in an urban ecosystem	Ahmad MA, M Ali, S Saeed, G Akhtar, FZA Khan.	2023	Pak. J. Zool.	4	1-8
111	Prioritizing strategies for wheat biofortification: Inspiration from underutilized species	Ali Z, S Hakeem, M Wiehle, MAB Saddique, MH Rahman.	2023	Heliyon	9	1-16
112	Coupling effects of optimized planting density and variety selection in improving the yield, nutrient accumulation, and remobilization of sweet maize in southeast China	Ye D, J Chen, X Wang, Y Sun, Z Yu, R Zhang, MAB Saddique, DS Su, MA Muneer.	2023	Agronomy	13	1-20



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113	Identification and characterization of salt stress-responsive NHX gene family in chickpea	Parveen K, MAB Saddique, S Ullah, Z Ali, I Aziz, IH Shamsi, MA Muneer.	2023	Plant Stress	10	1-12
114	Genome-wide analysis of Glutathione Peroxidase (GPX) gene family in Chickpea (<i>Cicer arietinum</i> L.) under salinity stress	Parveen K, MAB Saddique, Z Ali, SU Rehman, Z Khan, M Waqas, MZ Munir, N Hussain, MA Muneer.	2023	Gene	898	1-15-
115	Expression analysis and characterization of morpho-physiological traits for reduced height and increased lodging resistance in barley (<i>Hordeum vulgare</i> L.) hybrids under different water regimes	Liaqat S, Z Ali, MAB Saddique, RM Ikram, I Ali.	2023	Cereal Res. Commun.	52	1-19
116	Quantitative source identification and determination of natural background levels for typical ions in groundwater of the Huaibei Plain, China	Xu J, G Liu, M Zhang, M Lu, S Wang, Y Li, M Arif, W Si, G Wang.	2023	Environ. Earth Sci.	83	1-11
117	The development of plastic waste and sewage sludge co-pyrolyzed biochar composites with improved interfacial characteristics for the effective removal of ciprofloxacin	Ashraf A, G Liu, M Arif, B Yousaf, P Akhtar, A Rashid, H Gulzaman, R Safeer, MS Rashid, MI Sajjad Haider.	2024	Elsevier	184	766-781
118	Hydrochemistry, quality, and integrated health risk assessments of groundwater in the Huaibei Plain	Xu J, G Liu, R Liu, W Si, M He, G Wang, M Zhang, M Lu, M Arif.	2023	Environ. Sci. Pollut. Res.	30	123466-123479



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119	Spatial-temporal distribution, source identification, risk assessment and water quality assessment of trace elements in the surface water of typical tributary in Yangtze River delta, China	He M, G Liu, Y Li, L Zhou, M Arif, Y Liu.	2023	Mar. Pollut. Bull.	192	115035
120	Measuring technical efficiency of phalsa production in Multan, Punjab, Pakistan	Roahil HUA, CI Ali, MA Iqbal, S Ullah, MA Imran.	2023	Custos Agronegc. Online	19	320-336
121	Morpho-Molecular Study and Bio-chemical Management of Fusarium Solani in Bell Pepper	Khan MA, H Riaz, M Ramzan, UN Ullah, H Ali, T Ishfaq.	2023	Biosci. Rev.	5	43-54
122	Anticoccidial Activity of Star Anise (<i>Illicium verum</i>) Essential Oil in Broiler Chicks	Al-Hoshani N, KM Al Syaad, Z Saeed, K Kanchev, JA Khan, MA Raza, FA Atif.	2023	Pak. Vet. J.	3	553-558
123	Acidified manure and nitrogen-enriched biochar showed short-term agronomic benefits on cotton-wheat cropping systems under alkaline arid field conditions	Shah SH, MB Hussain, G Haider, TU Haq, ZA Zahir, S Danish, BA Paray, C Kammann.	2023	Sci. Rep.	13	1-13
124	Impact of Climate Change on Total Factor Productivity of Agriculture in District Multan	Faraz M, N Nadeem, HZ Mehmood, MB Ahsa.	2023	Pak. J. Humanit. Soc. Sci.	11	2532-1546
125	Impact of Socio-Economic Factors on Adoption of Advanced Agricultural Techniques: Evidence from Central Punjab, Pakistan	Sarfraz K, M Nawaz, S Akhtar, MH Raza, A Subhan, MA ur Rehman Naseer.	2023	J. Educ. Soc. Stud.	4	844-853



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126	Assessing Household's Municipal Waste Segregation Intentions in Metropolitan Cities of Pakistan: A Structural Equation Modeling Approach	Akmal T, F Jamil, MH Raza, C Magazzino, B Hussain.	2023	Environ. Monit. Assess.	195	1-20
127	Revitalizing Olive Agriculture in Punjab, Pakistan: Unleashing Potential Beyond Marketing and Production Constraints	Akhtar S, M Faisal, MAR Naseer, I Javed, A Nazir, MH Raza.	2023	Int. J. Agric. Ext.	11	253-258
128	Roles of Personal, Household, Physical, and Institutional Factors on Farmers' Efficiency of Hybrid Maize Production: Implications for Food Security	Akhtar S, A Abbas, M Faisal, MH Raza, A Samie, M Yu, A Lovell.	2023	Agric.	13	1-13
129	Assessing adaptive capacity of climate-vulnerable farming communities in flood-prone areas: Insights from a household survey in South Punjab, Pakistan Author links open overlay panel	Aqib S, M Seraj, H Ozdeser, S Khalid, MH Raza, T Ahmad.	2023	Clim. Serv.	33	1-12
130	Transgenerational effect of Afidopyropen on Bemisia tabaci Gennadius (<i>Homoptera: Aleyrodidae</i>)	Shafi MS, N Iqbal, MN Naqqash, S Saeed, M Usman, AD Abid, MS Shahzad, H Riaz, MA Bashir, RA Alajmi.	2023	Sci. Rep.	13	1-9
131	Chrysin a promising anticancer agent: recent perspectives	Shahbaz M, H Naeem, M Imran, HU UI Hassan, SA Alsagaby, W Al Abdulmonem, AB Waqar, AH Ghorab, MA Abdelgawad, MM Ghoneim, M Hussain.	2023	Int. J. Food Prop.	26	2294-2337



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132	Curcumin: a bioactive compound with molecular targets for human malignancies	Shahbaz M, M Imran, M Hussain, SA Alsagaby, U Momal, H Naeem, MA Abdelgawad, AH El-Ghorab, W Al Abdulmonem, AB Waqar, MM Ghoneim.	2023	Food Agric. Immunol.	34	1-35
133	Anticancer perspectives of genistein: a comprehensive review	Naeem H, U Momal, M Imran, M Shahbaz, M Hussain, SA Alsagaby, E AL JBawi.	2023	Int. J. Food Prop.	26	3305-3341
134	Potential effect of kaempferol against various malignancies: recent advances and perspectives.	Shahbaz M, M Imran, U Momal, H Naeem, SA Alsagaby, W Al Abdulmonem, E JBawi.	2023	Food Agric. Immunol.	34	1-32
135	Anticancer and apoptosis inducing potential of quercetin against a wide range of human malignancies. International Journal of Food Properties	Shahbaz M, H Naeem, U Momal, M Imran, SA Alsagaby, W Al Abdulmonem, AB Waqar, AH Ghorab, MM Ghoneim, MA Abdelgawad, ME Shaker, M Umar, M Hussain, R Kumar, E Al-Jbawi.	2023	Int. J. Food Prop.	26	2590-2626
136	Livestock Farming Optimization: Exploring Livestock Housing and Feeding Strategies for Efficiency in Punjab, Pakistan	Rana HA, M Usman, M Usman, MB Peerzado, SMA Amir, M Shoaib, M Shahzad.	2023	J. Agric. Vet. Sci.	2	189-196
137	Effect of irrigation regimes and nitrogen levels on growth and yield of cotton genotypes under climate of Pakistan	Ahmed S, A Hussain, MA Tariq, U Riaz, A Fareed, ZU Farooqi, NA Ikram, Z Khan, MI Ahmad, J Imam.	2023	Plant Bull.	2	69-81



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138	Optimizing Iron Seed Priming for Enhanced Yield and Biofortification of Tomato	Ikram NA, A Ghaffar, AA Khan, F Nawaz, A Hussain.	2023	J. Plant Nutr.	46	2796-2810
139	Evaluation of Toxicity Effect of different Insecticides against Camponotus Compressus	Waheed R, N Bano, N Iqbal, SM Azam, MA Raza, N Naheed, S Samreen, N Kareem, HR Javed, Q Raza, M Imran.	2023	Front. Chem. Sci.	4	13-25
140	Beyond Subsistence: Linking citrus smallholders to high-value markets for sustainable supply chain development in Pakistan	Naseer MA, A Razzaq, M Ashfaq, M Mehdi, S Karim.	2023	J. Econ. Impact	5	246-257
141	Current status and distribution of major RNA viruses infecting onion and garlic crops in Punjab, Pakistan	Hamza Z, M Ashfaq, H Riaz, S Saeed.	2023	Emir. J. Food and Agric.	35	731-741
142	Dairy Dynamics: Modernizing the Farm with Technology	Nomi ZA, MA Sabir Mughal, RM Shahbakht, A Rehman.	2023	Biol. Times	2	1-23
143	The intricate world of trichome development: From signaling pathways to transcriptional regulation	Kabir N, S Wahid, S Ur Rehman, G Qanber.	2023	Environ. Exp. Bot.	217	105549
144	Gene expression pattern of K transporter GhHAK5 gene of potassium efficient and inefficient cotton cultivars based on morphological physiognomies as affected by potassium nutrition and reduced irrigation	Naeem AM, T Ul-Haq, MA Waseem, G Abbass.	2023	J. Cotton Res.	14	1-20



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145	Fabrication and characterization of novel, cost-effective graphitic carbon nitride/Fe coated textile nanocomposites for effective degradation of dyes and biohazards	Ashraf M, F Hussain, H Aziz, U Riaz, MH Saleem, A Javid, A Nosheen, A Ali, MK Okla, IA Saleh, IA Alaraidh.	2023	Heliyon	9	0
146	Assessing and Mapping the Impact of Tourism and Changing Climatic Conditions in Himalayan Region of Pakistan	Yasin A, L Shahzad, MU Hayyat, GZ Ghafoor, S Saeed, F Sharif, U Raiz, MB Saleem.	2023	J. Environ. Manag. Tour.	14	605-622
147	Pesticides, Heavy Metals and Plasticizers: Contamination and Risk Assessment of Drinking-Water Quality	Adil N, K Ashraf, M Munir, M Mohiuddin, A Abbasi, U Riaz, A Aslam, SA Marey, AA Hatamleh, QU Zaman.	2023	Sustainability	15	1-19
148	Assessment of Health Risks in Wheat Crop Irrigated by Manka Canal, Dera Ghazi Khan, Pakistan	S Riaz, MA Saleh, KH Alamer, N Siddique, A Aslam, N Noor.	2023	Appl. Environ. Soil Sci.	2023	1-13
149	Effect of Multifactor on the Stability of Glucose Solution Emulsified Heavy Fuel Oil	Wang Y, Z Chen, OI Awad, W Qin, U Sultan.	2023	ACS Omega	8	34959-34971
150	Comparative study of NH ₃ and H ₂ impacts on combustion and emission characteristics of n-Hexadecane under different flame conditions	Akram MZ, Y Deng, M Aziz, F Ma, A Rao, U Sultan.	2023	Int. J. Hydrogen Energy	49	775-791
151	Distribution of mosquito species in various agro-ecological zones of Punjab.	Naeem-Ullah U, F Hafeez, S Ali, M Arshad, W Akram, A Ali, S Saba, A Abbas, AR Khan, A Iftekhar, M Jafir, AR Rady, BA AlMunqedhi.	2023	J. King Saud Univ. Sci.	35	1-11



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152	Morpho-molecular study and biochemical management of <i>Fusarium solani</i> in bell pepper	Khan MA, H Riaz, U Naeem-Ullah, M Ramzan, H Ali, T Ishfaq.	2023	BioSci. Rev.	5	42-54
153	Synergist response of the Peach fruit fly, <i>Bactrocera zonata</i> (Saunders) to some ammonium based proteinaceous food bait attractants	Hasnain M, S Saeed, U Naeem-Ullah, S Ullah, SM Zaka.	2023	BMC Zool.	8	1-28
154	Characterization of diverse cotton cultivars for potassium acquisition based on morphological and physiological traits at early growth stage	Akhtar MN, TU Haq, FA Ahmed, A Ghaffar.	2023	Pakistan Journal of Botany	2	611-626
155	Nutritional assessment concerning anthropometric, demographic, and food frequency questionnaires of hemodialysis patients in Sargodha, Pakistan	Hameed R, MY Quddoos, S Mahmood, TS Ullah, A Ainee, A Rafique, R Batool.	2024	Ital. J. Food Sci.	36	80-91
156	Preservation of minced raw meat using rosemary (<i>Rosmarinus officinalis</i>) and basil (<i>Ocimum basilicum</i>) essential oils	Befa Kinki A, T Atlaw, T Haile, B Meiso, D Belay, L Hagos, N Firdous.	2024	Cogent Food Agric.	10	1-10
157	Vitamin c; pharmacokinetics and its prophylactic approach to combat antimicrobial diseases	Yaqoob S, Mubeen B, MY Murtaza, N Firdous, AA Imtiaz, YA Aregbe, YK Ma.	2024	J. Tianjin Univ. Sci. Technol.	57	168-188
158	Tailoring the Use of Proso Millet in Preparation of Gluten Free Cupcakes	Raza N, N Bano, A Hamza, A Mujtaba, U Farooq, A Matloob, M Mahmood, Q Ain, M Munir.	2024	J. Nutr. Food Sci.	5	45-50



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159	Supplementation of Aloe Vera to Formulate the Fortified Bread by Managing its Nutritional Profile: Aloe Vera-Supplemented Fortified Bread	Raza N, N Bano, A Hamza, A Naz, M Shahbaz, M Khan, S Murtaza.	2024	Diet Factor	5	51-57
160	Foraging Activity of Termites at Different Sites in Multan, Pakistan	Khan MZ, N Iqbal, S Saeed, HT Gul, M Bilal, MS Ibtesam, M Ali, M Usman.	2024	Plant Bull.	3	1-9
161	Sooty Mold Disease Detection on Cotton Leaves Using Deep Learning	Rasheed S, J Jabeen, A Hakim, I Hussain, MA Mehmood.	2024	J. Comput. Biomed. Inform.	7	1-12
162	A Diagnostic Tool for Rheumatoid Arthritis and Disease Activity Levels using Machine Learning Classifiers	Batool J, A Hakim, J Jabeen.	2024	J. Comput. Biomed. Inform.	7	1-11
163	Effect of different concentrations of resveratrol on nuclear maturation and in-vitro development competence of oocytes of Nili Ravi Buffalo	Kabeer SW, A Riaz, A Ul-Rahman, et al.	2024	Trop. Anim. Health Prod.	56	105
164	Antioxidative enzymes, phytochemicals and proximate components in jujube fruit (<i>Ziziphus mauritiana</i> L.) with respect to genotypes and harvest maturity	Asghar Z, M Amin, S Ullah, H Hassan, U Habiba, K Razzaq, IA Rajwana, G Akhtar, HN Faried, M Aiyub, S Nayab, A Naz, SB Lukas, Ö Pimpek, T Izgü, HA Masood, KF Almutairi, A El Sabagh, R Khashaba, I Mirmazloun.	2024	Food Bioscience	60	104504
165	Microwave-assisted green synthesis of silver nanoparticles and chitosan nanocomposites for the removal of reactive blue-19	Rehman F, A Ali, M Zubair, U Waheed, R Khan, A Yaqoob, I Shahzadi, M Siddique.	2024	Int. J. Environ. Sci. Technol.	10	1-16



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166	Evaluation of the genetic variability between biomass and biofuel traits in Sorghum bicolor germplasm of Pakistan	Rehana, U Waheed, Shoaib-ur-Rehman, SF Arshad, S Ijaz.	2024	J. Agric. Food	4	50-65
167	Understanding the role of the fructose-1,6-bisphosphatase gene for enhancing the photosynthetic rate in Arabidopsis thaliana	Gulzar F, R Ahmad, S-Y Kwan, Z Khan, SA Alharbi, MM Shah, SU Rehman, M Siddique, MAB Saddique, MZ Ishaq, U Waheed.	2024	Funct. Plant Biol.	51	24034
168	Plant Growth Promoters Boost the Photosynthesis Related Mechanisms and Secondary Metabolism of Late-Sown Wheat under Contrasting Saline Regimes	Hafeez MB, A Ghaffar, N Zahra, N Ahmad, S Hussain, J Li.	2024	Plant Stress	12	100480
169	Phytomicrobiomes: A Potential Approach for Sustainable Pesticide Biodegradation	Salam MTB, A Mahmood, W Asghar, K Ito, R Kataoka.	2024	Appl. Sci.	14	2740
170	The application of Trichoderma spp., an old but new useful fungus, in sustainable soil health intensification: a comprehensive strategy for addressing challenges	Asghar W, KD Craven, R Kataoka, A Mahmood, N Asghar, T Raza, F Iftikhar.	2024	Plant Stress	12	1-13
171	Bio-management of weeds through utilization as value-added products: a review	Abbas T, MA Nadeem, NR Burgos, A Matloob, M Kamran, MK Munir, MTA Kalyar, N Farooq.	2024	Int. J. Agric. Biol.	31	355-366
172	An Artificial Intelligence and IoT Based Approach for the Pink Bollworm detection in Cotton Crop	Mustafa M, F Baig, HMS Badar, MMS Missen, NI Kajla.	2024	J. Comput. Biomed. Inform.	7	1-10



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173	Farmers' Perception Survey and Evaluation of Management Practices for Mango Fruit Borer (<i>Citripestis Eutraphera</i>)	Ishtiaq M, H Abbas, S Saeed, U Faheem, UN Ullah, A Raza, F Baig.	2024	Plant Protection	1	101-113
174	Silicon Nanoparticles: A Novel Approach in Plant Physiology to Combat Drought Stress	Nazim M, X Li, S Anjum, F Ahmad, M Ali, M Muhammad, K Shahzad, L Lin, U Zulfiqar.	2024	Biocatal. Agric. Biotechnol.	58	103190-99
175	Effects of Benzyl Amino Purine on Growth, Antioxidants, and Chlorophyll Contents of <i>Phaseolus Vulgaris</i> L. Cultivated Under Heat Stress	Danish S, R Rehman, A Maqbool, M Ali, M Idrees, I Irshad, S Munir, TA Alahmadi, MJ Ansari.	2024	Pak. J. Bot.	56	1-10
176	Comparison of conventional and computer-based detection of severity scales of stalk rot disease in maize	Qureshi SH, DM Khan, A Razzaq, MM Baig, SZA Bukhari.	2024	SABRAO J. Breed. Genet.	56	292-302
177	Molecular characterization and pathological features of orf virus in sheep and goats in Punjab province, Pakistan	Hussain I, MR Khan, A Aslam, M Rabbani, A Anjum.	2024	Braz. J. Biol.	84	9-16
178	Sublethal toxicity of Carbofuran in cattle egret (<i>Bubulcus ibis coromandus</i>): Hematological, biochemical, and histopathological alterations	Munir MA, KM Anjum, A Javid, N Khan, C Jianming, J Naseer, A Anjum, S Usman, M Shahzad, S Hafeez, T Hussain, A Saeed, AH Badeni, MK Mansoor, I Hussain.	2024	Braz. J. Biol.	84	e255055
179	Surveillance and management of brown spot of potato	Atiq M, MF Ullah, NA Rajput, A Hameed, S Ahmad, M Usman, A Hasnain, A Nawaz, S Iqbal, H Ahmad.	2024	Arch. Phytopathol. Plant Prot.	57	387-404



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180	Investigating the synergistic effects of biochar, trans -zeatin riboside, and <i>Azospirillum brasilense</i> on soil improvement and enzymatic activity in water-stressed wheat	Rizwan M, N Aijaz, A Hameed, K Ikram, HH Ali, Y Niaz, HMu Aslam, S Manoharadas, MW Riaz, N Ahmed, R Bibi, MA Manzoor, S Rehman.	2024	BMC Plant Biol.	24	314
181	Exploring the impact of titanium dioxide nanoparticles (nTiO ₂) at varied concentrations in combination with <i>Azospirillum brasilense</i> on wheat growth and physiology	Zaheer MS, HH Ali, S Manoharadas, A Hameed, H Riaz, MA Manzoor, S Rehman, MW Riaz, S Sabir, A Munir, MI Akram, R Iqbal.	2024	J. King Saud Univ. -Sci.	36	1-8
182	Morphogenetic characterization of <i>Stenotrophomonas maltophilia</i> infecting white stripe disease of rice (<i>Oryza sativa</i> L.)	Azmat S, R Kashif, A Dilferoze, A Hameed, F Sajid, KA Attia, MN Sukhera, AM Abushady, A Subhan.	2024	Not. Bot. Horti Agrobo. Cluj-Napoca	52	13547-13547
183	Sustainable Enhancement of Rhizospheric Properties for Brinjal (<i>Solanum Melongena</i> L.) Resilience in Drought-Prone Soils: A Microbial-Biochar Approach	Zaheer MS, HH Ali, M Iftikhar, MS Kashif, A Hameed, N Aijaz, A Raza, MW Riaz, M Ilyas, A Riaz, H Riaz.	2024	Front. Sustain. Food Syst.	8	1371043
184	Molecular characterization of <i>Pectobacterium atrosepticum</i> infecting potato and its management through chemicals.	Hameed A, M Zeeshan, R Binyamin, MW Alam, S Ali, MS Zaheer, H Ali, MW Riaz, HH Ali, MS Elshikh, KM Alarjani.	2024	PeerJ	12	1-19



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185	Efficient Dye Degradation and Antimicrobial Behavior with Molecular Docking Performance of Silver and Polyvinylpyrrolidone-Doped Zn-Fe Layered Double Hydroxide	Ahmad W, I Shahzadi, A Haider, A Ul-Hamid, H Ullah, S Khan, HH Sornailly, M Ikram.	2024	ACS Omega	9	5068-5097
186	Catalytic degradation of rhodamine blue and bactericidal action of AgBr and chitosan-doped CuFe ₂ O ₄ nanostructures evidential molecular docking analysis	Faisal MZUR, M Imran, A Haider, A Shahzadi, S Baz, A Ul-Hamid, H Alhummainy, HS Abd-Rabboh, J Hakami, M Ikram.	2024	Int. J. Biol. Macromol.	258	128885
187	Catalytic action and bactericidal behavior of samarium/carbon spheres-doped manganese oxide nanostructures and their molecular docking analysis	Haq EU, M Imran, A Haider, A Shahzadi, A Habib, A Ul-Hamid, W Nabgan, MA Bajaber, M Ikram.	2024	J. Alloys Compd.	973	172760
188	Size-controlled synthesis of La and chitosan doped cobalt selenide nanostructures for catalytic and antibacterial activity with molecular docking analysis	Shaheen F, M Imran, A Haider, A Shahzadi, S Moeen, A Ul-Hamid, H Ullah, S Khan, AS Alshomrany, M Jeridi, MM Al-Anazy, M Ikram.	2024	Int. J. Biol. Macromol.	263	130096
189	Experimental and computational study of annealed nickel sulfide quantum dots for catalytic and antibacterial activity	Kanoun MB, M Ikram, S Moeen, A Haider, A Ul-Hamid, H Alhummainy, HH Sornailly, S Goumari-Said.	2024	Nano Mater. Sci.	1	355-364
190	Dye degradation and antibacterial performance of carbon sphere and silver doped-LZH; in silico molecular docking evaluation	Hussain S, M Ikram, A Haider, A Shahzadi, S Parveen, I Shahzadi, A Ul-Hamid, MM Algaradah, AM Fouda, W Nabgan.	2024	J. Photochem. Photobiol. A Chem.	447	115242



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191	Graphitic-carbon nitride and polyvinylpyrrolidone capped barium oxide nanocomposites served as dye degrader and bactericidal potential: A molecular docking study	Ahmad F, A Haider, I Shahzadi, W Ahmad, A Ul-Hamid, H Ullah, S Khan, MM Al-Anazy, M Jeridi, M Ikram.	2024	J. Photochem. Photobiol. A Chem.	451	115536
192	Exploring catalytic efficacy and anti-bacterial performance with molecular docking analysis of g-C ₃ N ₄ -grafted-Ag doped SnO ₂ QDs	Ameen MT, A Haider, I Shahzadi, A Shahbaz, A Ul-Hamid, H Ullah, S Khan, M Ikram.	2024	Res. Chem. Intermed.	50	1-18
193	Enhancing catalytic and antibacterial activity with size-controlled yttrium and graphene quantum dots doped MgO nanostructures: A molecular docking analysis	Siddique MAB, M Imran, A Haider, A Shahzadi, A Ul-Hamid, W Nabgan, M Batool, K Khan, M Ikram, HH Smaili, and A Mahmood.	2024	Mater. Today Sustain.	25	100690
194	Experimental and computational approach of zirconium and chitosan doped NiCo ₂ O ₄ nanorods served as dye degrader and bactericidal action	Khan K, M Ikram, A Haider, A Ul-Hamid, G Ali, S Goumri-Said, MB Kanoun, SA Yousaf, A El-Rayyes, and M Jeridi.	2024	Int. J. Biol. Macromol.	272	132810
195	A comparative evaluation of transcriptome changes in lung and spleen tissues of chickens infected with velogenic and mesogenic Avian Orthoavulavirus 1. Microbial Pathogenesis	Ul-Rahman A, M Rabani, MZ Shabbir.	2024	Microb. Pathog.	174	58-64
196	Exploring Fruit Ripening Methods: Conventional, Artificial, and Novel Approaches for Quality and Health	Nasir U, A Ismail, M Riaz, K Razzaq, S Ali, A Hussain, M Ameen, A Saif, F Aslam, CAF Oliveira.	2024	Food Control	165	110626



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197	Evaluation of modified atmosphere packaging system developed through breathable technology to extend postharvest life of fresh muscadine berries	Khalil U, IA Rajwana, K Razzaq, S Singh, A Sarkhosh, JK Brecht.	2024	Food Sci. Nutr.	12	3663-3673
198	Physicochemical Attributes and Bioactive Compounds of Grape Cultivars Grown Under Warm Climate.	Khalil U, IA Rajwana, K Razzaq, G Mustafa, R Rafique, A Jamil.	2024	Appl. Fruit Sci.	66	1559-1568
199	The impact of fruit thinning on size and quality of fresh-market muscadine berries.	Khalil U, IA Rajwana, K Razzaq, JK Brecht, A Sarkhosh.	2024	J. Sci. Food Agric.	104	2198-2203
200	Integration of compost and salicylic acid "micronutrients consortia with conventional fertilizers to alleviate heat stress on nutrient use efficiency, yield and quality of cotton.	Hannan MU, W Ahmed, MN Akhtar, MB Hussain, K Mubeen.	2024	Sarhad J. Agric.	40	625-636
201	Effect of Pruning Heights on Vegetative and Reproductive Response of Rosa Gruss-an-teplitz	Majeed AR, I Ahmad, M Al-Salem, T Saeed, T Ahmad, K Mubeen, M Nadeem, M Yousif, MU Khan, U Farooq, M Waqas.	2024	Plant Health	3	19-25
202	Selenium biofortification impacts nutritional composition and storage proteins in wheat grains	Ismail MS, F Nawaz, MA Shehzad, T UI Haq, MY Ashraf.	2024	J. Food Compos. Anal.	127	105961
203	Transgenerational Seed Exposure to Elevated CO ₂ Involves Stress Memory Regulation at Metabolic Levels to Confer Drought Resistance in Wheat	Ahmad KS, MA Shehzad, H Javid, A Mehmood, G Akhtar, S Zafar, S Mahroof, EA Mahmoud, HO Elansary, A Ulfat, H Abid.	2024	ACS Omega	9	20042-20055



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204	Evaluation of integrated pest management modulation for mitigation of pesticide residues in mango1	Farooq MA, A Abbasi, MN Naqqash, B Atta, M Arshad, M Fatima.	2024	Pesq. Agropecu. Trop.	54	1-10
205	Impact of dichromatic lighted incubation on hatching result and post-hatch performance of broiler chickens	Riaz MF, A Mahmud, J Hussain, S Saima.	2024	Trop. Anim. Health Prod.	56	146
206	Improving canopy transpiration model performance by considering concurrent hot and dry conditions.	Chen D, X Hu, X Duan, D Yang, Y Wang, X Wang, M Saifullah.	2024	Agric. Syst.	217	1-19
207	Groundwater Age and Origin and Its Relationship with Anthropogenic and Climatic Factors	Iqbal U, G Nabi, M Iqbal, M Masood, AB Arshed, M Saifullah, M Shahid.	2024	Water	16	1-19
208	Prevalence of Coccidiosis in Crows, Peacock and Pigeons: Insight on Poultry Farming	Abbas A, MU Waqas.	2024	Int. J. Agric. Ext.	12	85
209	Genome-wide analysis and expression divergence of protein disulfide isomerase (PDI) gene family members in chickpea (<i>Cicer arietinum</i>) under salt stress	Parveen K, MAB Saddique, MU Waqas, KA Attia, M Rizwan, AM Abushady, IH Shamsi.	2024	Funct. Plant Biol.	51	1-11
210	Multi-epitopes vaccine design for surface glycoprotein against SARS-CoV-2 using immunoinformatic approach	Arshad SFA, R Rehana, MA Saleem, M Usman, HJ Arshad, R Rizwana, S Shakeela, AS Rukh, IA Khan, MA Hayssam, M Anwar.	2024	Heliyon	10	80-90



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211	Efficacy and mechanism of Jasminum sambac gel for musculoskeletal injuries	Ain Q Ul, SF Arshad, MO Iqbal, N Bano, S Irfan, S Maalik, S Mushtaq, M Naeem, IA Khan, A Anjum, M Usman, MA Raza.	2024	Am. J. Transl. Res.	15	1587-1601
212	Lightweight Intrusion Detection for IoD Infrastructure using Deep Learning	Badar HMS, NI Kajla, J Arshad, N Saher, M Ahmad, MA Jamil.	2024	J. Comput. Biomed. Inform.	7	1-12
213	Audio-to-Text Urdu Chatbot using Deep Learning Algorithms RNN and wav2vec2	Khalid A, MDA Awan, NI Kajla, A Firdous, HMS Badar, MMS Missen.	2024	J. Comput. Biomed. Inform. (JCBI)	7	1-9
214	Computer Vision Based Solanum Lycopersicon Leaf Disease Detection Using Transfer Learning	Hakeem A, I Hussain, S Qadri, M Mehdi, NI Kajla, AJ Akbar.	2024	J. Comput. Biomed. Inform.	6	1-11
215	Integrated Approaches for Sustainable Crop Protection against Global Spread of Cucumber Mosaic Virus	Mubeen M, A Sajid, Y Iftikhar, R Binyamin, MA Zeshan, U Saleem, K Ambreen, MU Ghani.	2024	Pak. J. Phytopathol.	36	55-63
216	A study on population diversity of citrus nematodes in district Sargodha	Haseeb A, Y Iftikhar, MA Zeshan, S Ali, R Binyamin, S Ghuffar, MU Ghani.	2024	Sarhad J. Agric.	40	149
217	Toxicity assessment of various insecticides on <i>Oxycarenus hyalinipennis costa</i> (lygaeidae: hemiptera) in laboratory settings across various districts of Punjab, Pakistan	Khan JA, M Ishtiaq, Z Mahmood, N Iqbal, RM Ikram, Z Khan.	2024	Plant Prot.	8	121-133
218	Comparative transcript abundance of GA oxidases genes in two barley genotypes with contrasting lodging resistance under different regimes of water deficit	Liaqat S, Z Ali, MAB Saddique, RM Ikram, I Ali.	2024	Funct. Plant Biol.	51	1-12



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219	A Comprehensive Analysis of Machine Learning and Deep Learning Approaches for Road Accident Prediction	Ghous H, MH Malik, S Qadri, A Atiq, SA Nawaz.	2024	J. Comput. Biomed. Inform.	6	1-13
220	A Hybrid Neural Network Based Maize Leaf Disease Identification Integrating ResNet50 and Attention Mechanism	Javed M, I Hussain, S Qadri.	2024	J. Comput. Biomed. Inform.	6	502-509
221	Remote Sensing Based Sugarcane Yield Prediction Model using Artificial Intelligence	Iftikhar M.	2024	J. Comput. Biomed. Inform.	6	1-12
222	Enhancing LAN Security by Mitigating Credential Threats via HTTP Packet Analysis with Wireshark	Hussain A, A Hussain, S Qadri, A Razzaq, H Nazir.	2024	J. Comput. Biomed. Inform.	6	433-440
223	Multifeature Analysis to Detect Cotton Leaf Curl Virus	Ahmad N, S Qadri, N Akhtar, SA Nawaz.	2024	J. Comput. Biomed. Inform.	7	215-223
224	Enhancing Skin Cancer Diagnosis with Deep Learning: A Hybrid CNN-RNN Approach	Zareen SS, G Sun, M Kundi, SF Qadri, S Qadri.	2024	Comput. Mater. Continua	79	1497-1519
225	multimodal fusion framework to diagnose cotton leaf curl virus using machine vision techniques	Ahmad N, S Qadri, N Akhtar.	2024	Cogent Food Agric.	10	1-16
226	Emerging trends to replace pesticides with nanomaterials: Recent experiences and future perspectives for ecofriendly environment.	Wang H, M Jafir, M Irfan, T Ahmad, M Zia-ur-Rehman, M Usman, M Rizwan, YA Hamoud, H Shaghaleh.	2024	J. Environ. Manage.	360	121178
227	Assessment of Green Belts and Existing Plantations along roads in Multan, Pakistan: locals' Perspectives	Ullah S, T Ahmad, T Saeed, HZ Mehmood, MM Ijaz, U Farooq, AI Iftikhar, MK Usman, KM Ashraf, M Saleem, FA Akbar.	2024	J. Educ. Soc. Stud.	5	320-329



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228	Expression analysis of fiber-related genes for staple length in upland cotton (<i>Gossypium hirsutum</i> L.)	Nadeem M, M Shahzad, Z Khan, U Akram, M Hasnain, MA Ali, MS Elshikh, F Ahmad.	2024	J. King Saud Univ. Sci.	36	103119
229	Salicylic acid associated modulation of physiological attributes of heat tolerant and heat sensitive tomato genotypes results in higher yield	Muhammad RS, R Hussain, M Rafay, S Rashid, MA Aurangzaib, M Butt, I Khalid, HN Faried, M Ahsan.	2024	Pak. J. Bot.	56	1-8
230	Indigenous Cucurbits and Grafting Techniques Affect Cucumber Productivity by Modulating Morpho-Physiobiochemical Indices	Fazal A, Faried HN, S Ullah, T Hussain, K Ziaf, M Bashir, A Hussain, W Ahmad, AU Rahman, A Asad Bahar, AM Athar.	2024	Agric. Sci. J.	6	79-91
231	Comparing Pollination Efficiency and Foraging Behavior of Honey bees and Solitary Bees for Sponge Gourd Pollination	Sibbaha A, M Ali, FZ Khan, A Sajjad, MA Qayyum, N Ahmad.	2024	Sociobiology	1	1
232	Insecticidal Efficacy of Green Synthesized Silver Nanoparticles, Bacillus Thuringiensis and Triazophos against Pectinophora gossypiella	Muhammad NK, Zhihang Z, MA Qayyum, H Ali, D Xu, Y Niaz, U Naeem-Ullah, N Ahmad, MI Khan, S Akhtar, A Nawaz, W Wakil, M Yasin.	2024	Emir. J. Food Agric.	1	1
233	Horizontal transmission of entomopathogenic fungi in red palm weevil, Rhynchophorus ferrugineus on date palm: Persistence and semi-field trial	Waleed SA, W Wakil, NG Kavallieratos, MA Qayyum, M Tahir, KG Rasool, M Husain, AR Aldawood, DS Ilan.	2024	Agronomy	14	642
234	Compatibility of selected insecticides against sucking insect pests of cotton under field conditions.	Mushtaq MT, F Manzoor, M Ishtiaq, MA Qayyum, M Ali, M Akram, MR Shahid, S Riaz.	2024	Sarhad J. Agric.	44	1



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235	Biological response of red palm weevil (<i>Rhynchophorus ferrugineus</i> , Olivier) (Coleoptera: Curculionidae) on six different varieties of date palm	Gul R, M Mamoon-ur-Rashid, H Ali, MA Qayyum, S Ali, M Ali, OU Sayal, A Latif, AA Khan.	2024	Int. J. Trop. Insect Sci.	1	1-10
236	Effect of landscape complexity, nesting substrate, and nest orientation on cavity-nesting solitary bees in southern Punjab, Pakistan	Danyal HK, M Ali, FZ Khan, MA Mehmood, S Saeed.	2024	Int. J. Trop. Insect Sci.	44	339-349
237	Occurrence of natural enemies in maize and the predatory potential of selected arthropods against fall armyworm in Multan, Pakistan	Saleem R, M Ishtiaq, FZ Khan, G Ali, MA Mehmood, MSQ Zaman.	2024	Int. J. Trop. Insect Sci.	44	1297-1307
238	Advanced strategies to mitigate heavy metals in ground and sewage water	Ahmed MM, T Tariq, MA Mehmood, M Ashfaq, M Hasan.	2024	Curr. Opin. Green Sustain. Chem.	47	100917
239	Liquid Nanoclay: Synthesis and Applications to Transform an Arid Desert into Fertile Land.	Kamel AAE, MA Mehmood, M Ashfaq, TE Abdelkhalek, RK Hassan, M Ravichandran.	2024	Soil Syst.	8	73
240	Genome-wide analysis and expression divergence of Protein Disulfide Isomerase (PDI) family members in chickpea (<i>Cicer arietinum</i> L.) under salt stress	Parveen K, MAB Saddique, MU Waqas, KA Attia, M Rizwan, AM Abushady, IH Shamsi.	2024	Funct. Plant Biol.	51	1-10
241	Dissecting wheat above-ground architecture for enhanced water use efficiency and grain yield in the subtropics	Hakeem S, Z Ali, MAB Saddique, S Merrium, M Arslan, M Habib-ur-Rahman.	2024	Bot. Stud.	65	1-12



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242	Comparative transcript abundance of gibberellin oxidases genes in two barley (<i>Hordeum vulgare</i>) genotypes with contrasting lodging resistance under different regimes of water deficit	Liaqat S, Z Ali, MAB Saddique, RM Ikram, I Ali.	2024	Funct. Plant Biol.	51	1-15
243	Upregulation of TaHSP90A transcripts enhances heat tolerance and increases grain yield in wheat under changing climate conditions	Ali A, Z Ali, MAB Saddique, M Habib-ur-Rahman, I Ali.	2024	Funct. Plant Biol.	51	1-10
244	Author Identification Using Machine Learning	Khan SA, M Asad, H Asif, A Ali, MA Jamil.	2024	J. Comput. Biomed. Inform.	7	1-19
245	An SNP based genotyping assay for genes associated with drought tolerance in bread wheat	Rauf A, MA Sher, U Farooq, A Rasheed, M Sajjad, R Jing, Z Khan, KA Attia, AA Mohammed, S Fiaz, J Chen, SU Rehman.	2024	Mol. Biol. Rep.	1	1-10
246	Mobile Application forSkin DiseaseClassification Using CNN with User Privacy	Ahmad G, M Saleem, JA Malik, WA Bukhari, MI Kashif, H Salahuddin, MAU Rehman, AU Rehman.	2024	J. Comput. Biomed. Inform.	7	432
247	Block-Chain Enhanced IoT Integration for Transparency and Efficiency in Smart Agriculture and Food Supply Chain Systems	Siddiqui MN, JA Malik, MAU Rehman, MY Khan, SB Tahir, S Shahid, M Saleem.	2024	J. Comput. Biomed. Inform.	7	1-8
248	Biofortification of wheat in salt-affected soil through seed priming and soil application of zinc	Adeel MA, S Hussain, A Basit, MB Hussain, M Aon.	2024	J. Trace Elem. Miner.	8	100159



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249	Effect of methyl jasmonate and GA3 on canola (<i>Brassica napus</i> L.) growth, antioxidants activity, and nutrient concentration cultivated in salt-affected soils	Danish S, S Sana, MB Hussain, K Dawar, HS Almoallim, MJ Ansari, M Hareem, R Datta.	2024	BMC Plant Biol.	24	1-14
250	Unveiling the Potential of A. fabrum and Aminobutyric Acid for Mitigation of Nickel Toxicity in Fenugreek	Danish S, GS Hussain, MB Hussain, AM Elgorban, R Datta.	2024	Sci. Rep.	14	1-14
251	Combined effect of gallic acid and zinc ferrite nanoparticles on wheat growth and yield under salinity stress	Shao Q, L Ren, M Ramzan, MB Hussain, R Datta, HS Almoallim, MJ Ansari, A Ehsan.	2024	Sci. Rep.	14	1-13
252	Supply chain sustainability and risk management in food cold chains: A literature review	Khalid RU, MSS Jajja, MB Ahsan.	2024	Mod. Supply Chain Res. Appl.	6	193-221
253	Assessing the effect of soil cultivation methods and genotypes on crop yield components, yield and soil properties in wheat (<i>Triticum aestivum</i> L.) and Rice (<i>Oryza sativa</i> L.) cropping system	Saini A, S Manuja, RG Upadhyay, S Manhas, C Sahoo, G Singh, RP Sharma, R Johnson, JM Joel, JT Puthur, M Imran, MR Fayezeadeh.	2024	BMC Plant Biol.	24	349
254	Transgenerational effects of pyriproxyfen in a field strain of <i>Musca domestica</i> L. (<i>Diptera: Muscidae</i>)	Iqbal N, N Sadiq, MN Naqqash, M Usman, HAA Khan, AD Abid, MS Shahzad.	2024	PLoS One	19	e0300922
255	Probiotics against Human Cancers, Inflammatory Diseases, and Other Complex Malignancies	Naeem H, HU Hassan, M Shahbaz, M Imran, AG Memon, A Hasnain, S Murtaza, SA Alsagaby, W Al Abdulmonem, M Hussain, MA Abdelgawad.	2024	J. Food Biochem.	2024	1-23



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256	Classification for Phoenix Dactylifera L. Varieties Using Statistical Features	Ijaz HM, T Aslam, SA Nawaz, M Shehzad, M Sabir, SZQ Haider, S Khan, MY Khan.	2024	J. Comput. Biomed. Inform.	7	1-15
257	Efficient Mobile-Driven Automated Attendance System Employing Biometric Authentication for University Employees	Jahangir MT, Z ul Abdeen, A Hussain, AH Wajid, M Shehzad, M Arshad.	2024	J. Comput. Biomed. Inform.	7	1-10
258	Analysis of Convolutional Neural Network for Image Classification	Ahmad G, M Saleem, JA Malik, M Shehzad, Z Sarfraz, R Ahmad, A Hasham.	2024	J. Comput. Biomed. Inform.	7	1-9
259	Investigating the Efficacy of Dry Region Zinc Solubilizing Bacteria for Growth Promotion of Maize and Wheat under Axenic Conditions	Asghar MU, A Hussain, H Anwar, A Dar, HT Ahmad, Q Nazir, N Tariq, MU Jamshaid.	2024	Plant Health	3	1-18
260	Architectural Formation with Deep Learning and Algorithmic Bindings for Cross-Domain Information Retrieval	Ahmed KT, M Fatima, S Ummesafi, A Shabbir, N Shahid, MY Khan, A Rubab, A Sadia.	2024	J. Comput. Biomed. Inform.	7	459-475
261	Control efficacy of isolates of Aspergillus nidulans and Aspergillus fumigatus against three destructive insect pests of stored grain	Khan HAA, T Khan, N Iqbal, W Anwar, M Ali.	2024	J. Stored Prod. Res.	108	1-8
262	Consumer Value Preferences: A Case of Dates in Pakistan	Shahan A, AH Siddiqui, M Mehdi, MF Ashraf, B Zeki.	2024	Migr. Lett.	21	1695-1715
263	Molecular Insights into Zoonotic Diseases: Understanding the Interface Between Animals and Humans	Nomi ZA, M Mumtaz, RM Shahbakht, SA Rajput, MZ Anwar.	2024	Biol. Times	3	32-33



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264	Simultaneous Determination of Bromoxynil and MCPA in Commercial Samples and Rawmaterials Using Reversed Phase Highperformance Liquid Chromatography	Yar A, TM Ansari, F Rehman, A Raza, U Riaz, R Iqbal, AM Al-Mohaimed, WA Al-Onazi, M Rizwan.	2024	BMC Chem.	18	1-14
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2.17.2. Books/Book Chapters Published

Sr No.	Book/Chapter Title	Editor's Name	Author's Name	Year	Publisher
1	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	U Waheed, S Shabir, Z Ishaq, M Khan, S Rauf, N Iqbal, M Siddique, I Shahzadi.	2023	Bentham Science Publishers
2	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	Fatima J, S Karim, S Rehman, F Ahmad, A Fatima, M Ashfaq, B Farid, Z Khan.	2023	Bentham Science Publishers
3	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	A Mahmood, HS Ahmad, W Asghar, TU Haq, A Hamid, Z Khan, O C Turgay, R Kataoka.	2023	Bentham Science Publishers
4	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	Insaf M, MAB Saddique, MA Sher, MA Khan, M Usman, S Karimi, R Binyamin, Z Khan.	2023	Bentham Science Publishers
5	Medicinal Plants: Microbial interactions, Molecular Techniques and Therapeutic trends	Khan Z, A Yasmin, N Safdar.	Fatima J, S Karim, S Rehman, F Ahmad, A Fatima, M Ashfaq, B Farid, Z Khan.	2023	Bentham Science Publishers



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6	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	Z Zafar, F Ahmad, SU Rehman, S Karimi, U Akram.	2023	Bentham Science Publishers
7	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	Insaf M, MAB Saddique, MA Sher, MA Khan, M Usman, S Karimi, R Binyamin, Z Khan.	2023	Bentham Science Publishers
8	Medicinal Plants: Microbial Interactions, Molecular Techniques and Therapeutic Trends	Khan Z, A Yasmin, N Safdar.	M Insaf, MAB Saddique, MA Sher, MA Khan, M Usman, S Karimi, R Binyamin, Z Khan.	2023	Bentham Science Publishers
9	Zoonosis	Khan A, M Rasheed, RZ Abbas.	MU Hayat, MH Rehman, AG Alaban, S Hussain, M Mehmood, M Hanif, SU Akhter, A Nawaz, N Alam.	2023	Unique Scientific Publisher
10	Zoonosis	Khan A, M Rasheed, RZ Abbas.	M Latif, W Danish, M Waheed, M Sattar, M Ali, N Sudheer, M Zahra, M Mehmood.	2023	Unique Scientific Publisher
11	Zoonosis	Khan A, M Rasheed, RZ Abbas.	SW Kabeer, RM Shahbakht, A Anjum, M Mehmood, AU Rahman, Z Fareed, HT Ashiq, Y Anwar, JA Khan, MA Raza.	2023	Unique Scientific Publisher



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12	Zoonosis	Khan A, M Rasheed, RZ Abbas.	SW Kabeer, RM Shahbakht, A Anjum, M Mehmood, AU Rahman, Z Fareed, HT Ashiq, Y Anwar, JA Khan, MA Raza.	2023	Unique Scientific Publisher
13	Zoonosis	Khan A, M Rasheed, RZ Abbas.	AU Rahman, MA B Sbabir, M Rasheed, N Bano, MF Shahid, M Habib, R Mehmood, N Shafi, HUR Ali Khera, SW Kabeer, KA Razaq, JA Khan, MA Raza.	2023	Unique Scientific Publisher
14	Zoonosis	Khan A, M Rasheed, RZ Abbas.	AU Rahman, MA B Sbabir, M Rasheed, N Bano, MF Shahid, M Habib, R Mehmood, N Shafi, HUR Ali Khera, SW Kabeer, KA Razaq, JA Khan, MA Raza.	2023	Unique Scientific Publisher
15	Zoonosis	Khan A, M Rasheed, RZ Abbas.	Kabeer SW, Shahbakht RM, Anjum A, Mehmood M, Fareed Z, Rahman A, ... & Raza M A.	2023	Unique Scientific Publisher
16	Zoonosis	Khan A, M Rasheed, RZ Abbas.	Tahir MA, MU Waqas et al.	2023	Unique Scientific Publisher
17	Plant MicroRNAs and Stress Response	Pandita P, A Pandita (eds).	Ijaz S, VS Khan, A Ghazanfar, ZK Khan.	2023	CRC press Tayler and Francis



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18	Biotechnology and Omics Approaches for Bioenergy Crops	Aasim M, FS Baloch, MA Nadeem, E Habyarimana, S Ahmed, G Chung.	A Mahmood, M Imran, MU Jamshaid, U Riaz, M Arif, W Ahmed, T U Haq, MA Shahzad, A Abd-Ur-Rehman, A Hamed, H Riaz, MA Khan.	2023	Springer
19	Biotechnology and Omics Approaches for Bioenergy Crops	Aasim M, FS Baloch, MA Nadeem, E Habyarimana, S Ahmed, G Chung.	MZU Abdin, M Sohail, H Riaz, S Shahid, MY Khurshid, A Mahmood, M Imran, A Hamed.	2023	Springer Nature Singapore
20	Cereal Crop: Genetic Resources and Breeding Techniques	Shah T, L Nie, MCM Teixeira Filho, R Amir.	G Haider, MA Farooq, T Shah, S Malghani, MI Awan, M Habib-ur-Rahman, AR Khalid, A Ghaffar.	2023	Taylor and Francis group
21	One Health Triad	Abbas RZ.	M A Tahir, K Hussain, A Abbas, A Haider, B Ahmad, A Ramzan, M Muneeb, S Shafqat, A Rehman, MU Waqas, R Yasin, MA Raza.	2023	Unique Scientific Publishers
22	One Health Triad	Rajput SA, AU Rahman, RM Shahbakht, RW Akhtar, A Anjum, A Ali, A Abbas, B Ahmad, JA Khan, MA Raza, A Shaukat.	Rajput S A, AU Rahman, RM Shahbakht, RW Akhtar, A Anjum, A Ali, A Abbas, B Ahmad, J A Khan, MA Raza, A Shaukat.	2023	Unique Scientific Publishers
23	One Health Triad	Khan A, RZ Abbas, L Aguilar-Marcelino, NM Saeed, M Younus.	AU Rahman, MA B Shabbir, SA Rajput, M Habib, N Bano, A Anjum, N Niaz, N Shafi, M A Raza.	2023	Unique Scientific Publishers



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24	One Health Triad	Khan A, RZ Abbas, L Aguilar- Marcelino, NM Saeed, M Younus.	SA Rajput, AU Rahman, RM Shahbakht, RW Akhtar, A Anjum, A Ali, A Abbas, B Ahmad, J A Khan, M A Raza, A Shaukat.	2023	Unique Scientific Publishers
25	One Health Triad	Khan A, RZ Abbas, L Aguilar- Marcelino, NM Saeed, M Younus.	HT Ashiq, B Khan, A Anjum, R Sultan, W Zaib, M Ashiq, S Tariq, T Mehreen, MA Raza, JA Khan, IA Khan, SA Rajput, RM Shahbakht.	2023	Unique Scientific Publishers
26	One Health Triad	Khan A, RZ Abbas, L Aguilar- Marcelino, NM Saeed, M Younus.	Zaib W, K Hussain, Q Amin, RM Shahbakht, A Abbas, S Imran, R Sardar, MU Waqas, MA Raza, JA Khan, HURA Khera, T Tariq.	2023	Unique Scientific Publishers
27	One Health Triad	Khan A, RZ Abbas, L Aguilar- Marcelino, NM Saeed, M Younus.	Waqas MU, I Chaudhary, K Hussain, A Abbas, A Rehman, B Ahmad, MA Raza, JA Khan, A Haider, A Anjum, W Zaib, HURA Khera.	2023	Unique Scientific Publishers
28	One Health Triad	Khan A, RZ Abbas, L Aguilar- Marcelino, NM Saeed, M Younus.	Ashiq HT, B Khan, A Anjum, R Sultan, W Zaib, M Ashiq, S Tariq, T Mehreen, M A Raza, J A Khan, I A Khan, S A Rajput, R M Shahbakht.	2023	Unique Scientific Publishers



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29	Green Sustainable Process for Chemical and Environmental Engineering and Science	Inamuddin, T Altalhi.	Siddique MH, F Maqbool, T Shahzad, M Waseem, I Rasul, S Hayat, M Afzal, M Faisal, S Muzammil.	2023	Elsevier
30	Abstract Book: 7th International Horticultural Conference Sustainable Horticulture	Razzaq K, S Ullah.	Razzaq K, S Ullah.	2023	MNS-University of Agriculture, Multan
31	Legumes Biofortification	Nadeem MA, FS Baloch, S Fiaz, M Aasim, E Habyarimana, O Sönmez, N Zencirci.	Ali F, A Hameed, A Rehman, S Sarfraz, N A Rajput.	2023	Springer Nature
32	Sustainable Summer Fodder	Haq I, S Ijaz.	Aslam HMU, NT Peters, N Killiny, H Riaz, A Hameed, S Aslam, Q Shakeel.	2023	CRC Press
33	Sustainable Agriculture in the Era of the OMICs Revolution	Prakash CS, S Fiaz, MA Nadeem, FS Baloch, A Qayyum.	Sarfraz S, F Ali, A Hameed, Z Ahmad, K Riaz.	2023	Springer
34	Sustainable Agriculture in the Era of the Omics Revolution	Prakash CS, S Fiaz, MA Nadeem, FS Baloch, A Qayyum.	Ali F, S Sarfraz, A Hameed, Z Ahmed.	2023	Springer
35	Edible Berries - New Insights	Kafkas NEY, H Çelik.	Rehman A, F Ali, A Hameed, MW Ali.	2023	Intechopen
36	Disaster Risk Reduction in Agriculture.	Ahmed M, S Ahmad.	Sarwar N, K Mubeen, AU Rehman, O Farooq, A Wasaya, TA Yasir, M Shahzad, M Javed, A Hussain, MI Awan, M	2023	Springer



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37	Disaster Risk Reduction in Agriculture	Ahmed M, S Ahmad.	Farooq O, N Sarwar, S Afzal, K Mubeen, AU Rehman, M Ahmad, S Ahmed, H Mehmood.	2023	Springer
38	Sustainable Agriculture Reviews. Biochar to Improve Crop Production and Decrease Plant Stress under a Changing Climate.	Fahad S, S Danish, R Datta, S Saud.	Javeed RM, M Ali, M S Ibni Zamir, R Qamar, S Kanwal, H Andleeb, N Qammar, K Jhangir, A Elkelish, M Mubeen, MA Sarwar, S Khalid, M Zain, F Nawaz, K Mubeen, MA Bukhari, A Zakir, MA Farooq, N Masood.	2023	Springer Nature Switzerland
39	Thermal Processing of Food Products by Steam and Hot Water Unit Operations and Processing Equipment in the Food Industry	Jafari SM.	Rehman A, T Qunyi, A Karim, A Noreen, S Ahmad, M Usman, SM Jafari.	2023	Elsevier
40	Unit Operations and Processing Equipments in Food Industry	Jafari SM.	Karim A, A Rehman, L Zhang, A Noreen, S Ahmad, M Usman, SM Jafari.	2023	Elsevier
41	Ultrasound and Microwave for Food Processing: Synergism for Preservation and Extraction	Nayik GA, MM Ranjha, XA Zeng, S Irfan, SM Zahra.	Murtaza S, S M Shahbaz, A Murtaza, S A, U Farooq, FH Shah, MJ Ansari.	2023	Academic Press, London
42	Mushrooms: Nutraceuticals and Functional Foods	Pandita D, A Pandita.	Batool A, U Farooq, A Shafi, N Abbas, Z Rafiq, Z Khan.	2023	CRC Press, USA



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43	Landscape Designs	Akhtar G, MA Khan.	Akhtar G, MA Khan.	2023	MNS-University of Agriculture Multan
44	Locust Outbreaks: Management and the World Economy	Riaz U, KR Hakeem.	Qayyum MA, M Yasin, W Wakil, D Hunter, M U Ghazanfar, M Wajid.	2023	Apple Publishers. CRC Press, Taylor and Francis
45	Locust Outbreaks: Management and the World Economy	Riaz U, KR Hakeem.	Qayyum MA, S Saeed, N Iqbal, A Khan, U Naeem-Ullah, H Riaz, M Ishtiaq, M Fiaz, M U Sial, A Siddique, M A Mehdi.	2023	Apple Publishers. CRC Press, Taylor and Francis
46	Locust Outbreaks Management and the World Economy	Riaz U, KR Hakeem.	Riaz U, KR Hakeem, H Aziz, S Farooq.	2023	Apple Academic Press
47	Nanohybrid Fungicides	Abd-Elsalam KA.	Mehmood M, MA Rauf, M Ashfaq, F Ahmad.	2023	Elsevier
48	Gasotransmitters Signaling in Plants under Challenging Environment	Aftab T, FJ Corpas (eds).	Yasir TA, M Ahmad, A Wasaya, M Ateeq, S Kanwal, A Wahid, M Aziz.	2023	Cham: Springer International Publishing
49	Beneficial Chemical Elements of Plants: Recent Developments and Future Prospects	Pandey S, DK Tripathi, VP Singh, S Sharma, DK Chauhan.	Rana S, ZU Rehman, MU Ashar, M Arif.	2023	WILEY
50	Polymeric Nanoparticles for Bovine Mastitis Treatment	Haider A, M Ikram, I Shahzadi, MA Raza.	Haider A, M Ikram, I Shahzadi, MA Raza.	2023	Springer
51	Potato Production Worldwide	Caliskan ME, A Bakhsh, K Jabran.	Naqqash M N.	2023	Academic Press
52	Natural Food Preservatives	Bhattacharya S, HH Abd-El Azim Salama.	Shahbaz M, J Ali, U Farooq, S Murtaza, N Raza, A Liaqat, TB Qaisrani.	2023	Jenny Stanford Publishing Pte. Ltd



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53	Natural Food Preservatives	Bhattacharya S, HH Abd-El Azim Salama.	Qaisrani TB, MM Qaisrani, M Shahbaz, KA Khan.	2023	Jenny Stanford Publishing Pte. Ltd
54	Starch based nanomaterials for food packaging perspectives and future prospectus	Nayik GA, AH Dar.	Murtaza S, M Shahbaz, FH Shah, AM Shakir, H Naeem, U Farooq, A Murtaza.	2023	Elsevier
55	Starch Based Nanomaterials for Food Packaging Perspectives and Future Prospectus	Nayik G, AH Dar.	Shahbaz M, H Naeem, S Murtaza, NU Huda, M Tayyab, A Hamza, U Momal.	2023	Elsevier
56	Starch Based Nanomaterials for Food Packaging Perspectives and Future Prospectus	Nayik GA, AH Dar.	Tariq T, IM Saleem, A Sehar, N Raza, A Saleem.	2023	Elsevier
57	Innovations in Engineering and Food Science	Mehta S, F Islam, A Imran.	Batool A, U Farooq, N Firdous, A Shafi, Z Khan, S Ahmad, MS Abbas, M Usman.	2023	IGI Global
58	Innovations in Engineering and Food Science	Mehta S, F Islam, A Imran.	Firdous N, S Ahmad, U Farooq, A Batool, M Usman, MS Abbas, Z Iqbal, MA Sidhu, T Siddique.	2023	IGI Global
59	Innovation in Engineering and Food Science.	Mehta S, F Islam, A Imran.	Firdous, N., S. Ahmad, U. Farooq, A. Batool, M. Usman, M. Sibte-Abbas, Z. Iqbal, M.A. Sidhu and T. Siddique	2023	IGI Global



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60	3rd International Conference on Smart Plant Protection	Ashfaq M, S Saeed, U Naeem, A Qayyum.	Ashfaq M, S Saeed, U Naeem, A Qayyum.	2023	IPP, MNSUAM
61	Green Nanoremediation: Sustainable Management of Environmental Pollution	Policarpo Tonelli FM, A Roy, HC Ananda Murthy.	Rafaqat S, U Riaz, F Hassan, A Hussain, G Murtaza.	2023	Springer International
62	Best Crop Management and Processing Practices for Sustainable Cotton Production	Gurney, Akin.	Akhtar MN, MW Akhtar, AA Rahi, T Ul Haq.	2023	In TechOpen Publishers
63	Best Crop Management and Processing Practices for Sustainable Cotton Production	Gurney, Akin.	Qayyum MA, S Saeed, W Wakil, M Yasin, A Nawaz, A Ali, H Ali, U Naeem- Ullah, U Sharif, H Taha, A Khalid, I Maryum, Z Shahid, WH Zubairi.	2023	IntechOpen
64	Biology and Biotechnology of Environmental Stress Tolerance in Plants	Roychoudhary A.	Riaz U, A Hassan, M Fatima, H Aziz, M Rasool, G Murtaza.	2023	Apple Academic Press
65	Waste Problems and Management in Developing Countries	Riaz U, S Iqbal, M Jamil.	Riaz U, S Iqbal, M Jamil.	2023	CRC press
66	Waste Problems and Management in Developing Countries	Riaz U, S Iqbal, M Jamil.	Mehmood T, S Bibi, AA Dar, MA Tufail, M Sohaib, U Riaz, G Rasool, A Ashraf, A Shakoor, M Ejaz.	2023	Apple Academic Press
67	Clay Composites: Environmental Applications	Vithanage M, G Lazzara, AU Rajapaksha.	Ahmad M, U Riaz, S Iqbal, H Rasheed, MM Mousa, AS Al- Farraj, MI Al- Wabel.	2023	Springer Nature Singapore



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68	Synthesis of Bionanomaterials for Biomedical Applications	Ozturk M, A Roy, RA Bhat, FM Policarpo Tonelli.	Riaz U, W Anum, GH Jatoti, G Murtaza, MA Qazi, M Rehman, QU Zaman, L Shahzad, MI Sohail, H Aziz, T Mehmood.	2023	Elsevier
69	Environmental Pollution Impact on Plants	Aftab T, KR Hakeem.	Anum W, U Riaz, L Ali, LH Akhter, RI Ahmed, A Ali.	2023	Apple Academic Press
70	Plant Phenolics in Abiotic Stress Management	Lone R, S Khan, AM Al-Sadi.	Iqbal S, U Riaz, J Akhtar, H Aziz, G Sarwar.	2023	Springer Nature Singapore
71	Melatonin: Role in Plant Signaling, Growth and Stress Tolerance: Phytomelatonin in normal and Challenging environments	Mukherjee S, FJ Corpas.	Riaz U, L Shahzad, MA Shafiq, M Kamran, H Aziz, MI Sohail, SaifUllah, G Murtaza.	2023	Springer
72	Nanotechnology-Based Sensors for Detection of Environmental Pollution	Policarpo Tonelli FM, A Roy, HC Ananda Murthy.	Mahmood A, U Riaz, MU Jamshaid, T ul Haq, M Batool, A Hamed, W Asghar, R Kataoka, OC Turgay, A Namli, Z Chen.	2024	Elsevier
73	Nanofertilizer Synthesis	Abd-Elsalam KA.	Hameed A, M Ashfaq.	2024	Elsevier
74	OMICs based Techniques for Global Food Security	Fiaz S, CS Prakash.	Ali F, A Hameed, A Rehman, S Sarfraz, NA Rajput, M Atiq.	2024	Wiley
75	Plant Quarantine Challenges under Climate Change Anxiety	Abd-Elsalam KA, SM Abdel-Momen.	Hameed A, F Ali, K Riaz, MW Alam, S Ali, R Rasheed, S Sarfraz.	2024	Springer Nature



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76	Plant Quarantine Challenges under Climate Change Anxiety	Abd-Elsalam KA, SM Abdel-Momen.	Ali F, A Rehman, A Hameed, S Sarfraz, NA Rajput, M Atiq.	2024	Springer Nature
77	Plant Quarantine Challenges under Climate Change Anxiety	Abd-Elsalam KA, SM Abdel-Momen.	Ashfaq M, I Mushtaq, MA Mehmood, SB Kayani, A Rauf.	2024	Springer Nature Switzerland AG
78	Plant Quarantine Challenges under Climate Change Anxiety	Abd-Elsalam KA, SM Abdel-Momen.	Rauf A, MA Mehmood, M Ashfaq, SB Kayani, I Mushtaq, S Javeed.	2024	Springer Nature Switzerland AG
79	Nanobiotechnology for Plant Protection, Fungal Secondary Metabolites	Abd-Elsalam KA, HI Mohamed.	Ashfaq M, I Mushtaq, MA Mehmood, F Ahmad, S Rahman.	2024	Elsevier
80	Nanobiotechnology for Plant Protection, Fungal Secondary Metabolites	Abd-Elsalam KA, HI Mohamed.	Mehmood MA, A Rouf, M Ashfaq, F Ahmad, U Akram, MA Saddique, B Farid.	2024	Elsevier
81	Poultry Manual	Hussain K.	Abbas A, A Rehman, B Ahmad, MU Waqas, M Adnan, MA Raza.	2024	Unique Publisher Faisalabad
82	Biofortification of Grain and Vegetable Crops Molecular and Breeding Approaches	Azhar MT.	Liaqat S, K Cai, MA Saddique, MA Sher, Z Ali.	2024	ELSEVIRE
83	Biofortification of Grain and Vegetable Crops Molecular and Breeding Approaches	Azhar MT.	Saddique MA, Z Ali, MA Sher, S Hakeem, D Su, MA Muneer.	2024	ELSEVIRE
84	2nd International Conference on Soil, Plant and Environmental Health under Changing Climate	Matloob A, M Arif, UM Jamshaid, U Riaz, T Ulhaq.	Matloob A, M Arif, U Jamshaid, U Riaz, T Ulhaq.	2024	Zenodo



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85	Honey Bees, Beekeeping and Bee Products	Wachkoo AA, GA Nayik, J Uddin, MJ Ansari.	Shahbaz M, H Naeem, A Hamza, S Murtaza, GA Nayik, NU Huda, AA Wachkoo, V Nanda, R Singh.	2024	Taylor and Francis Group
86	Sustainable Post Harvest Technologies for Fruits and Vegetables	Ali S, SA Mir, BN Dar, S Ejaz.	Firdous N, A Batool, S Ahmad, M Usman, MS Abbas, U Farooq, F Moradinezhad, F Jamil.	2024	Taylor and Francis
87	Food Security in the Developing World	Bashir K.	Ahmad B, H Badar, O Gjoberg, M Mehdi.	2024	wiley
88	Aquatic Contamination: Tolerance and Bioremediation	Bhat RA, GH Dar, FM Policarpo Tonelli, S Hamid.	Anum W, U Riaz, G Murtaza, SA Zulqadar, L Shahzad.	2024	Wiley
89	Sustainable Postharvest Technologies for Fruits and Vegetables	Ali S, SA Mir, BN Dar, S Ejaz.	Naz A, K Razzaq, S Ullah, M Sharif, A Hamza, S B Hussain.	2024	CRC Press

Quality Assurance



Chapter 3 Quality Assurance



Chapter 3 Quality Assurance





CHAPTER-3

QUALITY ASSURANCE

3.1. Quality Enhancement Cell

MNS University Agriculture Multan, established Quality Enhancement Cell (QEC) in May 2016 for quality assurance in academic and other activities to meet international standards of higher education. The main focus of QEC is the implementation of quality assurance policies of HEC and monitoring the degree programs being offered by the University, to promote outcome based learning. This helps in developing a mindset among the faculty and students for the promotion of academic excellence. The QEC at MNSUAM is helping and guiding the academic Departments in accreditation of undergraduate programs from respective councils and obtaining NoCs for postgraduate programs from the HEC. The QEC notifies similarity index of synopses and theses before submission to the respective offices. Furthermore, the QEC also organizes seminars and training workshops for the faculty and students for their awareness regarding standards and procedures of quality assurance. The QEC also arranges internal and external quality assessment at various levels in coordination with accreditation councils and HEC to ensure and maintain quality standards.

3.2. Functions of QEC

The QEC at MNS University of Agriculture Multan performs the following functions:

- 1) Capacity building of faculty, staff and students through seminars and trainings regarding the quality assurance in Higher Education Institutions (HEIs).
- 2) Accreditation of undergraduate programs from respective Accreditation Councils.
- 3) Helping and guiding academic departments in preparation of dossiers to apply for NoC from HEC to launch graduate programs.
- 4) Self-assessment of academic programs involving program teams and assessment teams.
- 5) Conduct of Graduate Program Review (GPR) and coordination with academic Departments / Institutes for compiling the information.
- 6) Preparation of Institutional Performance Report (IPR) and conducting Institutional Performance Evaluation (IPE).
- 7) Ensuring continuous quality improvement (CQI) through preparation of implementation plans and corrective actions taken reports in response to the findings of internal/external assessments.
- 8) Conduct the meetings of Departmental Technical Review Committees for Annual Review, Mid Term Review and Tenure Review of TTS faculty.
- 9) Capacity building of students, faculty, and non-teaching staff of the university regarding quality assurance and enhancement.
- 10) Promoting hybrid/blended learning through use of technological and digital tools.



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3.3. Assessment of Programs by Accreditation Councils

The QEC helps and guides the Institutes/Departments in preparing documents and making other necessary arrangements for the visit of Accreditation Inspection Committee (AICs) of Accreditation Councils. The QEC acts as a bridge between the teaching departments and Accreditation Councils. During the year 2023-24, accreditations visits of AICs of different councils were arranged for various programs in the University as per following detail:

Sr.	Disciplines/Programs	Accreditation Council
B.Sc. (Hons.) Agriculture		
1.	Seed Science and Technology	National Agriculture Education Accreditation Council (NAEAC)
2.	Agriculture Economics	
3.	Poultry Sciences	
4.	Fisheries and Aquaculture	
5.	Human Nutrition and Dietetics (HND)	
6.	Environmental sciences	
B.Sc.		
7.	Agro Industrial Engineering Technology	National Technology Council (NTC)

3.4. NOCs to initiate post-graduate degree programs

University is expanding and offering new MS, M.Sc. (Hons.) and Ph.D. degree programs after getting NOCs from the Higher Education Commission (HEC) for launching new postgraduate degree programs.

During 2023-24, two case were submitted to the HEC for NOC for following degree program:

- MSc (Hons) Remote Sensing and GIS
- MSc (Hons) Agricultural Extension (**For Revision**)

3.5. Departmental Technical Review of TTS Faculty

To create a spirit of competition and target based assessment, the MNSUAM promotes hiring young faculty as Assistant Professor on TTS. The meetings of DTRC, for assessing annual performance, mid probationary review, and tenure review of the TTS faculty, were held during the year under report as per following detail:



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QUALITY ASSURANCE

3.5.1. Annual Review

Sr. No.	Institutes/Departments	Faculty Members	No. of Cases
1	Computer Science (IOC)	4	4
2	Faculty of Veterinary Animal Sciences		
	• Poultry Science	1	1
	• Clinical Sciences	1	1
	• Pathobiology	4	4
	• Zoology Wild Life and Fisheries	2	2
	• Animal and Dairy Sciences	2	2
3	Food Science and Technology (FST)	1	1
4	Biotechnology (IPBB)	4	4
5	Horticulture	2	2
6	Agricultural Engineering (FABSET)	5	5
7	Agribusiness and Entrepreneurship	1	1
8	Entomology (IPP)	7	7
Total		34	34

3.5.2. Mid Probationary Review

Sr. No.	Institutes/Departments	Faculty Members	No. of Cases
1	Pathobiology (FVAS)	1	1
2	Zoology Wild Life and Fisheries (FVAS)	1	1
3	Biotechnology (IPBB)	1	1
4	Plant Pathology	2	2
5	Soil Science	1	1
6	Horticulture	2	2
7	Agricultural Engineering (FABSET)	3	3
8	Entomology (IPP)	3	3
Total		14	14

3.6. Self-Assessment of Academic Programs

Program Teams (PTs) of Institutes/Departments prepare SARs and submit to QEC, Assessment Teams (ATs) conduct the assessment and submit report to QEC. The Departments/Institutes prepare and submit implementation plans to QEC based on the findings of ATs. Assessments of SARs, preparation of implementation plans and corrective actions report of the following undergraduate and graduate programs were completed during this year:



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QUALITY ASSURANCE

Sr. No.	Programs	SARs Prepared by PTs	SARs Assessed by ATs	Implementation Plan	Corrective Actions Reports
Faculty of Agriculture and Environmental Sciences (FAES)					
1.	Plant Breeding and Genetics MSc (Hons), PhD	✓	✓	✓	✓
2.	Biotechnology MSc (Hons), PhD	✓	✓	✓	✓
3.	Entomology MSc (Hons), PhD	✓	✓	✓	✓
4.	Plant Pathology MSc (Hons), PhD	✓	✓	✓	✓
5.	Soil Science MSc (Hons), PhD	✓	✓	✓	✓
6.	Climate Change MSc (Hons)	✓	✓	✓	✓
7.	Agronomy MSc (Hons), PhD	✓	✓	✓	✓
8.	Horticulture MSc (Hons), PhD	✓	✓	✓	✓
Faculty of Food and Home Sciences (FFHS)					
9.	Food Science and Technology (FST) MSc (Hons), PhD	✓	✓	✓	✓
10.	Home Economics BSc (Hons)	✓	✓	✓	✓
Faculty of Social Sciences and Humanities (FSSH)					
11.	Agricultural and Resource Economics BSc (Hons) Agriculture	✓	✓	✓	✓



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QUALITY ASSURANCE

12.	Agriculture Economics MSc (Hons)	✓	✓	✓	✓
13.	Farm Management (BSc (Hons))	✓	✓	✓	✓

3.3. Feedback Surveys and Analysis

The QEC coordinates with academic departments for collecting feedback from various stakeholders through following surveys:

- i. Course and Teacher Evaluation Proforma
- ii. Faculty Course Review Reports
- iii. Graduating Students Survey
- iv. Alumni Survey
- v. Employer Survey
- vi. Faculty Survey

The analysis reports are prepared and shared with respective departments to revise strategies and policies regarding curriculum, teaching methodology, and other activities related to learning and administrative aspects.

With the objective of improving the course contents, teaching, and conducive classroom environment to foster learning, feedback of students is collected in the form of HEC Course and Teacher Evaluation Proformas during each semester through an online system. The data received is analysed and reports are shared with the respective chairpersons of academic departments for discussion with their faculty members for implementation. Following is the detail of number of Courses for which this information was collected during the year under consideration:

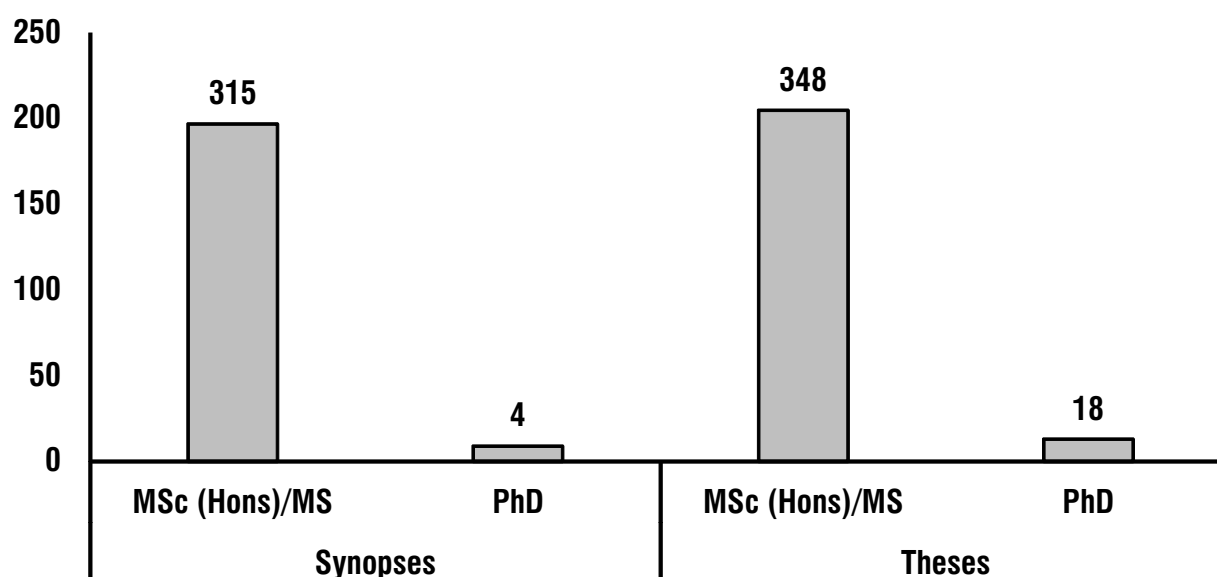
Sr. No.	Semester	Number of Courses	
		Under-graduate	Graduate
1	Winter 2023-24	422	111
2	Spring 2024	358	94

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QUALITY ASSURANCE

3.3. Plagiarism/Similarity Index Checking for Graduate Synopses/Theses

For maintaining and assuring the quality, similarity index/plagiarism checking of postgraduate research synopses and theses is mandatory at MNS-UAM and only those documents are accepted which have similarity index within permissible limits as defined by HEC. The QEC provides services for checking similarity index of synopses/theses and papers/articles submitted for travel grant to different funding agencies.



3.3. QAA-HEC Graduate Program Review (GPR)

Quality Assurance Agency (QAA) of Higher Education Commission (HEC) conducted Graduate Program Review (GPR) on December 27-28, 2024, at MNS University of Agriculture, Multan. The committee constituted by QAA-HEC comprised of Prof. Dr. Saeed Badsha, International Islamic University Islamabad, Prof. Saud Altaf, National Skills University, Islamabad, Prof. Dr. M. Akmal, University of Agriculture, Peshawar, and Ms. Sadia Bokhari, Deputy Director HEC. The committee thoroughly reviewed the documentary records, interacted with the heads of academic and administrative departments, faculty members and students, visited labs, classrooms, and other infrastructure facilities. The committee prepared a report accordingly and submitted to QAA-HEC who shared it with the university. The QEC in coordination with academic and administrative office prepared the implementation plan that was approved by the Vice chancellor.



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QUALITY ASSURANCE

3.4. Trainings/Workshops Organized

QEC conducted following capacity building training/seminars for the faculty and students to assure quality in the academic programs at the university.

1. Hands-on-Workshop on Completing PGPR Proformas and Preparation of Supplementary Files
2. Training on Use of Turnitin for Similarity Index /Plagiarism and HEC Policy
3. Workshop With Chairpersons for Analysis of Feedback Data and Preparation of Reports
4. Preparation of Implementation Plan and Action Taken of SARs
5. Efficient use of Turnitin for checking Similarity Index and Plagiarism
6. Ethics in Scientific Writing
7. Workshop on “Blended Learning: Use of Technology for Effective Teaching”

3.3. Impact of Quality Assurance

Quality Enhancement Cell is responsible for the internal and external assessment of programs, collecting feedback from stakeholders including students, employer, faculty, and alumni through different surveys. The process has improved the quality of education, students' satisfaction, and performance of the faculty members. Overall impact of Quality Assurance is as under:

1. The steps taken in terms of Quality Assurance by the QEC has created awareness among the students and teachers related to competitiveness at national and international level.
2. The standardization have created seriousness at teaching and teachers are using innovative and ICT based approaches for making learning more effective.
3. The process of assessing strengths, weaknesses and potential of the different programs through internal and external assessments has helped to prepared strategies for improving those programs meeting the required standards.
4. Efforts regarding the observance of minimum criteria for admissions and research have resulted positive outcomes at departmental level.
5. Efforts to finding high place in the University rankings within and outside the country have been undertaken.
6. Putting the different processes in proper order has been prioritized at University level.
7. Monitoring and Evaluation has become an integral component of each ongoing project.
8. Promotion of outcome based teaching (classroom management, teaching methodology, peer reviews etc.)
9. Management of academic staff (area of interest, expertise, workload and other responsibilities/duties assigned from time to time)
10. Administrative and financial management of research projects.
11. Participation/membership of external stakeholders in Board of Studies, Academic Council, Selection Board, Syndicate etc.
12. Preparation of Course Files of each course and assessment at the end of each semester

Faculty Development



Chapter 4 Faculty Development





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FACULTY DEVELOPMENT

The University has a policy for capacity building of its all employees with special emphasis on faculty development. The University regularly organizes a number of seminars and workshops in collaboration with QEC/ORIC for the professional development of young faculty. Moreover, the faculty members also participate in a number of trainings funded and organized by other organizations/agencies. These training programs focus on teaching and research methodologies and awareness on prevailing HEC/University rules and regulations.

4.1. Objectives

- Promote human resource development as an integral part of the MNSUAM strategic plan.
- Foster an environment of organizational and individual lifelong learning.
- Design, develop and implement programs and trainings/workshops that provide new knowledge, new skills, innovative thinking, and motivation, thereby contributing to significant improvements in the University's services and processes.
- Promulgate workplace harmony, effectiveness, and job satisfaction by providing programs that encourage appreciation of and sensitivity toward all persons.

4.2. Faculty development programs (MS/ PhD local + Foreign)

Sr. No.	Faculty Member	Designation	Department	Program	Name of University	Country
1	Mr. Manan Aslam	Lecturer	Agribusiness and Entrepreneurship Development	Ph. D.	Jiangsu University	China
2	Ms. Samra Naseem	Lecturer	Math. & Statistics	Ph. D	BZU	Pakistan
3	Ms. Saima Rasheed	Lecturer	IPBB	Ph.D.	UAF	Pakistan
4	Mr. Azher Khan	Lecturer	Outreach and Continuing Education	Ph.D.	IIUI	Pakistan
5	Mr. Muhammad Arslan	Lecturer	Climate Change	Ph.D.	Uni. of Bonn	Germany
6	Mr. Muhammad Rizwan	Lecturer	Agronomy	Ph.D.	Uni. of Bonn	Germany
7	Mr. Qamer Mahmood	Lecturer	Pathobiology & Biomedical Sciences	Ph.D.	Ghent University	Belgium
8	Ms. Aisha Arshad	Lecturer	Pathobiology & Biomedical Sciences	Ph.D.	Uni. of Veterinary Medicine	Vienna
9	Mr. Shoaib Nasir	Lecturer	Agricultural & Resource Economics	Ph. D.	Foreman Christian College University, Lahore	Pakistan



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10	Mr. Adnan Altaf	Lecturer	Institute of Computing	Ph. D.	Jiangsu University	China
11	Engr. Shahzad Ahmed	Lecturer	Agricultural Engineering	Ph. D.	Southern University of Science & Technology	China
12	Engr. Muhammad Kashif	Lecturer	Agricultural Engineering	Ph. D.	University of California	USA
13	Mr. Waqar Zaib	Lecturer	Pathobiology & Biomedical Sciences	Ph. D.	University of Ghent	Belgium
14	Ms. Amina Irfan	Lecturer	Zoology, Wildlife & Fisheries	Ph. D.	University of Cambridge	United Kingdom

4.3. Returned Scholars

Sr. No.	Name of Faculty	Program	Name of University
1	Mr. Asif Mahmood Arif	Ph. D	University of Agriculture Faisalabad

4.4. Faculty and Staff Trainings/Workshop Organized

Sr. No.	Training	Duration		Organization	Trainee
		From	To		
1	2 nd International Youth Forum for Biotechnology in Astana, Kazakhstan	02-07-2023	07-07-2023	Islamic Organization for Food Security (IOFS)	Dr. Shoaib Ur Rehman, Assistant Professor
2	Faculty Training Program at Women University, Multan	10-07-2023	05-08-2023	The Women University Multan	Ms. Aimen Batool, Lecturer (English)
3	Faculty Training Program at Women University, Multan	10-07-2023	05-08-2023	The Women University Multan	Ms. Bukhtawar Rana, Research Officer (English)
4	Agri Forum Events in China	11-07-2023	16-07-2023	TANG Education Group, China	Prof. Dr. Ishtiaq Ahmad Rajwana, Pro-Vice Chancellor
5	China-Central Asia International Conference on Agricultural Science and Technology	15-07-2023	20-07-2023	Xinjiang Agricultural Vocational Technical College, China	Dr. Muhammad Asif Raza, Professor
6	Annual Training on Sustainable Rural Development	01-08-2023	30-09-2023	Government of Arab Republic of Egypt	Dr. Muhammad Umair Waqas, Lecturer
7	Training Course on New Technology of Quality and Safety in Tropical Agro-Products for Developing Countries	10-08-2023	29-08-2023	Chinese Government at China	Prof. Dr. Umar Farooq, Dean, FF&HS / Chairman, Department of HND



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8	Training Course on New Technology of Quality and Safety in Tropical Agro-Products for Developing Countries	10-08-2023	29-08-2023	Chinese Government at China	Dr. Muhammad Shahbaz, Chairman, Department of FS&T
9	Training Course on New Technology of Quality and Safety in Tropical Agro-Products for Developing Countries	10-08-2023	29-08-2023	Chinese Government at China	Dr. Ambreen Naz, Chairperson, Department of Home Science
10	Training course on tropical fruit production and processing techniques in developing countries	10-08-2023	03-09-2023	Chinese Government at China	Prof. Dr. Ishtiaq Ahmad Rajwana, Pro-Vice Chancellor
11	Training course on tropical fruit production and processing techniques in developing countries	10-08-2023	03-09-2023	Chinese Government at China	Dr. Tanveer Ahmad, Chairman, Department of Horticulture
12	Training course on tropical fruit production and processing techniques in developing countries	10-08-2023	03-09-2023	Chinese Government at China	Dr. Kashif Razzaq, Associate Professor, Department of Horticulture
13	Capacity Building Training for Offices of Research, Innovation and Commercialization (ORICs)	16-08-2023	18-08-2023	Higher Education Commission (HEC)	Dr. Maher Iftikhar Ahmad, Manager Research Development
14	Mango Festival at Urumqi, China	16-08-2023	25-08-2023	Chinese Government at China	Dr. Abid Hussain, Manager, University Industrial Linkages & Technology
15	Keynote Speaker to the International Conference New IPM: ONE HEALTH - International Symposium & Networking Even	01-09-2023	12-09-2023	Swansea University, United Kingdom	Prof. Dr. Shafqat Saeed, Professor
16	Training on genomics data analysis at Beijing Genomics Institute (BGI), China	03-09-2023	19-09-2023	Beijing Genomics Institute (BGI), China	Dr. Muhammad Asaf Khan, Associate Professor
17	Training on genomics data analysis at Beijing Genomics Institute (BGI), China	03-09-2023	19-09-2023	Beijing Genomics Institute (BGI), China	Dr. Zulqurnain Khan, Assistant Professor
18	Training on genomics data analysis at Beijing Genomics Institute (BGI), China	03-09-2023	19-09-2023	Beijing Genomics Institute (BGI), China	Dr. Shoaib Ur Rehman, Assistant Professor
19	Workshop "USSEC-SA Aquacon INVEST session-2" at Colombo, Sri Lanka	03-09-2023	07-09-2023	U.S. Soybean Export Council (USSEC)	Dr. Naheed Bano, Assistant Professor



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20	training under the ACIAR funded project Crop-2020-167 entitled "Accelerating genetic gain in wheat through hybrid breeding in Bangladesh, Ethiopia and Pakistan"	17-09-2023	16-10-2023	University of Sydney, Australia	Dr. Muhammad Ali Sher, Lecturer
21	Workshop on "Revealing the Advantages of Crop Type Mapping and Geospatial Applications through Results Sharing"	20-09-2023	20-09-2023	Food and Agriculture Organization (FAO)	Dr. Shazia Hanif, Assistant Professor
22	Workshop on "Revealing the Advantages of Crop Type Mapping and Geospatial Applications through Results Sharing"	20-09-2023	20-09-2023	Food and Agriculture Organization (FAO)	Dr. Muhammad Saifullah, Assistant Professor
23	Key Note Speaker in the 7 th International Rural Tourism and Development Congress	21-09-2023	02-10-2023	Kutahya Dumlupinar University in Kuathya-Turkey	Prof. Dr. Irfan Ahmad Baig, Professor
24	Key Note Speaker in the 7 th International Rural Tourism and Development Congress	21-09-2023	02-10-2023	Kutahya Dumlupinar University in Kuathya-Turkey	Prof. Dr. Muhammad Ashfaq, Subject Expert
25	Visit of Health Security Partners (HSP) Training Institute, Kuala Lumpur, Malaysia in response of the MoU signed between the MNSUAM and Association of Biorisk Management (ABM)	23-09-2023	29-09-2023	Health Security Partners (HSP) Training Institute, Kuala Lumpur, Malaysia	Prof. Dr. Muhammad Asif Raza, Professor
26	Partnership Brokering and Leadership Training for ACIAR Alumni at Kennedy, Sri Lanka	23-09-2023	29-09-2023	ACIAR Alumni at Kennedy, Sri Lanka	Prof. Dr. Mubashir Mehdi, Professor
27	Consortium Meeting by AWMI, Lahore	26-09-2023	26-09-2023	International Water Management Institute (IWMI), Lahore	Dr. Habib-Ur-Rahman, Associate Professor
28	Consortium Meeting by AWMI, Lahore	26-09-2023	26-09-2023	International Water Management Institute (IWMI), Lahore	Dr. Mohsin Nawaz, Assistant Professor
29	Implementing Outcome Based Education (OBE) Framework	30-09-2023	30-09-2023	Institute of Human Skill Development	Prof. Dr. Hammad Nadeem Tahir, Professor
30	Implementing Outcome Based Education (OBE) Framework	30-09-2023	30-09-2023	Institute of Human Skill Development	Dr. Hafiz Muhammad Sanaullah Badar, Assistant Professor



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31	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Ishtiaq Ahmad Rajwana, Prov Vice Chancellor
32	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Irfan Ahmad Baig, Dean FSS&H
33	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Shafqat Saeed, Dean FA&ES
34	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Umar Farooq , Dean FFHS
35	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Muhammad Asif Raza, Professor
36	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Muhammad Ashfaq, Director IPP
37	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Prof. Dr. Salman Qadri , Professor
38	Online Seminar Awareness regarding prevention of blasphemous material/activities on social media	04-10-2023	04-10-2023	HEC Islamabad	Dr. Abdul Razzaq , Director IT
39	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Ms. Madiha Gohar , Lecturer



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40	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Dr. Sehrish Ijaz, Lecturer
41	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Dr. Akhtar Hameed, Assistant Professor
42	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Ms. Umrah Zafar, Lecturer
43	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Ms. Misbah Sharif, Lecturer
44	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VI	10-10-2023	12-10-2023	PHEC Lahore	Mr. Muhammad Nasir Siddiqui, Lecturer
45	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Ayesha Hakim, Assistant Professor



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46	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Kashif Hussain , Assistant Professor
47	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Fawad Zafar Ahmed Khan, Assistant Professor
48	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Ahmad Mahmood , Assistant Professor
49	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Nighat, Assistant Professor
50	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Ms. Aisha Bibi, Deputy Registrar
51	"Protection against Harassment of Women at the Workplace Act, 2010" & "Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan"	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Ms. Aimen Batool, Lecturer



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52	“Protection against Harassment of Women at the Workplace Act, 2010” & “Prevention of Sexual Exploitation and Abuse (PSEA) in Collaboration with Violence against Women Center Multan”	12-10-2023	12-10-2023	Lodhran Pilot Project at Lincoln Corner, BZU Library, Multan	Dr. Plosha Khanum , Lecturer
53	Water Resource Management - Issues and Way Forward	16-10-2023	20-10-2023	Akhtar Hameed Khan National Centre for Rural Development (AHKNCRD), Islamabad	Dr. Mohsin Nawaz , Assistant Professor
54	Water Resource Management - Issues and Way Forward	16-10-2023	20-10-2023	Akhtar Hameed Khan National Centre for Rural Development (AHKNCRD), Islamabad	Dr. Muhammad Saifullah, Assisant Professor
55	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VII	17-10-2023	19-10-2023	PHEC Lahore	Mr. Azeez Ur Rehman , Lecturer
56	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VII	17-10-2023	19-10-2023	PHEC Lahore	Mr. Muhammad Ahsan Jamil, Lecturer
57	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VII	17-10-2023	19-10-2023	PHEC Lahore	Ms. Momna Mehmood, Lecturer
58	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VIII	24-10-2023	26-10-2023	PHEC Lahore	Mr. Muhammad Yasir Khan, Lecturer



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59	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VIII	24-10-2023	26-10-2023	PHEC Lahore	Mr. Muhammad Hamza Muneer, Lecturer
60	Advancing Teaching Excellence: Strategies for Effective higher Education Institution and Professional Development for Faculty Members of Universities Batch VIII	24-10-2023	26-10-2023	PHEC Lahore	Mr. Idrees Raza , Lecturer
61	Water Accounting Training Program-II	01-11-2023	01-11-2023	Food and Agriculture Organization (FAO)	Dr. Muhammad Saifullah, Assistant Professor
62	Farmer training on Seed Production and Storage of Zinc Bio-Fortified Wheat in South Punjab	01-11-2023	01-11-2023	MNS University of Agriculture, Multan	Prof. Dr. Umar Farooq , Professor
63	Farmer training on Seed Production and Storage of Zinc Bio-Fortified Wheat in South Punjab	01-11-2023	01-11-2023	MNS University of Agriculture, Multan	Dr. Shabbir Ahmad , Assistant Professor
64	Farmer training on Seed Production and Storage of Zinc Bio-Fortified Wheat in South Punjab	01-11-2023	01-11-2023	MNS University of Agriculture, Multan	Dr. Amir Bakhtavar , Lecturer
65	National Faculty Development Program (NFDP) (Cohort-IV)	16-01-2024	02-02-2024	NAHE, HEC Islamabad	Ms. Samar Wafa Kabeer, Lecturer
66	National Faculty Development Program (NFDP) (Cohort-IV)	16-01-2024	02-02-2024	NAHE, HEC Islamabad	Ms. Misbah Sharif, Lecturer
67	workshop entitled “Ensuring urban food security by regulating agricultural supply chains and discouraging non-agricultural land use changes in peri-urban areas of mega cities”	26-01-2024	30-01-2024	UAF, Faisalabad	Dr. Syeda Anum Masood Bokhari, Lecturer
68	workshop entitled “Ensuring urban food security by regulating agricultural supply chains and discouraging non-agricultural land use changes in peri-urban areas of mega cities”	26-01-2024	30-01-2024	UAF, Faisalabad	Mr. Nabeel Ahmad Ikram, Lecturer



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69	Online Conference on "Applications of artificial intelligence in Agriculture"	01-02-2024	01-02-2024	Higher Education Commission and National Food Security & Research	Dr. Aamir Hussain , Assistant Professor
70	Online Conference on "Applications of artificial intelligence in Agriculture"	01-02-2024	01-02-2024	Higher Education Commission and National Food Security & Research	Dr. Ayesha Hakim , Assistant Professor
71	Two days PHEC Training on Intellectual Property Rights and Patent Filling	01-02-2024	02-02-2024	Punjab Higher Education Commission	Ms. Benish Sarfraz, Business Manager
72	Two days PHEC Training on Intellectual Property Rights and Patent Filling	01-02-2024	02-02-2024	Punjab Higher Education Commission	Mr. Muhammad Bilal Ahsan, Lecturer
73	Training Workshop on "Use of Generative Artificial Intelligence Higher Education" Batch-07	14-02-2024	15-02-2024	Punjab Higher Education Commission	Dr. Nadeem Iqbal , Assistant Professor
74	Training Workshop on "Use of Generative Artificial Intelligence Higher Education" Batch-07	14-02-2024	15-02-2024	Punjab Higher Education Commission	Mr. Israr Hussain, Lecturer
75	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Prof. Dr. Irfan Ahmad Baig, Dean, FSS&H
76	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Prof. Dr. Tanveer ul Haq, Chairman, S&ES
77	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Prof. Dr. Nasir Nadeem, Chairman, Department of Agricultural & Resource Economics
78	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Dr. Hafiz Nazar Faried , Assistant Professor
79	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Dr. Nighat, Assistant Professor
80	International ACIAR Salinity Futures Symposium at Can Tho University (CTU), Can Tho, Vietnam	03-03-2024	07-03-2024	Can Tho University (CTU), Can Tho, Vietnam	Mr. Muhammad Bilal Ahsan, Lecturer



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81	03 days training session on Microsoft Power BI Business Intelligence schedule	27-03-2024	29-03-2024	Higher Education Commission and Microsoft Business Intelligence	Dr. Abdul Razzaq , Associate Professor
82	03 days training session on Microsoft Power BI Business Intelligence schedule	27-03-2024	29-03-2024	Higher Education Commission and Microsoft Business Intelligence	Mr. Hafeez Ahmed , Research Officer
83	Two days PHEC Training on Safeguarding Academic Ingenuity - Mastering Intellectual Property Rights.	25-04-2024	26-04-2024	Punjab Higher Education Commission	Dr. Gulzar Akhtar , Assistant Professor
84	Two days PHEC Training on Safeguarding Academic Ingenuity - Mastering Intellectual Property Rights.	25-04-2024	26-04-2024	Punjab Higher Education Commission	Dr. Naeem Iqbal , Assistant Professor
85	Two days PHEC Training workshop on "Use of Generative Artificial Intelligence in Higher Education"	08-05-2024	09-05-2024	Punjab Higher Education Commission	Dr. Aamir Hussain , Assistant Professor
86	International Workshop on Rice Knowledge Elicitation	22-05-2024	23-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Khuram Mubeen , Associate Professor
87	International Workshop on Rice Knowledge Elicitation	22-05-2024	23-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Muhammad Abu Bakar Siddique, Assistant Professor
88	Two days PHEC Training workshop on "Use of Generative Artificial Intelligence in Higher Education"	23-05-2024	24-05-2024	Punjab Higher Education Commission	Dr. Umair Sultan , Assistant Professor
89	Two days PHEC Training workshop on "Use of Generative Artificial Intelligence in Higher Education"	23-05-2024	24-05-2024	Punjab Higher Education Commission	Dr. Fawad Zafar Ahmad Khan, Assistant Professor
90	International Hand-on Training on Plant Disease Diagnosis	22-05-2024	23-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Khuram Mubeen , Associate Professor
91	International Hand-on Training on Plant Disease Diagnosis	22-05-2024	23-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Muhammad Abu Bakar Siddique, Assistant Professor
92	International Hand-on Training on Plant Disease Diagnosis	24-05-2024	25-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Nadeem Ahmed , Assistant Professor
93	International Hand-on Training on Plant Disease Diagnosis	24-05-2024	25-05-2024	CAS-AFS, University of Agriculture, Faisalabad	Dr. Mirza Abid Mahmood, Lecturer



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94	Resource Person in Sequence Polymorphism Training being arranged by the Chinese Academy of Agricultural Sciences (CAAS), China	26-05-2024	02-06-2024	Chinese Academy of Agricultural Sciences (CAAS), China	Dr. Zulqurnain Khan, Assistant Professor
95	Resource Person in Sequence Polymorphism Training being arranged by the Chinese Academy of Agricultural Sciences (CAAS), China	26-05-2024	02-06-2024	Chinese Academy of Agricultural Sciences (CAAS), China	Dr. Shoaib-Ur-Rehman, Assistant Professor
96	Training on Implementation of E-Procurement system in Public Offices of Punjab	03-06-2024	04-06-2024	Agriculture Department, Lahore	Mr. Muhammad Azeem Afzaal, Deputy Director, P&IC
97	Water Accounting Training Part-II, Module 5 and 6	10-06-2024	14-06-2024	FAO	Dr. Muhammad Saifullah, Assistant Professor
98	Water Accounting Training Part-II, Module 5 and 6	10-06-2024	14-06-2024	FAO	Dr. Muhammad Mohsin Khan, Lecturer
99	Summer School on "Improving Mechanistic Understanding of Greenhouse Gas Emissions & Measurement Techniques	24-06-2024	28-06-2024	Hochschule Geisenheim University, Germany	Dr. Ahmad Mahmood, Assistant Professor
100	Collaborative meeting to extend cooperation for low carbon, sustainable agriculture and networking for strengthening UNESCO Chair working at Shihezi University, China	25-06-2024	05-07-2024	Shihezi University, China	Prof. Dr. Irfan Ahmad Baig, Dean, FSS&H
101	Collaborative meeting to extend cooperation for low carbon, sustainable agriculture and networking for strengthening UNESCO Chair working at Shihezi University, China	25-06-2024	05-07-2024	Shihezi University, China	Dr. Tanveer Ahmad, Associate Professor

Access



Chapter 5 Access





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ACCESS

5.1. Basic Enrolment during 2023-24

Sr. No.	Program Offered	Male	Female	Total
1	Livestock Assistant Diploma (LAD)	347	03	350
2	B.Sc. (Hons.) Agriculture	264	42	306
3	B.Sc. (Hons.) Environmental Sciences	12	07	19
4	B.Sc. (Hons.) HND	06	30	36
5	B.Sc. (Hons.) Home Economics	01	26	27
6	B.Sc. (Hons.) Agri. & Resource Economics	12	08	20
7	BBA Agribusiness	69	25	94
8	BS Computer Science	180	67	247
9	BS Information Technology	179	69	248
10	BS Data Science	45	19	64
11	B.Sc. AIET	24	01	25
12	B.Sc. (Hons.) Poultry Sciences	09	03	12
13	B.Sc. Animal Sciences	04	02	06
14	BS Microbiology	20	48	68
15	BS Zoology	25	69	94
16	BS Biochemistry	24	46	70
17	BS Public Health	19	40	59
18	BS Medical Laboratory Technology (MLT)	182	120	302
19	M.Sc. (Hons.)	205	140	345
20	Ph.D.	20	18	38
Grand Total		2430	1647	783

5.2. Data of M.Sc. (Hons.) and Ph.D. Student Enrolment

5.2.1. M.Sc. (Hons.)/ MS Enrolment during 2023-24

Sr. No.	Program Offered	Eligible Candidates	Admitted (Male)	Admitted (Female)	Total Admissions
1	Agronomy	30	14	5	19
2	Agri .Business	9	4	3	7
3	Agri. Economics	9	1	5	6
4	Agricultural Extension	5	4	0	4



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5	Agri-Engg	5	4	0	4
6	Agro Industrial Engineering Technology (AIET)	3	1	2	3
7	Energy System Engineering	2	0	0	0
8	Biotechnology	18	1	7	8
9	Climate Change	5	0	4	4
10	Computer Science	41	16	10	26
11	Entomology	28	21	1	22
12	Fisheries and Aquaculture	10	3	5	8
13	Food Science & Technology	47	11	8	19
14	MS Human Nutrition and Dietetics	43	18	8	26
15	Horticulture	43	3	15	18
16	Plant Breeding & Genetics	27	8	6	14
17	Postharvest Management Technology	0	39	17	56
18	Public Health	103	15	5	20
19	Plant Pathology	26			0
20	Poultry Science	13	7	0	7
21	Soil Science	32	18	6	24
22	Seed Science and Technology	11	5	1	6
23	Weed Science	1	0	0	0
24	MS Zoology	72	12	32	44
Grand Total		583	205	140	345

5.2.2. Ph.D. Enrolment during 2023-24

Sr. No.	Program Offered	Eligible Candidates	(Male) Admitted	(Female) Admitted	Total Admissions
1	Agronomy	3	0		0
2	Agri Economics	2	2		2
3	Biotechnology	2	0	1	1
4	Computer Science	8	7	1	8
5	Entomology	8	4	3	7
6	Food Science and Technology	4	1	3	4
7	Horticulture	0			0
8	Human Nutrition and Dietetics	1	1		1
9	Plant Breeding & Genetics	2			0
10	Plant Pathology	9	3	3	6
11	Soil Science	2	1		1



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12	Seed Science and Technology	0	0	0
13	Zoology	12	1	7
Grand Total		53	20	18
			38	

5.3. Number of Students Passed Out during 2023-24 (Undergraduate)

Sr. No.	Degree Program	Total Enrolled	Male	Female	Pass Out
1	Livestock Assistant Diploma	232	232	0	183
2	BS Computer Science	95	73	15	83
3	BS Information Technology	104	84	20	89
4	BBAA	60	51	09	54
5	Agri. Economics	24	15	09	22
6	Agronomy	61	54	07	60
7	Biotechnology	21	13	08	19
8	Entomology	51	48	03	50
9	Farm Management	15	15	0	10
10	Food Science & Technology	52	17	35	49
11	Horticulture	61	51	10	60
12	Plant Breeding and Genetics	44	37	07	36
13	Plant Pathology	57	43	14	55
14	Seed Science	24	24	0	26
15	Soil Science	47	35	12	44
16	Agro Industrial Engineering	32	30	02	31
17	Poultry Science	47	44	03	45
18	Fisheries	20	11	09	17
19	HN&D	34	3	31	33

5.4. Number of Students Passed Out during 2023-24 (Postgraduate)

Sr. No.	Degree Program	Male	Female	Pass Out
1	M.Sc. (Hons.) Agronomy	07	00	07
2	M.Sc. (Hons.) Agri. Economics	07	00	07
3	M.Sc. (Hons.) Biotechnology	03	24	27
4	MS Computer Science	11	18	29
5	M.Sc. (Hons.) Entomology	18	06	24
6	M.Sc. (Hons.) Food Science & Technology	13	21	34
7	M.Sc. (Hons.) Horticulture	15	07	22
8	M.Sc. (Hons.) Plant Breeding & Genetics	10	02	12
9	M.Sc. (Hons.) Plant Pathology	13	07	20
10	M.Sc. (Hons.) Seed Science & Technology	03	00	03



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11	M.Sc. (Hons.) Soil Science	06	00	06
12	M.Sc. (Hons.) Climate Change	04	01	05
13	MS Management-Agribusiness Specialization	07	00	07
14	MS Fisheries and Aquaculture	03	05	08
15	MS Poultry Science	06	00	06
16	MS Public Health	02	04	06
17	Ph.D. Entomology	02	00	02
18	Ph.D. Plant Breeding & Genetics	02	00	02
19	Ph.D. Soil Science	01	00	01

5.5. Full-time Faculty Members

Sr. No.	Designation	Male	Female	Total
1	Professor	13	-	13
2	Associate Professor	18	01	19
3	Assistant Professor	47	07	54
4	Lecturer	46	17	63
5	Grand Total	124	25	149
6	Ph.D. Faculty	91	11	102

Universities Building Economies



Chapter 6 Universities Building Economies



Chapter 6 Universities Building Economies





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UNIVERSITIES BUILDING ECONOMIES

6.1. University-Industry Linkages

MNSUAM is taking a qualitative leap forward by developing strong linkages with agro-based industries through general support, collaborative need based research and new business incubators. The purpose of the collaboration with various local and foreign organizations and industries is to ensure the training of our faculty members and young scholars in interdisciplinary research projects and methods. MNSUAM is actively looking forward to foreign collaborations and funding for its faculty development program and research projects. MNSUAM has also been in regular liaison with various industries and the corporate sector since its establishment in 2012.

6.2. Farmer Advisory Services

MNSUAM in pursuit of its moral obligation and national commitments to serve the farming community and launched farmer advisory services that consist of daily crop and weather advisory and other relevant information. Farmer advisory services are ensuring demand driven and need based agro-technology transfer to farmers with different farming backgrounds. Developing a sound linkage between academia-industry and the farming community to have a demand-driven agenda for research is University's top priority. By accelerating the diffusive process of innovative agro-technology, the gap between potential and actual yield can be abridged and our farmer advisory service is one such step towards this great milestone.

6.3. South Punjab Agricultural Forum

This forum comprises stakeholders from public and private sectors including Pakistan Central Cotton Committee, Central Cotton Research Institute, Cotton Research Station, Agricultural Mechanization Research Institute, Mango Research Institute, Soil and Water Testing Laboratory, Directorate of Water Management, Agricultural Extension Wing, Pest Warning and Quality Control of Pesticides, Federal Seed Certification and Registration Department, Floriculture, Pakistan Crop Protection Association, etc. The agenda is to establish a platform for research and coordination mechanism development among MNSUAM, public sector sister research organizations, and the private sector to strengthen the overall agriculture sector. The South Punjab Agriculture Forum has now been established where all the agriculture-related departments will be working in collaboration to boost the agro-based economy of the country.

6.4 Industrial Projects

In the fiscal year 2023-24, the Office of Research, Innovation, and Commercialization (ORIC) at MNS University of Agriculture, Multan, excelled in managing a total of 28 industrial projects with a combined budget of 152.22 million PKR. This included securing funding for 12 new projects, amounting to 83 million PKR, of which 2 are Corporate Social Responsibility (CSR) initiatives totalling 2.1 million PKR. Currently, 19 projects are active and ongoing, with a budget allocation of 106.19 million PKR.



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These projects span various research and innovation domains, reflecting the university's commitment to addressing real-world challenges through cutting-edge R&D. The substantial budget and diverse project portfolio highlight ORIC's dynamic engagement with industry partners, showcasing its pivotal role in driving economic and social progress. The successful management of these projects underscores the university's strategic vision and dedication to fostering sustainable development and innovation.

6.4.1 Industrial Project - Role of Hermetic Technology in the Reduction of Postharvest Losses of Biofortified Zinc Wheat in South Punjab

The project focuses on improving nutrition security and food safety in Pakistan by bundling biofortified wheat with hermetic storage to reduce post-harvest losses by 50% among 300 farmers in Multan and Khanewal districts. Key tasks include designing and conducting a research study, providing technical support for hermetic storage, training farmers, and analyzing pre- and post-storage data. The project also aims to inspire private investment and scale the innovation bundle by communicating the value of biofortified wheat and hermetic storage. The project will generate evidence, develop a business case, and facilitate a dissemination workshop to promote the adoption of this technology in Pakistan.

6.4.2 Industrial Project - Water Regeneration & Environmental Sustainability

Nestlé Pakistan's industrial-funded project on "Water Regeneration and Environmental Sustainability" aims to enhance sustainable agricultural practices through innovative irrigation techniques. This initiative focuses on the use of drip irrigation, a method that delivers water directly to plant roots, minimizing waste and promoting efficient water use. Drip irrigation is especially crucial in water-scarce areas, as it conserves water, reduces runoff, and replenishes groundwater supplies, thereby supporting water regeneration. Additionally, this system helps maintain healthy ecosystems by reducing water diversion from natural sources and improving soil health through optimal moisture levels, leading to increased crop yields. The project also includes key objectives such as preparing soil for mango plantations under drip and flood irrigation systems, installing high-efficiency irrigation systems, and implementing management practices for healthy plant growth and development.

6.4.3 Industrial Project - Color Cotton Cultivation: Unveiling Genomic Secrets

Project is funded by Mahmood Group, Multan, the project aims to revolutionize the textile industry by producing colored cotton through industrial collaboration. This initiative focuses on developing naturally pigmented cotton fibres, allowing stakeholders to scale up the multiplication of colored cotton seeds and obtain various shades of brown and green cotton. The project seeks to capitalize on the growing market for eco-friendly and naturally colored textiles, offering significant opportunities for sustainable and innovative textile production.



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6.4.4 Industrial Project - Harvesting Sustainability: Strengthening Agricultural Resilience through Enhanced Soil and Water Management

Funded by PepsiCo Pakistan, the project's main objectives are to build the capacity of PepsiCo's field force for accurate soil and water sampling and to gain insights into land conditions through comprehensive testing of soil and water samples provided by PepsiCo-registered farmers.

6.4.5 Industrial Project - Development and Consumer Acceptability of Fish Based Value Added Products

The project is funded by Pioneer Aqua's Pvt. Ltd, focuses on creating innovative fish-based products such as fish nuggets, fish burger patties, fish chunks, fish chapli kabab, BBQ cuts, and finger fish. It includes studying shelf-life stability to ensure product quality over time and conducting sensory evaluations, consumer profiling, and surveys to gauge consumer acceptance. The project also involves setting up a display counter at MNSUAM for direct consumer feedback and utilizing branding and social media marketing to promote the products and enhance market visibility.

6.4.6 Industrial Project - Micropropagation and Varietal Improvement of Sugarcane Against Red Rot Through Tissue Culture

The project funded by Indus Sugar Mills Rajanpur involves transferring tissue culturing technology to industrial partners for widespread adoption and mass dissemination. It aims to shorten the sugarcane crop improvement cycle to 2-3 years, thereby increasing sugar recovery for the industry. The project also focuses on cost savings by enhancing the ratoon ability of sugarcane for up to five years and managing low production through disease-free seeds obtained via tissue culturing. Additionally, it seeks to reduce input costs, including spray and fertilizer, by maintaining healthy crops.

6.4.7 Industrial Project - Beautification and pollution control of Khawaja Mineral Industries using ornamental plants

The project funded by Khawaja Mineral Industries, Multan, focuses on developing a well-planned landscape design to enhance aesthetic beautification and improve the microclimate of the area. It aims to generate knowledge about the resistance of ornamental plants to severe environmental pollution, increase awareness about the role of trees in addressing climate change, and build industry workers' capacity in procuring, transplanting, and maintaining ornamental plants. Additionally, the project will collect data on the performance of ornamental plants in highly polluted industrial areas.



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6.4.8 Industrial Project – Eco-Vigilance: Innovating Dual-Action Traps for Monitoring and Management of Aedes (Dengue) Mosquitoes and exploring their diversity in Multan

The project funded by Hussain Salman Chemicals, Multan, aims to develop and evaluate lures and traps specifically for Aedes mosquitoes. It includes exploring the diversity of Aedes mosquitoes using dual-action traps that combine light and lure elements to enhance effectiveness.

6.4.9 Industrial Project - Establishment of a Miyawaki Urban Forest at MNS University of Agriculture Multan to Address Climate Change

Under its CSR initiative, Oil and Gas Development Company Limited (OGDCL), Pakistan, aims to restore and enhance local ecosystems by implementing dense, biodiverse forestation using the Miyawaki Urban Forest method. The project promotes biodiversity conservation and involves local communities in the planning, implementation, and maintenance stages to foster ownership and stewardship of the environment.

6.4.10 Industrial Project - Enhancing aesthetic beautification through tree plantation

Under its CSR initiative, Alkhidmat Foundation South Punjab, Pakistan, is providing different plants to MNSUAM as part of its tree plantation campaign. This project involves designing and implementing a strategic plan for planting trees across the university campus, focusing on improving the visual environment and contributing to the overall beautification of the campus. The initiative aims to create a more pleasant and green environment, aligning with environmental sustainability goals and enhancing the campus's attractiveness.

6.4.11 Industrial Project - Development and Promotion of Hybrid Cotton Seed Production for Increasing Quality and Quantity of Cotton in Pakistan

The project funded by Guard Agriculture Research & Services, Lahore, Pakistan and the Biotechnology Research Institute, CAAS, China, aims to enhance both the quality and quantity of cotton production by scaling up the commercial production of hybrid seeds. Objectives include managing biotic and abiotic stresses, improving fibre quality and yield, training rural men and women for employment in hybrid seed production, and promoting public-private partnerships in cotton research and development. Additionally, the project will focus on developing essential germplasm, CMS lines, and hybrid lines for future breeding programs.



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6.4.12 Industrial Project - State of the Art Mango Drying Facility at MNS - University of Agriculture, Multan

The project is funded by the Export Development Fund (EDF) and aims to establish a state-of-the-art mango drying facility at MNS University of Agriculture, Multan. This facility will enhance mango preservation techniques and support the export of high-quality dried mango products.

6.5 Industrial Projects/ Grants/ Funding/ Support etc.

Sr. No.	Title	Funding Agency	Award Amount (Million PKR)	Current Status
1	Role of Hermetic Technology in the Reduction of Postharvest Losses of Biofortified Zinc Wheat in South Punjab	Global Alliance for Improved Nutrition (GAIN)	3.608	On-Going
2	Water Regeneration & Environmental Sustainability	Nestle, Pakistan	5.000	On-Going
3	Colorful Cotton Cultivation: Unveiling Genomic Secrets	Mahmood Group Textiles, Multan	3.599	On-Going
4	Harvesting Sustainability: Strengthening Agricultural Resilience through Enhanced Soil and Water Management	PepsiCo Pakistan	1.208	On-Going
5	Development and Consumer Acceptability of Fish Based Value Added Products	Pioneer Aqua's Pvt. Ltd	1.770	On-Going
6	Micropropagation and Varietal Improvement of Sugarcane Against Red Rot Through Tissue Culture	Indus Sugar Mills, Rajanpur, Pakistan	10.696	On-Going
7	Beautification and pollution control of Khawaja Mineral Industries using ornamental plants	Khawaja Mineral Industries, Multan	1.168	On-Going
8	EcoVigilance: Innovating Dual-Action Traps for Monitoring and Management of Aedes (Dengue) Mosquitoes and exploring their diversity in Multan.	Hussain Salman Chemicals, Multan	1.256	On-Going
9	Development and Promotion of Hybrid Cotton Seed Production for Increasing Quality and Quantity of Cotton in Pakistan	Guard Agriculture Research & Services Multan & Biotechnology Research Institute, CAAS, China	33.915	On-Going
10	State of the Art Mango Drying Facility at MNS - University of Agriculture, Multan	Export Development Fund (EDF), Ministry of Commerce, Pakistan	18.720	On-Going



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11	Establishment of a Miyawaki Urban Forest at MNS University of Agriculture Multan to Address Climate Change	Oil and Gas Development Company Limited (OGDCL), Pakistan	1.000	On-Going
12	Enhancing aesthetic beautification through tree plantation	Alkhidmat Foundation South Punjab, Pakistan	1.100	On-Going
Total cost			83.041	

6.14. Patents Filed

Sr. No.	Name of Lead Inventor	Title of Invention	Type of Invention	Key Scientific Aspects
1	Dr. Nadeem Iqbal Kajla	Artificial Intelligence based Beehive to Control Colony Collapse Disorder	Product	Utilizes advanced AI algorithms to monitor and regulate hive conditions, detect early signs of colony collapse disorder, and optimize bee health and productivity through automated interventions.
2	Dr. Farrukh Baig	An Ecofriendly Solution for the Management of House Flies	Product	Integrates natural, non-toxic ingredients to effectively manage house fly populations, reducing reliance on chemical pesticides and minimizing environmental impact.
3	Dr. Sarfraz Hashim	Double PTO Uni-shredder	Product	Features a double PTO (Power Take -Off) mechanism, enhancing shredding efficiency and versatility for agricultural and industrial applications. Designed for high-performance and durability in shredding operations.
4	Dr. Gulzar Akhtar	Floral preservative solution for vase life longevity of cut flowers	Product	Combines a unique blend of natural preservatives and nutrients to extend the vase life of cut flowers, maintaining their freshness and aesthetic appeal for an extended period.
5	Dr. Umair Sultan	Energy-Efficient Potato Digger Cum Loader System: Sustainable Potato Harvesting	Product	Incorporates energy-efficient mechanisms for digging and loading potatoes, reducing fuel consumption and operational costs while ensuring sustainable harvesting practices.
6	Dr. Umair Sultan	Small Tractor Functional Propulsion System Design using 200cc Gasoline Engine	Product	Features a compact and efficient propulsion system for small tractors, powered by a 200cc gasoline engine. Designed to optimize performance, fuel efficiency, and ease of use in small-scale farming operations.



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6.15. Consultancy Contracts Executed through ORIC with Industry, Commerce or Government

6.15.1. Consultancy: The consultancy project funded by WWF-Pakistan, Titled “Situational Analysis of Water Resources in Lahore”

The consultancy project "Situational Analysis of Water Resources in Lahore" led by Dr. Muhammad Saifullah and funded by WWF with 1,184,500 PKR, aims to comprehensively assess the status, challenges, and opportunities of water resources in Lahore from August 1, 2023, to March 31, 2024. The project involves data collection, field surveys, and stakeholder consultations to evaluate water quality, availability, usage patterns, and management practices. The findings will inform sustainable water management strategies and policy decisions, contributing to environmental sustainability and resource conservation in Lahore.

6.15.2. Consultancy: “Strengthening of Resilience of Flood-Affected Communities in District RajanPur” provided to Doaba Foundation

Dr. M. Abu Bakar Saddique provided consultancy for a training program aimed at strengthening the resilience of flood-affected communities in District Rajanpur. The consultancy, conducted from August 21 to August 24, 2023, was organized by the Doaba Foundation. The training focused on winter vegetable kitchen gardening, equipping participants with practical skills and knowledge to enhance food security and self-sufficiency. Dr. Abu Bakar's consultancy aimed to support community recovery efforts by fostering sustainable agricultural practices and improving local resilience in the face of ongoing environmental challenges.

6.15.3. Consultancy: “Pakistan Community Support Project (PCPS)” provided to DevCon Development Consultants (Pvt) Limited by Prof. Dr. Nasir Nadeem

Prof. Dr. Nasir Nadeem provided consultancy services for the Pakistan Community Support Project (PCPS) focusing on data analysis from October 16 to October 30, 2023. The consultancy involved comprehensive data collection, analysis of results, and interpretation of the data. The key deliverables included providing insights into the data trends and patterns to support the project's objectives. Dr. Nadeem's expertise facilitated the effective evaluation of community support initiatives, aiding DevCon Development Consultants (Pvt) Limited in achieving their project goals through detailed and actionable data insights.

6.15.4. Consultancy: “Pakistan Community Support Project (PCPS)” provided to DevCon Development Consultants (Pvt) Limited by Dr. Haseeb Raza

Dr. Haseeb Raza provided consultancy services for the Pakistan Community Support Project (PCPS) from October 16 to October 25, 2023. His role involved assisting in the cost analysis, reviewing project documents and financial data, and contributing to report writing.



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Additionally, Dr. Raza supported the submission of a revised report by addressing feedback from both PCPS and the World Bank. His contributions were essential in ensuring the accuracy and comprehensiveness of the financial analysis and project documentation.

6.15.5. Consultancy: “Project Title: Production of G1 Garlic with Gold Tree Millers at MNSUAM Farm Multan” provided to Gold Tree Millers Pvt. Ltd

Dr. Muhammad Abid provided consultancy for the production of G1 Garlic at MNSUAM Farm Multan, in collaboration with Gold Tree Millers Pvt. Ltd., starting September 20, 2023. The consultancy includes crop advisory services throughout the growing season, from sowing to harvesting. Abrish Honey will engage students in research activities and training, supply garlic seed, and manage the agricultural practices including sowing, mulching, hoeing, watering, and pesticide applications. Gold Tree Millers will cover all expenses related to seed, land lease, pesticides, fertilizers, and labor, and will also take all garlic yield. Additionally, Gold Tree Millers will provide an internship for one student to oversee and learn about the garlic production process.

6.15.6. Consultancy: “Strengthening of Resilience of Flood-Affected Communities in District RajanPur” provided to Doaba Foundation

Dr. M. Abu Bakar Saddique provided consultancy for a training program aimed at enhancing the resilience of flood-affected communities in District Rajanpur, Punjab. The training focused on summer vegetable kitchen gardening, offering practical skills and knowledge to improve food security and agricultural practices in the affected areas. The project, managed by the Doaba Foundation, emphasized capacity building and sustainable agricultural techniques to aid community recovery and resilience.

6.15.7. Consultancy: “Soil-Water Resilience Consulting: Transforming Agricultural Practices in Potato Farming” provided to PepsiCo Pakistan

Dr. Abid Hussain and Dr. Umair Riaz provided consulting services to PepsiCo Pakistan, focusing on enhancing soil and water resilience in potato farming. The consultants performed comprehensive soil and water analyses and delivered detailed reports on their findings. Additionally, they conducted a capacity-building workshop to train the PepsiCo field team in soil sampling techniques. This project aims to optimize agricultural practices through improved soil and water management strategies.

6.15.8. Consultancy: “Capacity Building in Biosafety, Bioethics, and Biosecurity” providing to Mumtaz Agro Industries (Pvt.) Limited

Dr. Zulqurnain Khan is leading a consultancy project focused on strengthening capacities in biosafety, bioethics, and biosecurity for Mumtaz Agro Industries (Pvt.) Limited. This initiative includes reviewing and following up on specific cases related to Institutional Biosafety Committees (IBC), Technical Advisory Committees (TAC), and National Biosafety Committees (NBC) approvals.



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The consultancy also involves training personnel on resolving biosafety issues and providing hands-on training to ensure adherence to biosafety protocols. The project aims to enhance the organization's capabilities in managing biosafety and bioethics effectively.

6.16. 7th Mango Festival 2023 at DHA Multan - Developing Business Networks and Community Outreach in Mango Sector

The 7th Mango Festival, held from July 7-9, 2023, at DHA Areena in Multan, was a grand celebration of Pakistan's cherished fruit, organized by MNS University of Agriculture Multan in collaboration with Mango Research Institute Multan and DHA Multan. The event featured over 200 varieties of mangoes from more than 70 farms, attracting over 45,000 attendees. The opening ceremony was inaugurated by Engr. Muhammad Baligh ur Rehman, Governor Punjab, and included a mango seminar and visits to mango stalls. The festival was graced by esteemed personalities Brig. Shoaib Anwar Kayani (PD DHA Multan), Abdul Ghaffar Grewal (Director MRI), and Prof. Dr. M. Sajjad Khan (CUVAS, Bahawalpur). A significant highlight was the inauguration of the Mango Museum, a collaborative project with DHA Multan aimed at advancing mango ecology. The festival included vibrant cultural nights with performances by local artists, a Mushaira featuring notable poets like Khalid Masood Khan, Razi Udin Razi, Tahseen Ghani, Mustehsun Khial, Abbas Malik, Nawazish Ali Nadeem, Noshad Kaiser, and students from the literary society of MNSUAM. A mango dish-making competition saw participation from local institutions such as COTHM Institute Multan, Times Institute Multan, BZ University Multan, Jade Cafe China Town Multan, RAMADA Hotel Multan, The Arena DHA Multan, BarBQ Tonight Multan, The Physio College Multan, and various departments of MNSUAM. Kids' activities added to the fun, with ramp walks, mango eating competitions, and quizzes. Sponsors and industry participants included Suncrop, Bank AlHabib, Patron Group, Signway, Pakistan Railways, FFC, Mezan Bank, Punjab Agriculture Extension, Rise AG, Syngenta, Fatima Group, Swat Agro, Indus Hospital, Walls, S&M Foods, and Volka Food. The closing ceremony recognized the efforts of the organizing teams and student societies. Key takeaways included fostering collaboration among growers, industry stakeholders, and policymakers, promoting premium mango quality, and enhancing export potential. The festival not only provided a platform for networking and business opportunities but also highlighted the importance of mangoes in the region, creating awareness and encouraging the production of certified mangoes for high-end markets.

6.17. Annual Mango Festival – Centaurus Mall, Islamabad

The 7th Annual Mango Festival, Islamabad was held at The Centaurus Mall from July 14 to 17, 2023, in collaboration with MNS University of Agriculture Multan (MNSUAM) and the Islamabad Chamber of Commerce & Industry (ICCI). The festival celebrated Pakistan's beloved mangoes, featuring over 100 varieties and attracting a footfall of more than 120,000 visitors. Key participants included Fruitagnic, Fruitufy Solutions, Khaso Aam, Green Agriculture Services, Alizai Nurseries Multan, Chand Gillani Mango Farm, Elahi Mango Farm, Shahpur Mango Farm, Shafique Lagari Mango Farm, Imdad Mango Farm, Chawan Fruit Farm, Jk Farms, Fruit Aisle Multan, Rabbani Agriculture Farm, MBAF/FBAF Agri and Orchards, Dogar Fruit Farm, and HK Farms.



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Sponsors and partners included MNSUAM, and The Centaurus Mall, with media coverage by PTV, ARY News, Hum TV, Bol Network, Public TV, Aaj News, Suno TV, and Such TV.

The opening ceremony was inaugurated by Senator Muhammad Talha Mahmood, Dr. Sardar Rashid Ilyas Khan, Ahsan Zafar Bakhtawari, Dr. Asif Ali, Major General Muhammad Ajmal Iqbal (R), and other dignitaries. The festival featured over 100 mango varieties, including Sindhri, Langra, Chaunsa, Anwer Ratol, Dussehri, Neelum, Begum, Khas-UI-Khas, Sensation, Tota Pari, Gulaab-e-Khas, Khatie, Dhasi, Machaon, Abazai, Ahmed Abdali, Golam, Faiz Karim, Abosi, and Patta Stto. The event saw the sale of over 32 tons of mangoes, amounting to 13 million PKR. The closing ceremony was attended by Khurram Dastgir Khan, Federal Minister of Power, Senator Rana Mahmood Ul Hassan, Sardar Yasir Ilyas Khan, and other esteemed guests.

The festival facilitated knowledge exchange and promotion within the mango industry, highlighting best practices in post-harvest management, value addition, and marketing strategies. It underscored Pakistan's position as the fourth-largest global mango producer and its potential to explore new international markets and boost export revenues. The event served as a vital platform for networking and collaboration among growers, traders, exporters, agricultural experts, and other stakeholders, ensuring a unified effort towards elevating the Pakistani mango industry and fostering community prosperity.

6.20. Mango Festival at Lahore

The Mango Festival 2023 at Lahore, organized by MNS University of Agriculture, Multan, in collaboration with the Tourism Development Corporation of Punjab (TDCP) and TEVTA, was held at PC Hotel, Lahore, to promote Pakistan's mango industry nationally and internationally. Featuring over 30 mango varieties and participation from more than 20 farms, the event attracted over 15,000 attendees across two days. Inaugurated on August 5, 2023, by Mr. Asif Bilal Lodhi, Secretary of Tourism, Archaeology, and Museums, the festival showcased the importance of mangoes to Pakistan's economy. The closing ceremony, attended by the Iranian Minister for Tourism and Trade, highlighted successful sales and online orders, emphasizing the event's role in connecting various sectors and its potential for international expansion. The festival underscored a strong national commitment to boosting the global presence of Pakistani mangoes.

6.21. Mango Festival at the China Eurasia Commodity and Trade Expo-2023 in Urumqi, China

The Ministry of Commerce, in collaboration with the Trade Development Authority of Pakistan (TDAP), organized the Pakistan Mango Festival at the China Eurasia Commodity and Trade Expo-2023 on August 17, 2023, in Urumqi, China, with MNS University of Agriculture, Multan, playing a pivotal role as both collaborator and organizer. The festival, inaugurated by the Governor of Xinjiang, Senator Rana Mahmood-ul-Hassan, and former Federal Minister Ahsan Iqbal, highlighted the historical significance of "Mango diplomacy" and celebrated Pakistan's status as the 6th largest mango producer and 4th largest exporter globally.



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Senator Mahmood-ul-Hassan and Mr. Iqbal both praised the unique qualities of Pakistani mangoes and the vital role of the China-Pakistan Economic Corridor (CPEC) in transforming Pakistan's economy. The event featured Pakistani mango experts showcasing White Chaunsa mangoes, offering a special mango platter and "Mango Lassi" to dignitaries, and attracted a diverse audience of local and international business leaders. The festival continued until August 21, 2023, reinforcing the importance of collaborative efforts in enhancing agricultural exports and demonstrating MNS University's commitment to promoting Pakistani agricultural products and fostering international relations, thus highlighting the potential for future endeavors to strengthen Pakistan's agricultural industry and global presence.

6.22. Awareness Session for Authorized Users of Registered GIs Chaunsa and Sindhri Mangoes

An awareness session for Authorized Users of Registered GIs Chaunsa and Sindhri Mangoes was jointly organized by MNS University of Agriculture, Multan, and IPO-Pakistan on August 21, 2023. The session aimed to educate attendees about Pakistan's Geographical Indications (GI) system and empower small businesses through Intellectual Property. The event began with a Quranic recitation, followed by a welcome address from Vice Chancellor Prof. Dr. Asif Ali (TI). Mr. Muhammad Ismail, from IPO Pakistan highlighted the importance of the GI system, while Ms. Noor Asfia discussed strategies for supporting the Sindhri Mango Project. Participants also contributed to the WIPO Project through survey forms, and a Q&A session facilitated further discussions. This session demonstrated the dedication of both institutions to protecting Pakistan's GIs and empowering small businesses, encouraging further exploration of GIs in Pakistan's agriculture.

6.23. NBP Agriculture Field Officers visited MNS University of Agriculture, Multan

On September 15, 2023, MNS University of Agriculture, Multan, hosted a group of newly appointed Agriculture Field Officers from the National Bank of Pakistan (NBP). This visit offered the officers a chance to explore the university's Office of Research, Innovation, and Commercialization (ORIC), state-of-the-art laboratories, and extensive agricultural fields. The visit began with a warm welcome from the faculty and staff, followed by a presentation highlighting the university's contributions to agriculture and research. The officers toured the laboratories, observing cutting-edge research equipment and experiments, and explored the agricultural fields, where they discussed modern farming techniques and challenges with faculty and students. This visit underscored the strong collaboration between academic institutions and financial organizations, facilitating knowledge sharing and innovation in the agriculture sector for the benefit of farmers and the broader community. MNS University of Agriculture, Multan, extends its appreciation to NBP for this educational visit and looks forward to future collaborations to drive progress and innovation in agriculture.

6.24. Syngenta-MNSUAM Online Meeting Session on Biological Products

On October 17, 2023, an online meeting was held between key members of MNSUAM and Syngenta to discuss MNSUAM's biological products.



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The session commenced with welcoming remarks from Vice Chancellor Prof. Dr. Asif Ali (T.I). Prof. Dr. Shafqat Saeed, Dean of the Faculty of Agricultural and Environmental Sciences, along with other faculty members, presented their work on eco-friendly farming. Syngenta's team expressed interest in the ideas, and both parties showed a strong intent to collaborate. The meeting concluded with the aim to explore potential collaborations focused on advancing sustainable agriculture through joint research and development, anticipating promising future opportunities.

6.25. Visit of ACIAR Team under the Project: "Adapting to Salinity in the Southern Indus Basin"

From November 18th to 21st, 2023, the ACIAR team conducted a three-day field visit to MNS University of Agriculture, Multan, as part of the project "Adapting to Salinity in the Southern Indus Basin." The visit included field visits to the Jalalpur Pirwala Site, involving co-inquiry and co-research experiments, and meetings with local farmers. The team also observed vertical gardening experiments and pomegranate orchards at a project farmer's farm, followed by visits to Acacia and kitchen gardening experiments. On the third day, they visited the Irrigation Department in Bahawalpur. This comprehensive visit provided the ACIAR team with valuable insights into salinity adaptation efforts in the Southern Indus Basin through field visits, farmer interactions, and discussions with irrigation officials and university researchers.

6.26. AFS Venture Spark Event at MNS University of Agriculture, Multan

A two-day Agriculture Food and Security Ventures Spark event took place at MNS University of Agriculture, Multan, on November 29th and 30th, 2023. The event featured over 155 stalls presented by more than 35 universities from across Pakistan, showcasing business ideas from students and industrialists. The Chief Guest, Shoukat Anjum, highlighted the significant future role of these young aspirants in the country's development. Prof. Dr. Asif Ali (T.I), Vice Chancellor of MNSUAM, praised the students' innovative business ideas, emphasizing their potential to boost the national economy. The event also saw the participation and commendation from the Vice Chancellors of MNS-UET, Multan, BZU, Emerson University, Women University, and Cholistan University, who appreciated the efforts to organize such a valuable event.

6.27. Capacity building workshop on "Cropwise: An AI based software for precision agriculture" at MNSUAM

On December 21, 2023, MNS University of Agriculture, Multan, hosted a capacity-building workshop focused on "Cropwise: An AI-Based Software for Precision Agriculture." Organized under the industrially funded project "Promoting Regenerative Agriculture in Rice-Wheat Cropping Systems in Punjab, Pakistan" in collaboration with Syngenta, the workshop saw participation from 20 attendees, including the Vice Chancellor, Syngenta personnel, research farm staff, and departmental focal persons from MNSUAM. The session, led by Dr. Abid Hussain (PI) and Dr. Umair Riaz (Co-PI), provided in-depth training on the software's applications in precision agriculture, emphasizing its reliability, forecasting capabilities, and disease modeling for improved crop health. Discussions also involved suggestions from farmers, faculty, and stakeholders on enhancing the "Cropwise" application.

CHAPTER-6**UNIVERSITIES BUILDING ECONOMIES****6.28. FAO and MNSUAM Collaborate on Ramadan Food Waste Campaign**

On March 1, 2024, Muhammad Nawaz Shareef University of Agriculture, Multan (MNSUAM), hosted representatives from the Food and Agriculture Organization (FAO) to explore collaboration on a Ramadan food waste campaign. The meeting aimed to address the significant food waste associated with Ramadan's consumption patterns and promote responsible consumption. Faculty members including Dr. M. Usman Jamshaid, Dr. Shakeel Ahmad, Dr. Muqarrab Ali, Dr. Mirza Abdul Qayyum, and Dr. Muhammad Shahbaz engaged in discussions with the FAO team to develop strategies and plans for the campaign. Dr. Abid Hussain, Director of External Linkages at MNSUAM, expressed enthusiasm about the partnership, emphasizing its potential to make a substantial impact. Both organizations committed to working together to ensure the campaign's success in raising awareness and fostering sustainable practice



Strengthening of Physical Infrastructure



Chapter 7 Strengthening of Physical Infrastructure



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STRENGTHENING OF PHYSICAL INFRASTRUCTURE

Physical infrastructure plays a vital role to develop any educational institution of the world. There are many factors which affect quality of education and research but a conducive environment is the most important factor for consideration. A lot of efforts have been made to develop the infrastructure in a way to achieve the objective for provision of congenial environment to the students, faculty and administration of this university.

The detail of the projects undertaken to improve and strengthen infrastructure of MNS University of Agriculture, Multan are as under:

7.1. On-Going Annual Development Program

7.1.1. Provision of Basic Facilities at Muhammad Nawaz Shareef University of Agriculture, Multan

Development Project amounting to Rs. 1356.378 million has also been approved for the FY 2023-24, funds amounting to Rs. 200 million have been allocated for current financial year with implementation period of 36 months by Higher Education Commission (HEC) Islamabad. The project proposal includes the Undergraduate lecture block & Teaching Labs, Central Library (FF), Boys Hostel with Capacity of 350 students, Girls hostel with capacity of 350 students, Multipurpose Hall with capacity of 700 students, Faculty Hostel, External Development & landscaping, Lab equipment for the newly established faculty of veterinary & Animal science and faculty of Agri. & Bio system Engineering, Furniture & fixtures, IT equipment and allied external services. During Financial Year 2022-23, the tender was called for the pre-qualification of consultant and EOI Books was also received and evaluation of profile is in progress. During Financial Year 2023-24, the financial position of the scheme is according to PC-I allocation amounting to Rs. 40.00 million have been released in CFY against the allocation Rs. 200.0 and same has been utilized.

Physical Progress of scheme the consultant for Drawing, Design, Estimates and Tender Documents hired. All drawings, Designs, Detailed Estimates have been prepared by consultant. Revised PC-I is under preparation and being submitted for arranging revised administrative approval. Under Revenue component, the procurement of two student Buses has been initiated.

The major objectives of the proposed project are as under:

- i. The introduction of programs that are attractive for enrollment as well as marketable in the local environment shall make it convenient for the target population.
- ii. To provide better education, teaching, training and research in fields of Veterinary & Animal Sciences and Agricultural & Bio-Systems Engineering. The trained 6000 professionals will contribute to the scientific advancement in the agriculture sector, especially in the South Punjab.



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- iii. Impart the latest developments in agriculture curriculum, teaching methodologies and lab standards as well as promoting effective R&D. Engage students with farmers through internship programs and launch productivity enhancement campaigns.
- iv. To provide best research & teaching facilities to 3000 students and 25 teachers in the FA&BE and FV&AS.
- v. Take regional farming to the next level through transforming traditional agriculture knowledge based agriculture like precision agriculture.
- vi. Develop a trained and skilled workforce having a focus on innovation, value addition and entrepreneurship, capable of employing knowledge inputs for the rapid and sustainable development of Pakistan.

7.1.2. Strengthening of Muhammad Nawaz Shareef University of Agriculture, Multan

An ADP Project titled “Strengthening of MNS-University of Agriculture Multan” at a cost of Rs. 646.600 million was approved during FY 2022-23 with the Gestation period of 36 months. The project proposal includes the Girls Hostel with Capacity of 250 students each, Sports Gymnasium, Overhead Water Tank with 1.5 cusec turbine (50000 Gallons), ICT Equipment & Networking, Student Buses and Furniture & Fixture. An amount of Rs. 109.087 million was released for civil work during FY 2022-23 and Rs. 109.087 million has been 100% consumed for Civil Work The physical progress of scheme is as under:

1. Female Hostel: Excavation and footing concrete work completed and shuttering of column work is in progress.
2. Sports Gymnasium: Excavation work completed, footing concrete work in progress.

During Financial Year 2023-24, the financial position of the scheme is according to PC-I allocation Rs. 297.960 Million for CFY, whereas the Finance Department released an amount of Rs.9 7.389 Million, which has been completely utilized.

Overall Financial Progress of scheme is as under below:

Year	PC-I Allocation	Release	Expenditure
2022-23	39.587 M	109.587 M	109.587 M
2023-24	297.960 M	97.389 M	97.389 M
Total	646.600 M	441.049 M	206.976 M

Physical progress of scheme during FY 2023-24 given below:

In Female Hostel R.C.C Plinth Beams and R.C.C Column completed and in Sports Gymnasium Plinth Beams are completed



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In Female hostel, its output focus on residential facilities will be provided to 250 female students in each semester and a comfortable environment for studies and its purpose of targeting the conducive learning environments provided to the female students.

In Sports Gymnasium, its output focus on the facility will produce a healthy, trained and skilled workforce around 6000 students and its purpose of targeting to produce healthy and skilled environments. Its comprises of Badminton Court, Volleyball Court, Basketball Court, Table Tennis, Exercise Gym etc. The major objectives of the proposed project are as under:

- To provide better opportunities of higher education to the students of Southern Punjab as well as better educational facilities in agriculture may attract students from other districts of the province.
- Develop a trained and skilled workforce having a focus on innovation, value addition and entrepreneurship, capable of employing knowledge inputs for the rapid and sustainable development of Pakistan.
- To provide a better and conducive learning environment to the students through proposed sports, hostel and transport facilities.

7.1.2. National Crop Genomics and Speed Breeding Center for Agriculture Sustainability

An ADP Project of Rs. 450.00 million for “National Crop Genomics and speed breeding Center for agriculture Sustainability” at MNS-University of Agriculture Multan was approved during FY 2021-22 with the execution period of 36 months and revised to the tune of Rs. 472.920 million during FY 2022-23 with same Gestation Period.

During FY 2021-22, an amount of Rs. 122.920 million was released and out of which Rs. 79.854 million has been consumed for Civil Work and amount to Rs.43.066 million has been consumed for procurement lab equipment, Furniture and Chemical. The civil work of the foundation has been completed. During FY 2022-23 an amount of Rs. 250.00 million was released for civil work and out of which Rs. 156.470 million has been consumed for Civil Work.

During Financial Year 2023-24 the financial position of the scheme an amount of Rs. 56.588 Million was released and same completely utilized.

Overall Financial Progress of scheme is as under below:

Year	Allocation	Release	Expenditure
2021-22	122.920 M	122.920 M	122.920 M
2022-23	250.000 M	250.000 M	250.000 M
2023-24	100.000 M	56.588 M	56.588 M
Total	472.920 M	429.508 M	429.508 M



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Physical Progress of scheme during FY 2023-24 first half building portion (Front Block) was completed, handed over to the Estate Care and regular classes of students have also been conducted there. Second half building portion (Back Side) structure work is completed and plastering, flooring is under progress. However, the scheme has already been submitted for revision at the cost of Rs. 645.043 million with the increase amounting to Rs. 172.123 million in Planning & Development Board, Lahore.

The main output of scheme “National Crop Genomics and speed breeding Centre” is the establishment of wheat & Cotton Genome database, and also provision of lab facilities for experimentation. The outcome of the project will be generated for wheat (12 varieties) and cotton (40 varieties). Moreover, 400 persons including students & professionals per annum will get benefits from training workshops, seminars and capacity building.

The proposed project “National Crop Genomics and Speed Breeding Centre for Agriculture Sustainability” will help the agriculture Sector in achieving its aims of provision of quality food and improve income of the farmers through competitive economic farming.

The main objective of NCG&SBC is to explore the genomic information and historic genetic background of major crops; wheat and cotton, with possible fast track solutions of the issues including insect/pest complex, climate change and produce quality to ensure food security in the country in particular and in the region in general. The specific objectives are:

1. Acquisition, maintenance, and characterization of germplasm for genetic purity – a base for genotyping.
2. Genome sequencing of indigenous germplasm to explore genomic information.
3. Upgrading and accelerating conventional breeding through integration of genomics.
4. Capacity building of Human Resource in new Genome/Genetic Techniques.

7.1.4. Construction of Masjid Fatima-Tu-Zahra at Muhammad Nawaz Shareef University of Agriculture Multan

The competent authority decided to construct Central Mosque for 3000 person's capacity having covered area of 23000 Sq Ft consisting of one Prayer Hall, One Veranda, Two side rooms, 2 Nos Ablution area and Library with the estimated cost of Rs. 93.00 million. The drawing/design of the mosque is prepared by M/S Mirza Nasir Associates in a Turkish Style. In this connection, the University requested for donation to construct the Mosque and Rs. 10.99 million was collected from donations. The scheme was approved by the competent authority in FY 2021-22 amounting to Rs. 91.043 (M) with the execution period of 24 months. During FY 2021-22 the physical progress of project the Masjid Hall completed up to roof Level. FY 2022-23, the estimate was revised from Rs.93.00 million to Rs.98.31 million with the execution period of 24 months. Up to June 30, 2023 total funds amounting to Rs.76 million has been Utilized. The structure work has been completed and finishing work is in progress.



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During Financial Year 2023-24, the financial position of project the estimate was also got revised from Rs.98.31 Million to Rs.116.710 Million. Up to June 30, 2024 total funds amounting to Rs. 92.744 Million has been utilized.

Physical Progress of project is that Hall and Veranda has been completed. Library and Ablution Area finishing is in progress.

The main role of this foundation provides a welcoming and spiritual environment where community members pray with peace of mind and a sense of belonging.

7.1. Completed Annual Development Programs

The University has completed some important development projects consisting of basic infrastructure of the University. The project wise brief introduction of scope is as under.

7.2.1. Establishment of MNS University of Agriculture, Multan Phase-II

One ADP Project of Rs. 1510.243 Million was approved with the execution period of 48 months up to June 30, 2019. Due to less funding in FY 2018-19, the time/cost overrun. Consequently, the scheme was revised at a cost of Rs. 1746.258 million and the project execution period also extended for one year (Up to June 30, 2020). An amount of Rs. 1743.989 million has been consumed till June 30, 2020. Project activities have been 100% completed including 22 and other allied activities within the stipulated period. An amount of Rs. 1333.438 million was allocated for the construction of physical infrastructure i.e. Academic Block, Administration Block, Boys Hostel, Girls Hostel, Faculty Hostel, Residences, Boundary Wall and Allied External Services.

The MNS University of Agriculture, Multan awarded the contract of all civil work modules and the construction work on all University buildings has been completed. An amount of Rs. 1333.438 million was released up to FY 2019-20 for the civil works and out of which Rs. 1333.429 million has been consumed. University Boundary Wall of 12,145 Rft (running feet), Building of Administration Block, Academic Block, Boys Hostel, Girls Hostel, Faculty Hostel, Residences, Motor Vehicle Shed, Overhead Reservoir, Water Supply, Sewerage, Roads and other External Services have been completed.

Under the project, an amount of Rs. 189.295 million was released for the procurement of Lab and ICT Equipment up to FY 2019-20 from which Rs. 189.202 million has been consumed and 760 equipment have been procured and established twenty-four labs.

An amount of Rs. 39.745 million was released for the procurement of Furniture & Fixture up to FY 2019-20. The necessary furniture & fixtures have been procured and established the classrooms, hostels, and guest house.



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An amount of Rs. 49.304 million has been provided under Farm Development and other components. The university leveled the 500 Acres of barren land at Jalalpur Pirwala and constructed a 4816-meter-long Water Course for irrigation purposes. The University converts this barren land into the research/experimental stations and it is very useful for research students and faculty members to perform research activities.

7.2.2. Provision of Fresh Irrigation Water and Other Basic Infrastructure Facilities at Jalalpur Pirwala (JPPW) Farm of MNSUAM

Another ADP Project of Rs. 170.00 million for fresh irrigation water and other basic infrastructure facilities at JPPW Farm of MNSUAM was approved with the execution period of 24 months (2019-20 to 2020-21). The major objective of the project is to provide fresh water for irrigation to bring 250 acres of land under cultivation, which cannot be brought under cultivation as the canal water is too short to meet the requirement and groundwater is highly brackish. The project aims at providing some infrastructure which is missing at present, but is essentially required at the farm for research and experimentation for the graduate as well as postgraduate students and faculty members.

Other components of the project include provision of sheds for farm machinery and implements, farm animals, farm produce and stores for the inputs. Establishment of training halls for capacity building of the farmers is also one of the project objectives. The project objectives are elaborated as below:

- i. Installation of two turbine tube wells near the bed of River Chenab for sweet/fresh water supply for irrigation along with underground conveyance system to meet canal irrigation water shortage during Kharif season and to meet demand of Rabi season.
- ii. Construction of sheds for keeping of agricultural machinery and farm animals for prolonged life of implements and safety of farm animals.
- iii. Construction of stores for inputs and sheds for farm produce for bulk purchase of inputs and safety of the farm produce.
- iv. Construction of training halls for capacity building of the farmers and other stakeholders.

An amount of Rs. 170.00 million was released up to FY 2020-21 and the same has been consumed to carry out the Civil Work including laying of 9 KM pipeline for irrigation water, animal shed, input store, implement shed, training hall and boundary wall. Furniture and Fixture has also been procured for the training hall.



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7.2.3. Construction of Central Library at MNS University of Agriculture, Multan

The Honorable Minister (Caretaker) for Agriculture, Sardar Tanveer Ilyas Khan donated Rs. 20.00 Million from his own pocket during his kind visit to MNSUAM and 10.00 Million were also contributed by the University from its own sources for the Construction of Central Library (Ground Floor) having a covered area of 10,450 Sq Ft. The construction work of the library has been completed and an amount of Rs. 29.986 million is disbursed for the Central Library Building up to date.

The University Library and Collection Services provide fundamental support for students, researchers and staff, complementing academic activities. Libraries are collections of books, journals, periodical publications, including magazines, scholarly journals, books published as part of a series and other sources of recorded information.

Library is an essential part of the University which is the main source of learning for students as well as faculty members. Library provides a learning environment for students to achieve their goals and keep in touch with books to build the nation. The primary function, of course, is research. Students and professors alike use libraries to research their topics for papers, thesis, books, papers, journals, etc. Number of books available has increased over the years as under:

Sr. No.	Financial Year	Books
1	2016-17	2976
2	2017-18	4436
3	2018-19	5009
4	2019-20	5350
5	2020-21	5384
6	2021-22	5471
7	2022-23	5543
8	2023-24	5863

7.3. University Farms

MNS University of Agriculture, Multan has two research farms at Chak 84-M, Jalalpur Pirwala and Main campus at Mouza Rangeel Pur, Multan, the first one comprises of 507 acres and the later has 170 acres of land (64 Acres under cultivation for different crops while rest under building and lawns). These farms provide the students with an opportunity to get practical training in various disciplines of agriculture. These farms also serve as demonstration centers for the students, provide basic infrastructure for conducting the research and also serve as Model Farms for the farming community. A summary of development works done at the Farms, is being given below:



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7.3.1. Agricultural Farm, Jalalpur Pirwala

- After the bulldozer work and laser levelling on 507 acres land of University Farm Jalalpur Pirwala, the major challenge was to cultivate this saline sodic soil with brackish underground water. However, the challenge has been accepted and a whole 507 acres of land have been utilized.
- The canal system at Jalalpur Pirwala is non-perennial and canal water is available only for six months from mid-April to mid-October every year. To improve the efficiency of canal water, the mogha was shifted toward the head and a 1730 feet paved water channel was constructed. Furthermore, to meet water requirements in winter and as per need in summer, two electric mounted water turbines have also been installed to fetch the fit for irrigation water from 6 km away and crops are being irrigated with this water.
- After the addition of 100 more acres in Rabi season 2023-24, now 350 acres of land is under annual crops, 47 acres under orchards, 50 acres under forestry, 25 acres under organic farming, 4 acres as fallow land (Bees, Pollinators etc.), 30 acres under infrastructure (Buildings, Roads, Water Channels, and Ponds etc.) and 1 acre is kept as unlevelled to depict the initial picture of the farm.
- About 56,000 plants of various tree species like gum Arabic, lebbeck, Indian lilac, Indian beech tree, jujuba, pomegranate, guava, fig etc. have been planted on roadside, alongside the water channels and in specific belts with higher level of salinity, which now are growing up and have started giving a greener look to the premises.
- Furthermore, successful adaptability trials for olives have also been done and 10 Acres of plantation under drip irrigation system is under progress.
- Mango orchard has been established under water regeneration and environmental sustainability project on about 7 acres under which 4000 plants have been transplanted.
- Fish farming is ongoing.
- A project for construction of livestock shed, input and output stores and seed stores, farmers training halls and machinery shed has also been completed.
- During Rabi season, major crops were wheat, oat, raya and lucerne, whereas, during Kharif season, major crops grown were cotton, millet, guar, mungbean, sorghum, maize and jantar. Further, sesbania has also been sown for green manuring, to add the organic matter into the soil.
- Farmer field days on wheat and cotton productivity enhancements and wheat harvesting (Baisakhi) events were also organized.
- A day out was facilitated for all faculty members for a comprehensive awareness visit of Jalalpur Pirwala farm.
- A ten-year strategic plan of University Farms Jalalpur Pirwala has been set and implementation has been started.

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7.3.1. Agricultural Farm, Main Campus, Multan

- In Mouza Rangeel Pur, Multan at main campus 180 acres of land were allotted to the University, out of which 60 acres are under University Farm while the rest is for campus and other constructions. The land was encroached by the illegal occupants. All the land has been possessed and is under cultivation. High-Tech structures like hydroponic system, floppy sprinkler irrigation system, greenhouse/s, containment/quarantine facility and tunnels have been constructed in C-block area. Furthermore, one fishpond, poultry shed, water cleaning ponds, small tree mango system, citrus block and Kitchen gardening units have also been established for the research / learning of the students.
- The major crops during growing season 2023-24, were wheat, cotton, Maize, chickpea, soybean, berseem and sorghum etc.
- A wheat field day was also organized at the visit of foreign delegates from Australia and Islamic Organization for Food Security (IOFS) for demonstration of the hybrid wheat and other advanced wheat lines developed by the University.
- In collaboration with private industries like Bayer Pakistan (Pvt.) Ltd, ICI (Pvt.) Ltd., Fatima Group (Pvt.) Ltd, Engro Fertilizers Pvt. research trials are ongoing.
- With collaboration of Syngenta Pakistan (Pvt.) Limited, Regenerative Agriculture trials are also being conducted.
- During the year 2023-24, an income of 54.072 million rupees from both Farms was achieved against a target of 55.000 million rupees.



Strengthening of Technological Infrastructure



Strengthening of Technological Infrastructure





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STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE

The Directorate of Information Technology (DIT) is focused on delivering a wide range of high-quality IT Services throughout the campus to all academicians, staff, and students. Providing a smart and robust environment is the main aim of the DIT, where everyone has easy access to all IT services around the clock. DIT also ensures a secure, reliable, and efficient IT environment where optimized results can be attained. The Directorate of IT played a pivotal role in realizing the vision and mission of the MNS University of Agriculture, Multan, by strengthening the ICT Infrastructure and facilities. There were two major streams of development.

- ICT Hardware Infrastructure
- ICT Software Services

8.1. ICT Hardware Infrastructure

8.1.1. Core Cisco Catalyst 2960 XR Switches

IP Core was upgraded to Catalyst 2960-X switches to provide high routing, switching, and security features.

8.1.2. Cisco 3504 WLC Setup

For Campus Wi-Fi services for staff and students, the Cisco Wireless LAN Controller 3504 was deployed. This centralized WLC provides a secure, high performance Wi-Fi internet experience.

8.1.3. Cisco SG350 Series Switching Setup

The Directorate of IT deployed Cisco SG350 Series Switches are next- generation managed switches that offer excellent performance, rich features, and ease of use. With support for Layer 2 and Layer 3 features, advanced security, routing, and energy-saving technology, they deliver a solid foundation for business applications today and in the future.

8.1.4. Network Security Update Fortigate-200E

The FortiGate 200E series next generation firewall was deployed at the University. Firewalls provide high protection against cyber threats with high-powered security processors for optimized network performance, security efficacy, and deep visibility. Fortinet's Security-Driven Networking approach provides tight network integration for the new generation of security.

8.1.5. Update License for Fortinet 200E Firewall Security

There was an urgent need to purchase a license for properly deploying all features and security benefits from the firewall, so a license for the first year has been purchased from the university budget. Now the second time license was also purchased for the smooth working of the firewall.

8.1.6. IP Unified Communication Panasonic KX-NSX2000

As one of the world's biggest manufacturers of consumer electronic goods, Panasonic may be better known for its televisions than its telephones. However, the Japanese multinational giant is nothing if not diverse in its product range, and business communication hardware is just one of the many strings to its considerable bow.



CHAPTER-8

STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE

8.1.7. Dahua IP Security System Setup

The university has upgraded its IP Security system, consisting of more than 200 IP PoE cameras covering all campus areas, ensuring the safety of the staff and students. A well-equipped control room has been established for monitoring.

8.1.8. Computer Labs

Four new computer labs have been established in the new Faculty building. The Latest software is installed, which facilitates the students to work in a comfortable and safe environment. One of these labs has been provided with high-performance computing facilities for senior students conducting research.

8.1.9. Fiber Optic Backbone Links

All buildings at the University have been linked by fiber optic cable. This service provides high speed network services to the staff and students.

8.1.10. New Video Conference Rooms Setup

There are four video conference rooms for staff and students. One more video conference room is being developed for meetings with Foreign Visitors and Governments. These rooms are equipped with Multimedia, an LED TV, a sound system, and internet facilities.

8.1.11. Multimedia classrooms

The university has arranged multimedia in every classroom to provide excellent facilitation to students. Multimedia Projectors are providing a facility for diverse teaching and learning in classrooms. These projectors' key features are picture execution, determination, long light life, item versatility, brilliance, PC associations, and calm activity. Moreover, 50 projectors were installed to ease the students' learning.

8.1.11. Video Conferencing Room Solutions

The university has arranged a high-definition Video Conference System for official online meetings, national and international webinars, and conferences. The video conference system provides participants with smooth and natural audio-visual effects and a comfortable and immersive experience for teleconferencing.

8.1.12. Digital Outdoor Displays (SMDs)

There are digital display devices installed at different locations of the university that display information in a digital format on large screens. There will be a prompt display of information/announcements regarding current events/activities.

8.1.13. Installation of UPS in 110 Seminar Hall

It was deemed necessary for proper electricity backup in Room 110, so we have installed a new UPS for Room 110. For uninterrupted conferences and online seminars, it has been installed.

**CHAPTER-8****STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE****8.1.14. Genome Center Network Connectivity**

The Directorate of IT has also enabled the Genome Center Connectivity For Internet and VOIP Services.

8.2. ICT Software Services**8.2.1. Webinar/Meetings**

The Directorate of IT has been supporting the faculty and students in conducting online meetings/webinars using Cisco WebEx Enterprise, Zoom Meeting, and Microsoft Teams. Especially during COVID-19, this really helped the University conduct online classes and meetings. Hundreds of meetings/conferences/webinars (national and international) have been conducted successfully during the year.

8.2.2. Microsoft Dynamics 365 Implementation

The Directorate of IT started the implementation of the world-renowned ERP solution using Microsoft Dynamics 365. This ERP would greatly enhance the financial operations, procurement, inventory, and procurement of the University.

8.2.3. (A) PERN Update

The university upgraded the PERN services contract from P1 to P2, which enhanced the internet bandwidth from 150 Mbps to 200 Mbps, and faculty and student licenses, including MS Office 365 and MS Windows OS.

8.2.3. (B) Newly Installed WATEEN Connection

The university also engaged a new ISP Connection from Wateen Telecom of 150 MB Now Increase to 220 MB Fiber Optic for Backup of the second internet source that is running properly to avoid any inconvenience.

8.2.4. Website Update

The Directorate of IT is managing the official website as well as launching project-related websites for faculty and students. The university's official website was updated from WordPress to Joomla, a free and open-source content management system. Web links to various online systems have been uploaded to university websites.

8.2.5. Kaspersky-Virus

The Directorate of IT purchased Kaspersky Endpoint Security Cloud Plus anti-virus software for protecting against a wide variety of threats, including other types of malicious software, such as keyloggers, browser hijackers, Trojan horses, worms, rootkits, spyware, adware, botnets, and ransomware.

**CHAPTER-8****STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE****8.2.7. Google G-Suite Services**

All staff and students have access to Google's Corporate G Suite services. These services consist of Email, Word, Excel, PowerPoint, and unlimited Google Drive. All students were provided G-Suite accounts this year, which greatly enhanced their productivity and collaboration. These services are being managed by the Directorate of IT.

8.2.8. Online Systems

- Admission System (<http://admission.mnsuam.edu.pk>)
- Faculty Information System (<https://fis.mnsuam.net/>)
- Development of web-based system for Agricultural Sciences Journal (ASJ) <https://asj.mnsuam.net/>
- Developed a complaint system (<https://complaints.mnsuam.edu.pk/>).
- Developed Job Portal System (<https://eportal.mnsuam.edu.pk/>).
- Developed a cotton Internship Mobile Application (<https://agri-internship.mnsuam.edu.pk>)
- Card Management System (card.mnsuam.edu.pk)
- Library Logs Management System (library.mnsuam.edu.pk)

8.2.9. Biometric Online Software Updated

- The Directorate of IT has also updated the BioMetric Software Online Software
- Purchased and Firmware/updated for smooth working of biometric software.

8.2.10. Virtual Machine Support Provided

- Virtual Machine for ERP Software.
- Pay Roll Virtual Machine
- Dynamics Virtual Machine
- Library Management System (KOHA)

Universities Building Communities



Chapter 9 Universities Building Communities



Chapter 9 Universities Building Communities





CHAPTER-9

UNIVERSITIES BUILDING COMMUNITIES

9.1. 7th Annual Mango Festival

The 7th Annual Mango Festival, held from July 7-9, 2023, was a significant event organized by Muhammad Nawaz Sharif University of Agriculture Multan (MNSUAM) and the Mango Research Institute (MRI), with sponsorship from DHA Multan. The festival, inaugurated by Governor Punjab, Engr. Muhammad Baligh Ur Rehman, highlighted the collaborative efforts of universities, research institutes, and mango growers in enhancing mango production. The Governor praised DHA for establishing the Mango Museum and stressed the need for improved packaging, hygienic practices, and the promotion of lesser-known mango varieties.

Prof. Dr. Asif Ali (T.I.), Vice-Chancellor of MNSUAM, emphasized the critical role of disease-free nurseries in Multan and Jalalpur Pirwala and the introduction of the Mango Small Tree System, which has significantly boosted production. AI-based smart traps and a protein bait system have been crucial in controlling mango fruit flies. The brand of university, UniFresh, has gained attention for its innovative packaging, and upcoming festivals in Islamabad, Lahore, Riyadh, and Beijing will further promote mangoes globally. The Governor also inaugurated the four-acre Mango Museum and Botanical Garden within DHA.

Dr. Abdul Ghaffar, MRI director, highlighted the challenges posed by climate change, particularly heatwaves, on mango orchards, and advocated for subsidies on mango drying. Brigadier Shoaib Anwar Kayani, Project Director of DHA, discussed DHA's commitment to maintaining green spaces and its transformation into Mango DHA, with over 3,500 saplings planted and more than 100 varieties planned for the Mango Museum. The festival concluded with a renewed commitment to enhancing the mango supply chain from producer to consumer, both nationally and internationally. Prof. Dr. Asif Ali (T.I.) promised to continue the festival as a cherished social event in the years to come.

9.2. First Annual Thesis Display 2023 by FFHS

The Department of Food Science and Technology at the Faculty of Food and Home Sciences, Muhammad Nawaz Sharif University of Agriculture (MNSUAM), organized the First Annual Thesis Display 2023, where postgraduate students showcased their research. The event saw active participation from numerous food industry leaders, including CEOs and general managers from South Punjab.

Prof. Dr. Asif Ali (T.I.), Vice-Chancellor of MNSUAM emphasized the important collaboration between academia and industry, highlighting that while academia provides research and expertise, the industry brings the vision for commercialization. He praised the efforts of Prof. Dr. Umar Farooq and Associate Prof. Dr. Muhammad Shahbaz for organizing the event. The industrialists in attendance highlighted that research should go beyond academic grading and focus on solving real-world problems. They commended the students for their innovative research.

The event attendees included Mian Rashid Iqbal, President MCCI; Chaudhry Zulfiqar Ali Anjum, CEO Volka Foods International; Sheikh Ahsan Rasheed, CEO Hafeez Ghee and General Mills; and other industry leaders and faculty members from FFHS and other faculties of the university.



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9.3. Inauguration of MNSUAM Display Corner

A new display corner was inaugurated at the Muhammad Nawaz Shareef University of Agriculture Multan. The display center was led by the Department of Food Science and Technology, Faculty of Food and Home Sciences. The inauguration was led by Prof. Dr. Asif Ali (T.I.), Vice-Chancellor MNS-UAM, along with esteemed guests including Prof. Dr. Rana Altaf, Vice-Chancellor NMU; Prof. Dr. Kamran, Vice-Chancellor MNS-UET; Prof. Dr. Uzma Qureshi, Vice-Chancellor Women University, Multan; and Prof. Dr. Muhammad Rashid Qamar Rao, Principal Nishtar Medical University.

The display corner features a wide range of commercial products created by various departments of the university. These include food items such as beverages, pickles, cereals, flours, and dehydrated products, as well as university souvenirs and branded sports kits. The primary aim of the display center is to showcase the commercial products developed by students and to enhance their technical skills in product development, marketability, and commercialization. This initiative provides a visual platform to communicate concepts and experiences, encouraging innovation in product development and motivating students towards entrepreneurship.

Prof. Dr. Asif Ali (T.I.) commended the initiative and encouraged the organizers to continue improving and expanding outreach activities. The guests also praised the display center, highlighting its role in fostering critical thinking, problem-solving, communication skills, public speaking, and teamwork among students. They noted that such initiatives prepare students for modern careers by promoting self-sufficiency and goal setting.

9.4. Empowering Through Skill Development: Building a Stronger Community

The Department of Outreach and Continuing Education (DOCE) at Muhammad Nawaz Shareef University of Agriculture Multan (MNS-UAM) has expanded its outreach activities by launching short skill courses in Graphic Designing, Spoken English & Communication, and Computer Applications. These courses aim to create a skilled workforce in Multan, contributing to the community's technical and communication needs, thereby fostering local economic growth and sustainable development.

Graphic Designing, a field that merges creativity with technical expertise, is vital for creating visual content across various media. The DOCE introduced a 1.5-month short course in Graphic Designing, focusing on practical skills in image-making, typography, branding, and business development. Master Trainer Mr. Fahad Bhatti led the course, which aimed to empower participants to establish themselves as entrepreneurs in graphic design. The course saw enthusiastic participation, equipping students with essential skills for the digital age.

Proficiency in English opens doors to global opportunities. Recognizing this, the department has offered a six-week course on Spoken English and Communication, targeting students looking for international careers and social media professionals. The course, facilitated by Ms. Aimen Batool, Lecturer in English at MNSUAM, combined theoretical instruction with hands on exercises to enhance conversational skills, boost self-confidence, and reduce hesitation. The program attracted significant interest, helping participants improve their communication abilities for academic and professional success.



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UNIVERSITIES BUILDING COMMUNITIES

Computer literacy is essential in today's digital world. The six-week Computer Applications course, led by Mr. Zaid Sarfraz, aimed to improve employability among underprivileged youth by teaching essential computer skills. The program blended theoretical knowledge with hands-on practice in a well-equipped computer lab, preparing participants for various professional opportunities. The course received an encouraging response, empowering young learners with valuable skills for the modern workforce.

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9.5. Recruitment Drive organized by CDC

The Career Development Center (CDC) at MNSUAM organized a recruitment drive for Agriculture and BBA Agribusiness graduates to place them as Agriculture Finance Officers. Dr. Muhammad Ishtiaq, Focal Person of CDC, warmly welcomed the guests and emphasized the university's commitment to supporting various industries in the recruitment process. He highlighted that these events benefit both the industry and fresh graduates by providing them with job opportunities and career guidance. Dr. Ishtiaq also encouraged students to improve their communication skills to enhance their chances of being selected.

Mr. Jawad Bukhari, Assistant Manager at Bank Al-Habib, introduced the bank and discussed the job opportunities available for graduates. He shared insights on career development, interviewing skills, and the recruitment test procedure. Mr. Bukhari emphasized the bank's commitment to offering excellent career opportunities to Agriculture Graduates across the country.

9.6. Recruitment Drive for Area Trainee Leaders for Evyol Group of Companies

The Career Development Center at MNS University of Agriculture Multan organized a recruitment drive for Area Trainee Leader positions with the Evyol Group of companies. Graduates registered online for the written test, with about 190 out of 250 registered participants taking part.

Mr. Muhammad Asad from Evyol Group provided an overview of the group, which includes companies like Kanzo Ag, AgPharma, Certus Seeds, CombAgro, Eco Pest Solutions, and Solvay. He highlighted the vision and leadership of Group President Mr. Ch. Asif Majeed, sharing his success story and encouraging graduates to join Evyol for its commitment to training in modern professional trends.

Dr. Muhammad Ishtiaq, Focal Person of the Career Development and Placement Center, emphasized that Evyol Group is a top recruiter offering Area Trainee Leader positions directly to fresh Agriculture graduates. He shared his experience working with Evyol in flood-affected areas under the "Farms in Arms" project, praising their role in modernizing agriculture in Pakistan and providing internships for students.



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9.7. MOU between MNSUAM and Military Family Rehabilitation Organization

On August 11, 2023, a team from MNS University of Agriculture, Multan (MNSUAM), led by Vice Chancellor Prof. Dr. Asif Ali (T.I.), visited the Agriculture Research and Facilitation Complex of the Military Family Rehabilitation Organization (MFRO) in Cholistan, near Bahawalpur. The visit marked the signing of a Memorandum of Cooperation (MOU) between MNSUAM and MFRO. The ceremony began with the recitation of the Holy Quran, followed by a documentary showcasing MFRO's activities in Chappu, Bahawalpur. The MOU was signed by Prof. Dr. Asif Ali (T.I.) and Brigadier Arshad Taufiq, with Major General Muhammad Yousaf Majoka gracing the event.

In his address, Prof. Dr. Asif Ali emphasized the global focus on corporate and cluster farming as a solution to food security concerns. He highlighted MFRO's potential to cultivate barren land, with MNSUAM offering technical guidance. He also mentioned the opportunity for MNSUAM graduates to find employment through this collaboration and discussed the university's work on a midcentury sectoral plan. The MNSUAM team, including faculty members, conducted a hands-on assessment of soil and water conditions, identifying the area as suitable for drought-resistant wheat cultivation. They also shared insights on landscaping, date and citrus orchards, and laboratory establishment at the complex.

9.8. Independence Day Celebrations 2023

Independence Day was celebrated at MNSUAM with great enthusiasm during the Independence Celebrations from August 9-14, 2023. The event featured a variety of activities, including a Debate Competition, Quiz Competition, Cultural Night, Quran Khawani, Flag Hoisting Ceremony, Cake Cutting Ceremony, Tree Plantation, National Songs Gala, and Cultural Tableaus.

The celebrations began with intellectually stimulating Debate and Quiz Competitions. The Debating Club organized the debate, while the Quiz and News Club (QNC) hosted the quiz competition. The Senior Tutor's Office supported these events by awarding debating books and diaries to the winners, encouraging student participation and intellectual growth. The Cultural Night, attended by Foreign Delegations from Belgium, Australia, Africa, Senegal, and Dubai, along with Vice Chancellor Prof. Dr. Asif Ali (T.I.), comprised of cultural, patriotic, and recreational performances by the Arts & Dramatic Club, Mosigala Beat, and Rover Scouts Unit.

On Independence Day morning, Quran Khawani was held in honor of the martyrs of the Pakistan movement. The National Flag was hoisted by the Foreign Delegation and the Vice Chancellor, followed by a cake cutting ceremony. The Plant for Life Society organized a tree plantation activity, where international delegates, faculty, administration, and students planted saplings around the newly established Central Mosque. Madrassah students, led by Dr. Muqarrab Ali, planted saplings near the Academic Block. The event concluded with national songs by the Mosigala Club and a Cultural Tableau by the Arts & Dramatic Society.

9.9. Inauguration of Solar Energy System

A 500 KW solar energy system was inaugurated at Muhammad Nawaz Shareef University of Agriculture Multan. During the ceremony, Vice-Chancellor Prof. Dr. Asif Ali (T.I.) highlighted the growing demand for electricity in the country and emphasized the importance of eco-friendly and clean energy sources. He noted that the new solar system would significantly reduce the university's energy costs, easing the financial burden.



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The Vice-Chancellor appreciated the efforts of the Director of Planning & Development (P&D) and the Engineering and Construction Department (ECD) team, particularly Engr. Abu Mazhar Ahmed, as well as the Registrar and Treasurer, for their dedication in completing the project during challenging times. He extended his congratulations to everyone involved and reaffirmed the university's commitment to further expanding solar energy installations in the future. The event was attended by Deans Prof. Dr. Shafqat Saeed and Prof. Dr. Asif Raza, Controller Examination Mr. Zulfiqar Ali Tabassum, a representative from The Bank of Punjab, the Consultant and Contractor in charge, and other faculty members.

9.10. Punjab Agriculture Minister, Mr. S. M. Tanveer's visit of MNSUAM

The Agriculture Minister of Punjab, Mr. S.M. Tanveer, visited MNS University of Agriculture Multan and Vice Chancellor Prof. Dr. Asif Ali (T.I.) highlighted the university's focus on research projects aimed at benefiting the farmers of South Punjab. These projects included the production of wheat hybrid seeds, a floppy irrigation system, biopesticides, mango small tree systems, smart traps, and solar dryer systems.

Secretary Agriculture South Punjab also graced the occasion. The Deans, Professors and other faculty members also accompanied the Vice Chancellor in welcoming the honorable minister. During the visit, Punjab Agriculture Minister planted a sapling alongside the Vice Chancellor.

9.11. Visit of Chief Minister Punjab, Syed Mohsin Raza Naqvi, to MNSUAM

Chief Minister Punjab, Syed Mohsin Raza Naqvi, visited MNS University of Agriculture Multan (MNSUAM) on September 9, 2023, for a historic consultative session focused on revamping agriculture in Punjab. The session brought together Cabinet Members, Secretaries, Vice Chancellors, Professors from South Punjab Universities, and representatives from agro-industries and farmers' associations.

Prof. Dr. Asif Ali (T.I.), Vice-Chancellor of MNSUAM, highlighted the university's commitment to agriculture development in South Punjab. He noted MNSUAM's rapid growth, strong industry-academia connections, and significant initiatives like the Cotton Campaign, aimed at reviving cotton production through collaboration between academia, industry, and farmers.

Secretary Agriculture, Punjab, Mr. Iftikhar Ali Sahoo, emphasized the session's importance, acknowledging MNSUAM's progress and the Government of Punjab's 10-year strategic agriculture plan. He discussed legal reforms for seeds, fertilizers, and pesticides, and announced an upcoming oilseed campaign, stressing agriculture's role in economic growth.

Chief Minister Naqvi highlighted the significance of uniting experts to advance agriculture, fostering an environment for open discussion to drive technological progress and economic development. Various experts, including Prof. Dr. Amir Nawaz, Prof. Dr. Muhammad Nafees, and others, shared insights on crop diversification, cotton production, climate change, and agricultural innovation.

The session concluded with the announcement of a Ministerial Committee, comprising Provincial Ministers, to develop comprehensive recommendations for promoting agricultural research and sustainable development in Punjab. The Chief Minister reaffirmed the government's commitment to advancing agriculture through collaborative efforts and innovative strategies.



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9.12. Plant Centric Meal Competition (Pulses based value added Products)-MNSUAM

The Faculty of Food and Home Sciences at Muhammad Nawaz Sharif University of Agriculture Multan organized a Plant Centric Meal (Pulses Based Value Added Products) Competition on September 07, 2023, which was graced by Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM, the Australian delegation, Faculty of Food and Home Sciences and a large number of students from different departments. More than 50 students participated in the competition and displayed a beautiful array of unique and innovative food products prepared by pulses which were well appreciated and liked by the Australian delegation. Appreciating the undergraduates of MNSUAM for raising the bar of creativity and intellect, Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM expressed that we have invested in our students, and they have earned national and international fame not only for our institute but also for Pakistan. He appreciated the unique and healthy food products made by students and congratulated the winners and students who participated in the competition. The Australian delegation also appreciated the creative potential of MNSUAM's students. At the end of the competition prizes were distributed among the winning teams. Prof. Dr. Umar Farooq, Dean Faculty of Food and Home Sciences, Dr. Muhammad Shahbaz, Chairman Department of Food Science and Technology, and Dr. Ambreen Naz, Chairperson Home Sciences were also present at the event.

9.13. HEC Intervarsity Volleyball Championship 2023 Zone-J

MNS-University of Agriculture, Multan organized HEC Intervarsity Volleyball Championship 2022-23 Zone-J on 22 September 2023. Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM, inaugurated the event, while officials from Directorate of Student Affairs, Senior Tutor, Registrar and Director Sports besides other academic and supportive staff also graced the occasion. Prof. Dr. Asif Ali (T.I.), urged the students to manifest sportsman spirit so that they can face the odds of practical and social life and play their effective role in the development of a healthy and prosperous society. He praised the Higher Education Commission's (HEC) initiative to promote sports activities. Khwaja Fareed University of Engineering & Information Technology (KFUEIT), Rahim Yar Khan won the said championship and qualified for the final championship matches.

9.14. Stakeholder Conference about Safe City Project

A stakeholder conference on the "Safe City Project" was organized by the Department of Food Science and Technology, Faculty of Food and Home Sciences (FF & HS), at Muhammad Nawaz Sharif University of Agriculture Multan (MNSUAM) on September 27, 2023, in collaboration with the Punjab Food Authority. The event was graced by Mr. Faizan Riaz, DCO Multan, and Mr. Muhammad Saif, Director of Operations South Punjab. Also in attendance were Prof. Dr. Umar Farooq, Dean of FF & HS, and Prof. Dr. Shafqat Saeed, Dean of Agriculture and Environmental Science.

Dr. Muhammad Shahbaz, Chairman of the Department of Food Science and Technology, opened the event by welcoming all distinguished guests, especially the DCO Multan and Punjab Food Authority representatives, for their valuable time and presence. Dr. Aftab Qamar from Punjab Food Authority delivered a detailed presentation on the services, responsibilities, regulations, and achievements of the Authority. He introduced the PFA helpline service #1223 for complaint registration and addressed queries from students and industrialists.



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Mr. Muhammad Saif, Director of Operations South Punjab, motivated the youth by emphasizing the importance of hard work and health in achieving success. DCO Multan, Mr. Faizan Riaz, highlighted the crucial connection between food and practical life, stressing the need for mental and physical activity for professional success. The conference concluded with remarks from Prof. Dr. Shafqat Saeed, who expressed gratitude to all attendees, particularly the DCO Multan, Punjab Food Authority officers, and industrialists, for their contributions to the event.

9.15. Interactive Session with General Manager of SM Food Mr. Salahuddin

An interactive session for food technologists with Mr. Salahuddin, General Manager of SM Food, was held on September 27, 2023, organized by the Department of Food Science and Technology at MNSUAM. The event was graced by Prof. Dr. Umar Farooq, Dean of the Faculty of Food and Home Sciences, who served as the chief guest. Dr. Muhammad Shahbaz, Chairman of the Department of Food Science and Technology officially commenced the event.

Mr. Salahuddin emphasized the importance of connecting young food technologists with industry experts. He discussed the growing demands of the food industry, highlighting the bright future that awaits these young professionals as the global population continues to increase. A Q&A session followed, where Mr. Salahuddin provided detailed answers to various student queries, encouraging them to sharpen their professional skills as they are the future of Pakistan's food industry.

Prof. Dr. Umar Farooq concluded the event by expressing deep gratitude to Mr. Salahuddin for his valuable insights. He also commended Dr. Muhammad Shahbaz and the faculty for organizing a productive and engaging session, which provided significant learning opportunities for the students.

9.16. Activities during Rabi' al-Awwal and International Peace Day

In connection with the month of Rabi-ul-Awal and the International Day of Peace, an auspicious event of Mehfil-E-Zikr Piyambar-E-Aman was organized by MNSUAM Qirrat & Naat Club, Directorate Students Affairs and Office of the Senior Tutor on October 15, 2023. Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM, graced the event as the esteemed chief guest. Addressing the event, Dr. Rasheed Ahmad enlightened the audience with the Islamic ideals of peace and harmony in light of the biography of the messenger of peace Hazrat Muhammad (S.A.W.W). The active participation of the students exemplified the unfaltering dedication of our youth to the ideals of peace, unity, spirituality, love for Islam and love for the Holy Prophet (S.A.W.W). In his conclusory remarks Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM, advised the students to live their life in accordance with Sirat-ul-Nabi for fostering global harmony, understanding, peace, kindness, humane behavior and love.

9.17. Inauguration of Freshco Sensory Lab-MNSUAM

Freshco Sensory Lab was inaugurated on October 16, 2023, by Prof. Dr. Asif Ali (T.I.), Vice Chancellor Muhammad Nawaz Sharif Agriculture University, Captain (R) Mr. Mehmood, Secretary National Food Security and Mr. Shahzad Hasan CEO Freshco. Freshco Sensory Lab was established with the special support of Freshco Multan on which Dean Faculty Food and Home Sciences Professor Dr. Umar Farooq thanked Mr. Shahzad Hasan, CEO Freshco. Multan and assured that this initiative will help the future sensory evaluation-based research and development.



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This lab will be beneficial for conducting sensory analysis of various food products developed by students and even industries. Freshco Sensory Lab will revolutionize the food industries and academia by providing a platform for different industries to bring innovation in food product development.

9.18. Celebrations of World Food Day 2023

The Department of Food Science and Technology, Faculty of Food and Home Sciences at MNSUAM, organized a seminar on October 16, 2023, to commemorate World Food Day. The theme was “Water is Life, Water is Food.” The event was graced by Prof. Dr. Asif Ali (T.I.), Vice Chancellor of MNSUAM; Capt. (R) Mr. Muhammad Mahmood, Secretary of National Food Security; and Mr. Muhammad Shahzad Hassan, CEO of Freshco, Multan. Industrialists, Punjab Food Authority officers, faculty members, and students also attended.

Prof. Dr. Umar Farooq, Dean of the Faculty of Food and Home Sciences, emphasized the critical need to save water for the sustainability of future generations. He stressed that water conservation is essential for life. Miss Abgeenay Khan, Director of Operations at Punjab Food Authority Multan, praised the department for raising awareness on this crucial issue. Mr. Javed Chaudhry, Chairman of the Water Association, highlighted the severe water issues in Multan, particularly the high levels of arsenic and heavy metals. He explained that while boiling can kill bacteria, arsenic requires reverse osmosis (RO) for removal. Efforts are underway to provide clean water throughout the region.

The seminar concluded with Miss Abgeenay Khan distributing PFA ambassador sashes to 30 selected students, who will participate in activities to ensure food safety. Souvenirs were also given to the guests in appreciation of their participation.

9.19. World Polio Day Seminar

For commemorating the World Polio Day October 24, 2023, Rotary Club and other societies of MNSUAM organized a seminar in MNS University of Agriculture Multan. Addressing the seminar, Prof. Dr. Asif Ali (T.I.), Vice-Chancellor, MNSUAM, stressed that the youth can play an effective role in the complete eradication of Polio. Foregrounding the dire implications of the disease which leads to lifelong disability and even death in severe cases, he stressed upon the significance of vaccination being the only solution for prevention from Polio. Addressing the event, Mian Salman Mubarak, CEO Fazal Rehman Hospital briefed that the world is close to eradication of polio, as new polio cases are coming up in only two countries of the world, unfortunately one of which is Pakistan. A pluralistic approach towards Polio awareness and a rigorous vaccination program can effectively make Pakistan polio free. The seminar was attended by faculty members and students.

9.20. Observance of Kashmir Solidarity Day

MNS University of Agriculture Multan observed Black Day to express solidarity with the cause of Kashmiris on October 27, 2023. The University strongly expressed its determination, stressing the international community to wake up from its deep slumber and take practical steps to hold a plebiscite in Jammu and Kashmir in accordance with the UN Security Council resolutions so that Kashmiris can exercise their right of self-determination. Addressing the procession, Dr. Mirza Abdul Qayyum expressed that since 1947, India had been engaged in the genocide of Kashmiris when it illegally occupied Jammu and Kashmir through fraud and brute force.



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In accordance with the Black Day protest march, a special prayer and numerous co-curricular activities were organized by the Senior Tutor Office and Directorate of Student Affairs. Students expressed their feelings through the medium of debates, songs and skits to show solidarity with Kashmiris.

9.21. Clubs Societies Day

Students Clubs Societies Day was organized in MNS University of Agriculture Multan on October 30, 2023. The Day was celebrated to propagate the awareness and importance of co-curricular activities among students. In this regard, under the supervision of the Office of the Senior Tutor, more than twenty student societies and clubs of the university exhibited various projects and talents at their stalls. University students also exhibited open theatre performances on various topics. Appreciating the students on this occasion, Prof. Dr. Asif Ali (T.I.), Vice-Chancellor, MNSUAM, expressed that fully functional clubs and societies are pivotal for a conducive academic environment and for honing the leadership skills of the students. Students who volunteer in these clubs and societies not only emerge as better citizens for society but also get more employment opportunities.

9.22. MNS University of Agriculture, Multan celebrates the 3rd Convocation

The MNS University of Agriculture in Multan recently celebrated its 3rd convocation ceremony on November 9, 2023, a time-honored tradition that signifies the culmination of years of hard work and academic achievement. In total 1824 undergraduate students, 203 postgraduate students and 11 Ph.D. students graduated on the eve of 3rd convocation. A total of 14 gold medals, 13 silver and 9 bronze medals were awarded to the undergraduate classes while 7 silver were awarded to the postgraduate position holder students. The convocation ceremony was graced by the presence of Governor of Punjab, Engr. Baligh Ur Rehman. The event featured inspirational address from his Excellency the governor of Punjab. Addressing the event, he expressed that this is a golden time in the life of a graduate and all the students should develop a positive mindset to counteract every difficulty in life. The highlight of the convocation was the recognition and awarding of degrees to the graduating students. The university took pride in conferring degrees upon a diverse group of scholars who succeeded in various disciplines within 19-degree programs offered at university. Prof. Dr. Asif Ali (T.I.) Vice Chancellor, MNSUAM congratulated all the graduating alumnae and foregrounded that education is a transformative force, a beacon that lights the path to a glorious future. Addressing the graduating alumnae of MNSUAM, he notified that they have been equipped with the tools to navigate through their careers. In his closing remarks he expressed that he encourages them to view this education not as the end of a journey but as the beginning of a new chapter filled with opportunities for growth, innovation, and service to society. He appreciated the office of controller of examinations and other offices for successful organization of the convocation. At this occasion, all the faculty and administration of MNS University of Agriculture Multan were present.

9.23. Capacity building workshop on Soil Sampling Techniques and Methodology

MNSUAM hosted a collaborative workshop with PepsiCo on November 14, 2023, focused on enhancing expertise in "Soil Sampling Techniques and Methodology." The workshop was led by Dr. Umair Riaz, Assistant Professor from the Department of Soil and Environmental Sciences, who warmly welcomed ten esteemed members from PepsiCo, Pakistan. The workshop was specifically designed to enhance proficiency in soil sampling within potato cultivation regions, reinforcing the strong partnership between MNSUAM and PepsiCo in supporting sustainable agricultural practices.



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The workshop began with participants sharing insights into their roles and the challenges faced by farmers in potato cultivation across various regions. Mr. Fahad Aslam, Regional Manager of Argo PepsiCo in Multan, emphasized the importance of collaboration and shared his perspectives on the topic. Dr. Umair Riaz delivered an informative presentation on the methodologies and techniques of soil sampling, covering objectives, precautionary measures, types of sampling, tools, and applications. A practical training session followed at a field site near A-Block, where participants actively engaged in soil sampling exercises, creating composite samples for laboratory analysis. Four MSc Soil Science students also participated, gaining valuable hands-on experience. Dr. Abid Hussain concluded the workshop by summarizing recent collaborative initiatives between PepsiCo and MNSUAM regarding soil analysis services. He highlighted the university's commitment to addressing real-time challenges faced by farmers and advancing sustainable development goals.

9.24. Wheat Productivity Enhancement Workshop at Jalalpur Pirwala Farm

A one-day workshop on "Wheat Productivity Enhancement" was held on November 16, 2023, at the University Farm in Jalalpur Pirwala, organized by the Department of Agronomy at MNSUAM in collaboration with Fatima Fertilizer Company Limited and the Agriculture Extension Department. Professor Dr. Abdul Ghaffar, Chairman of the Department of Agronomy, welcomed the participants and emphasized the importance of effective management during the wheat growing season, aiming for a target of over 40 mounds per acre. He assured the farmers that the weather forecast for the season until February is favorable for wheat growth.

Mr. Imran Hameed, Business Manager at Fatima Fertilizer, provided insights into selecting and using fertilizers effectively to boost wheat productivity. Dr. Khuram Mubeen, Associate Professor at MNSUAM, stressed the need for sustainable weed management, urging farmers to employ all possible methods, including chemical solutions, while considering weather conditions and avoiding herbicide resistance. Dr. Arsalan Khan from the Institute of Plant Protection discussed integrated disease management strategies to control diseases in wheat fields. Dr. Azwar Shah from the Agriculture Extension Department shared departmental recommendations to enhance wheat productivity. Prof. Dr. Shafqat Saeed, Dean of the Faculty of Agriculture and Environmental Sciences, appreciated the successful workshop and thanked the stakeholders for their participation. He reaffirmed MNSUAM's commitment to supporting farmers and agriculture in the country. The workshop saw active participation from over 150 attendees, including farmers, students, and faculty members. The event concluded with a field demonstration and an interactive Q&A session, where farmers discussed their challenges and received expert advice.

9.25. Seminar on Smog Awareness

Muhammad Nawaz Sharif University of Agriculture, Multan (MNSUAM), in collaboration with FC College Lahore, the National Disaster Management Authority (NDMA), and other stakeholders, organized a seminar on smog on November 17, 2023. The event featured guest speakers Associate Prof. Dr. Derk Bakker from FC College and Ms. Saleha Ali from NDMA, who addressed the critical issue of combating smog. Dr. Ahmad Mahmood highlighted the severe impact of smog on air quality in major industrial cities, attributing it to the lack of urban plantation. Prof. Dr. Tanveer ul Haq emphasized MNSUAM's commitment to tackling environmental challenges like smog. Dr. Bakker discussed smog in Punjab, its causes, and effects, while Mr. Nasir Chughtai and Ms. Saleha Ali from NDMA shared insights on disaster management and government efforts to reduce smog. The seminar concluded with a call for collective action and gratitude from Dr. Mahmood to all participants.



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9.26. Visit of National Agriculture Education Accreditation Council team to MNSUAM

On November 20-21, 2023, Muhammad Nawaz Shareef University of Agriculture, Multan (MNSUAM), hosted a team from the National Agriculture Education Accreditation Council (NAEAC) to evaluate and accredit its agricultural and allied degree programs. The NAEAC team, led by Chairperson Prof. Dr. Fayyaz-ul-Hassan and comprising esteemed experts in agriculture and veterinary education, began their visit with an introductory meeting with the university administration, where they were briefed on MNSUAM's mission, vision, and program structure.

The delegation toured the campus, visiting laboratories, research centers, and farm facilities, and observed the state-of-the-art equipment and technology available to students. They interacted with faculty members to discuss teaching methodologies, research projects, and student development. The team also engaged with students to gain insights into the effectiveness of MNSUAM's educational offerings.

The NAEAC team commended MNSUAM for its commitment to excellence in agriculture and veterinary education and provided constructive recommendations for further improvement. This visit marked a significant step in ensuring the continuous enhancement of MNSUAM's programs, reaffirming the university's dedication to providing world-class education in agriculture and allied disciplines.

9.27. Food Security OIC's delegation visited MNSUAM

A delegation from Food Security Organization of Islamic Countries visited MNSUAM on November 21, 2023, under the leadership of Dr. Masood J. I. Mari, Chairman Executive Board and Prof. Dr. Zulfikar Ali, Director Programs and Projects. The tour was principally aimed to strengthen cooperation between Pakistan's industry and OIC countries and create opportunities for entrepreneurs. The tour targeted to provide opportunities for the local business community and farmers to increase their product exports which will not only increase the financial capacity of the farmer but will also bring about a substantial increase in the national GDP. Explicating MNSUAM's strong belief that collaboration between industry and academia is the key to create a strong economy and knowledgeable society, Prof. Dr. Asif Ali (T.I.) Vice-Chancellor, MNSUAM expressed that the University will play a key role in harboring beneficial linkages between the OIC and industry. The OIC delegation complimented this progressive initiative of MNSUAM. On this occasion, Dr. Shafiq Patafi, Mr. Asif Majeed, Mr. Rana Mushtaq, Mr. Ghulam Farid Raiz, Mr. Saif-Ur-Rehman along with a large number of university faculty were present.

9.28. International Conference on Artificial Intelligence and Emerging Technologies

A two-day (November 29-30, 2023) International Conference on Artificial Intelligence and Emerging Technologies was organized by the Institute of Computing at MNSUAM in which more than 25 scientists from national and international universities participated. It shed light on the significant role that artificial intelligence can play in various sectors of agriculture such as planting, irrigation, fertilization, pest control and climate change. Apart from this, artificial intelligence is also of great importance in the field of health, education, environment and business. International academia including Prof. Dr. Daniel Putnam USA, Prof. Dr. Stephen Marzland New Zealand, Prof. Dr. Michael Castet France, Prof. Dr. Asia Khan UK, Prof. Dr. Nadeem Abbas Sweden, along with domestic academia naming Prof. Dr. Dost Muhammad Khan, Prof. Dr. Najia, Dr. Ali Nawaz Islamia University Bahawalpur and Dr. Waqas Haider Bangyal Kohsar University, Murree addressed the conference. The conference speakers stressed that cotton production can be increased significantly through artificial intelligence.



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Explicating the importance of cotton in Pakistan, the cultivation of cotton is crucial, and the advancements of IT and artificial intelligence can be used to guide the farmers in this regard. On this occasion, Prof. Dr. Salman Qadri, Dr. Abdul Razzaq, Dr. Ayesha Hakeem, Dr. Amir Hussain, Dr. Nadeem Iqbal along with other faculty farmers and a large number of students were also present.

9.29. Seminar on 16 Days of Activism to End Violence against Women and Girls

A seminar was organized by the Harassment Monitoring committee-MNSUAM on December 4, 2023, to commemorate the 16 Days of Activism to End Violence against Women and Girls. Ms. Nafisa Jabin Senior Psychologist and Sub Inspector Ms. Alina graced the event as the guest speakers. Talking about the rights of women, the speakers provided awareness about violence against women and the social problems that they face. They said that women can play a more effective role in society by recognizing their rights. They explicated that if confronted by any kind of injustice, women can contact the Violence against Women Center and register their complaints with complete confidentiality. Applauding MNSUAM's HMC said that the 16-day campaign against violence against women in the University of Agriculture will not only create awareness among the students of the university, but it will also create peace in the society.

9.30. Seminar on Palestine Issue

The Directorate of Student Affairs – MNSUAM organized a Seminar about the crucial Palestine crisis on December 05, 2023, in Central Mosque MNSUAM. The seminar aimed to show solidarity with the Palestinians and to educate our students about the historical perspective of the current issue. Dr. Rasheed Ahmad addressed the seminar as the keynote speaker. He comprehensively elaborated the rich history of the land of Palestine and its association with Islam and Pakistan. He expounded that the students should not act emotionally in any matter of life, rather, they must think rationally before doing anything. All the participants prayed for the wellbeing of Palestinians and condemned the inhuman aggression of Israel on the unarmed citizens of Palestine.

9.31. Celebrating World Soil Day 2023

Muhammad Nawaz Sharif University of Agriculture, Multan (MNSUAM), celebrated World Soil Day on December 5, 2023, with a seminar organized by the Department of Soil and Environmental Sciences in collaboration with the FAO and NICE International, Multan. The event, themed "Soil and Water: A Source of Life," was graced by Vice Chancellor Prof. Dr. Asif Ali (T.I.). Prof. Dr. Tanveer Ul Haq, Chairperson of the Department, emphasized MNSUAM's commitment to sustainable practices, highlighting initiatives like solid waste management, wetlands for wastewater treatment, and tree plantation campaigns. He praised students for their participation in poster and model competitions. Mr. Irshad Ahmad from Fauji Fertilizer Company and Dr. Riaz Ahmed Sial, Ex-Director of AARI, Faisalabad, discussed soil and water conservation techniques. Vice Chancellor Dr. Asif Ali lauded the department's efforts and expressed optimism about the involvement of students and industry representatives. The seminar was well-attended by faculty, farmers, and civil society members.

9.32. Winter Sports Gala 2023

The Winter Sports Gala 2023 at MNS-University of Agriculture, Multan, was a week-long celebration of sportsmanship, running from December 13-19, 2023.



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Students from all departments actively participated in various events, including cricket, badminton, chess, tent pegging, marathon races, kabaddi, tug of war, and slow cycling. The inauguration ceremony was graced by Vice Chancellor Prof. Dr. Asif Ali (T.I.), alongside deans, directors, and faculty members.

A highlight of the Gala was the inclusive participation of all departmental teams, fostering unity and pride within the university. The Cricket Championship saw intense matches among 23 departmental teams, culminating in a spirited Faculty vs. Administration match that strengthened bonds within the university community. The Badminton Championship, with 18 female and 32 male teams, showcased individual skills and emphasized sports as a unifying force.

The Chess Championship displayed intellectual prowess, while the Tug of War and Slow Cycling events promoted teamwork and a healthy lifestyle. The Tent Pegging event added a traditional touch, reflecting the diverse talents within the university. The Gala concluded with a cricket match between faculty and administration teams. The administration team won the match and kept their record. Vice Chancellor Dr. Asif Ali highlighted the importance of sports in shaping character and encouraged greater youth participation. He praised Director of Sports Mr. Arqam Iqbal and the faculty for their contributions to the event's success.

9.33. HEC Postgraduate Program Review Visit

On December 28, 2023, a team from the Higher Education Commission (HEC) visited MNS University of Agriculture, Multan (MNSUAM), to review its postgraduate programs. The team conducted a thorough evaluation of the university's labs, student facilities, and overall academic environment. They inspected the central lab system and expressed satisfaction with its quality and functionality. During their visit, the HEC team interacted with students and faculty, appreciating the university's emphasis on holistic student development and fostering an environment that encourages collaboration, critical thinking, and intellectual growth.

The team also reviewed the general facilities available to students, including libraries, dormitories, and recreational spaces, noting the university's commitment to providing a well-rounded academic and social experience. The importance of support services like career counseling was highlighted as contributing to student well-being. Vice Chancellor Prof. Dr. Asif Ali (T.I.) emphasized the university's dedication to creating a conducive learning environment with state-of-the-art facilities. Director QEC, Prof. Dr. Muhammad Hammad Nadeem Tahir, expressed gratitude to the HEC review team for their visit and feedback.

9.34. Seminar on Role of Youth for Brighter Future of Pakistan-MNSUAM

A seminar addressing the crucial role of youth in shaping the bright future of Pakistan was organized on December 29, 2023, at MNS University of Agriculture, Multan. The seminar was graced by Dr. Javed Iqbal and Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM as the guest speaker. They emphasized the importance of active participation, positivity, and hard work among the young generation. The event aimed to inspire and motivate the youth to contribute to the development and prosperity of the nation. Dr. Javed Iqbal encouraged everyone to stay positive and optimistic. He talked about how the university has grown from a piece of empty land in 2016 to an internationally recognized institute. As a motivational speaker, he stressed the university's role in giving degrees and helping people by promoting business, bringing new ideas to farming, and creating happiness in society. Supporting these ideas, Prof. Dr. Asif Ali (T.I.), Vice Chancellor MNSUAM expressed that the university is dedicated to giving degrees and helping people grow.



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He told the students to focus on what they're good at, work hard, and enjoy a happy life. He emphasized that every individual associated with this institute takes ownership and shares the responsibility. He stressed the importance of collective effort, engaging people at all levels. Moreover, he foregrounded that the local community in Multan takes pride in the university, recognizing it as a leading academic institution and a guide in real-life settings. The university collaborates with other institutions, working together to address questions in the field of agriculture.

9.35. Christmas Day Seminar-MNSUAM

The "Young Students Peace Society" celebrated the New Year as the Inter-Faith Harmony Festival on January 1st, 2024. The event acknowledged students and staff members from all religions for their services in the goodwill and recognition of the university. Addressing the event, Prof. Dr. Asif Ali (T.I.), former Vice Chancellor MNSUAM assured all for equal opportunities of prayers and religious affairs at university in order to reduce inequalities and promote a thoroughly conducive social scenario. In this connection, Central Mosque of the University was declared as a common property that would focus the student-centered facility. Students and staff from all religions were offered lunch, followed by distribution of gift hampers. Prof. Dr. Hammad, Director QEC, Dr. Usman Jamshaid, Senior Tutor, Dr. Mirza Abdul Qayyum Hall Warden, Dr. Mirza Abid Mehmood DSA, Dr. Rasheed Ahmad and a large number of students shared the celebrations organized by Young Students Peace Society.

9.36. Faculty and administrative staff visited Jalalpur Pirwala Experimental Farm

On January 31, 2024, the faculty and administrative staff of MNSUAM, led by Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, visited the Jalalpur Pirwala Experimental Farm. The visit aimed to showcase the farm's historical development, ongoing research, and foster interdisciplinary collaboration among faculty and staff. Prof. Dr. Abdul Ghaffar, Director of University Farms, along with his team, welcomed the visitors and provided an overview of the farm's progress. He highlighted the challenges faced in developing the 500-acre farm, with over 400 acres now under cultivation, and emphasized the support from university authorities and local governments in achieving this success.

The farm features diverse plantations, including 42,000 trees and 14,000 fruit plants, with ongoing projects like olive adaptability trials and fish farming. The participants were impressed by the farm's rapid development and engaged in discussions on future collaboration. Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana praised the efforts of the faculty and staff in organizing the event and emphasized the importance of happiness and well-being within the university community. He encouraged faculty to integrate the farm into their research and teaching and thanked the Directorate of University Farms for their dedication. The visit concluded with a call to continue such initiatives with passion and energy.

9.37. Corn Cob Picker Machine and Drone Spray Demonstration

On February 12, 2024, the Directorate of University Farms at MNSUAM organized a training workshop on Corn Cob Picker and Drone Spray at University Farms Jalalpur Pirwala. The workshop, attended by students, faculty, and farmers, aimed to introduce and demonstrate the benefits of these modern agricultural technologies. Dr. Abdul Ghaffar, Director of University Farms, highlighted the importance of adopting hi-tech solutions to address challenges in agriculture and improve productivity.



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The event featured a live demonstration of the state-of-the-art corn cob picker, developed through collaboration between the university's agricultural experts and industry partners. The machine impressed attendees with its speed, precision, and efficiency. Farmers were also informed about its usage, fuel consumption, and field capacity. Additionally, the workshop showcased the revolutionary applications of drone spray technology, demonstrating its potential to enhance crop yields, reduce chemical usage, and minimize environmental impact. The service was highly appreciated by the farmers, who recognized the value of these innovations in transforming traditional farming practices.

9.38. Two Days Workshop on Implementation of HACCP in Food Business

A two-day training workshop titled "Implementation of HACCP in Food Business" was organized by Department of Food Science and Technology Muhammad Nawaz Shareef University of Agriculture, Multan on 13-14th February 2024 to maximize the professional capacity among the youth. Gracing the event Prof. Dr. Ishtiaq Rajwana, Vice Chancellor MNSUAM, encouraged the youth to highlight their personal potential to succeed in all fields of life. He further highlighted that HACCP implementation is a vital step towards ensuring food safety and encouraging success in our academic community. Mr. Muhammad Ali Shahzaib, Quality and Food Safety Professional Metro, Pakistan facilitated the workshop, delivering insightful training sessions aimed at enhancing understanding and implementation of Hazard Analysis and Critical Control Points (HACCP) in the food industry. On the second day, participants had the unique opportunity to apply their newly acquired knowledge during a visit to Metro Multan, gaining practical insights into real-world HACCP implementation. The workshop successfully equipped attendees with the necessary tools and expertise to ensure food safety in their respective businesses. The session witnessed participation of 200 students from Department of Food Science and Technology participated in this session.

9.39. Seminar on Risks of Glacier Lake Outburst Flood under Climate Change

On February 22, 2024, the Department of Agricultural Engineering at MNSUAM organized a seminar titled "Risks of Glacier Lake Outburst Flood under Climate Change." The seminar aimed to raise awareness about the impact of climate change on the cryosphere and discuss findings from the project "Potential Risks of Glacier Lake Outburst Floods under Climate Change along China-Pakistan Economic Corridor (CPEC)" funded by Pakistan Science Foundation (PSF/CRP-CONSRM-488).

The seminar featured insights from Dr. Alamgir A. Khan, Coordinator FABSET, and Dr. Sarfraz Hashim, Head of the Department of Agricultural Engineering at MNSUAM. Dr. Adnan Ahmad Tahir, Assistant Professor at COMSATS, Abbottabad, explained the significance of glaciers and their formation, emphasizing the role of GIS and Remote Sensing (RMS) techniques in monitoring these changes. He highlighted how these technologies help map and assess glaciers' lakes, crucial for disaster management.

Dr. Muhammad Saifullah, the project's principal investigator, discussed the project's findings, focusing on the importance of tracking glacier lake formation and their potential hazards. The seminar concluded with a vote of thanks to the participants and Pakistan Science Foundation for their support in studying the impacts of climate change on glaciers.



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9.40. GIBS Pasta Festival 2024

The GIBS Pasta Festival organized by the Department of Food Science and Technology, Faculty of Food and Home Sciences at MNS University of Agriculture, Multan, took place on March 7, 2024. The festival saw extensive participation from various food service industries and over 50 contesting teams. Freshco, Double Cheese, 14th Street, and COTHM also set up stalls for the event. Mr. Muhammad Salahuddin, GM Sales and Marketing SM Foods; Mr. Zaim Uzair, Quality Control Manager Freshco Multan; Mr. Hafiz Shakeel Ahmed, GM Sales and Marketing Baba Spices; Mr. Amjad Shafi Bhutta, CEO International Foods; and Dr. Basit Ramzan graced the event. Prof. Dr. Ishtiaq Ahmed Rajwana, Vice Chancellor of MNSUAM, inaugurated the festival by cutting the ribbon for the official launch of the competition and commended the departmental activities. Prof. Dr. Umar Farooq, Dean of the Faculty of Food and Home Sciences, and Dr. Muhammad Shahbaz, Chairman of the Department of Food Science and Technology, highlighted the significant impact of the festival in fostering strong connections between students and the industry. They emphasized its role as a unique platform where students can showcase their creative abilities and gain valuable knowledge. The dignitaries appreciated the efforts of the university to create a conducive environment for the students.

9.41. Spring Flower Festival 2024

The Department of Horticulture and Directorate of Estate Management at MNS University of Agriculture, Multan (MNSUAM), in collaboration with the Pakistan Society of Horticultural Sciences, organized the Spring Flower Festival on March 7-8, 2024. The two-day event attracted numerous flower enthusiasts, providing a platform for students, academics, farmers, and businesses in the floriculture industry to showcase their finest produce. The festival was inaugurated by Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, alongside deans, directors, and business community dignitaries. Prof. Dr. Rajwana emphasized that flowers symbolize peace and harmony, playing a vital role in fostering love and brotherhood in society. He highlighted the university's tradition of organizing this annual flower show, which offers students valuable learning opportunities.

The festival featured over 50 varieties of spring flowers displayed by educational and research institutions, as well as industrial groups. The event also included a painting competition, with exceptional participants receiving honorary shields. The festival, supported by the Floriculture Research Institute Multan, Islamia University Bahawalpur, Cantonment Board Multan, and other organizations, received widespread acclaim and media coverage from national networks like Rohi TV, Express News, and PTV. Notable attendees included Dr. Tanveer Ahmed, Chairman of the Horticulture Department, Mr. Tahir Saeed, Assistant Horticulturist at the Floriculture Research Institute Multan, Dr. Muhammad Amin, faculty members, and students.

9.42. MOU between OGDCL and MNSUAM for Miyawaki Gardens

Oil and Gas Development Company Limited (OGDCL) and MNS University of Agriculture Multan (MNSUAM) joined hands in a significant Memorandum of Understanding (MOU) during a ceremony on March 18, 2024. The primary objective of this MOU is to launch a collaborative plantation campaign aimed at establishing "OGDCL growing pollinator-friendly Miyawaki Gardens." Under this initiative, OGDCL will provide funding support, while MNSUAM will act as the implementing partner responsible for tree planting activities. The project, titled "Establishment of a Miyawaki Urban Forest at MNS University of Agriculture Multan to Address Climate Change," was formally initiated during the event.



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Distinguished representatives from both organizations, including Mr. Tariq Rashid (Research Officer - ORIC), Dr. Muqarrab Ali (Project PI), Dr. Abid Hussain (Director External Linkages), and Mr. Rafiq Farooqi (Treasurer) from MNSUAM, along with Mr. Muhammad Tayyab (Regional Coordinator) and Mr. Abdur Raziq Khattak (General Manager CSR) from OGDCL, graced the occasion. The esteemed presence of Prof. Dr. Ishtiaq Ahmed Rajwana, Vice Chancellor of MNSUAM, further underscored the significance of the event, emphasizing that this partnership will promote afforestation and ecosystem restoration.

9.43. One-Day Workshop on Emergence of CCHFV in One Health Perspective

On March 19, 2024, the Faculty of Veterinary and Animal Sciences at MNSUAM organized a workshop on the emergence of Crimean-Congo Hemorrhagic Fever Virus (CCHFV) from a One Health perspective. The event was held in collaboration with JICA, the Health Department of South Punjab, and the Veterinary Research Institute (VRI) Lahore. The workshop aimed to disseminate findings from a research project led by Dr. Aziz-Ul-Rahman, funded by the Royal Society of Tropical Medicine and Hygiene (RSTMH) and the National Institute for Health Research (NIHR), UK.

Key speakers included Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana, who emphasized the importance of preventing CCHFV transmission, and Dr. Mehboob Hussain Qureshi, who discussed monitoring infectious diseases in South Punjab. Dr. Nida Shahid and Dr. Furqan Shahid shared insights on CCHFV risk factors and its effects on dairy animals. The workshop raised awareness among students, faculty, and healthcare professionals, highlighting the collaborative efforts needed to control the virus.

9.44. World Forest Day Celebrations

World Forest Day, celebrated globally on March 21st, was marked by impactful activities at MNS-University of Agriculture Multan, organized by the Directorate of Estate Management in collaboration with the Department of Forestry. The event aimed to promote tree plantation and environmental consciousness among students, faculty, and the community, reflecting the university's commitment to environmental stewardship.

A key event was the tree plantation drive, inaugurated by Prof. Dr. Asif Raza, Director of Estate Management, which saw 2,500 plants of diverse fruit and forest tree species transplanted across the main campus and the University Farm in Jalalpur Pirwala. This initiative enhanced campus greenery and demonstrated the university's dedication to sustainability.

The celebrations also included an awareness walk, where participants in green attire marched through the campus, advocating for tree conservation. An informative seminar further educated attendees on the importance of tree plantation and care, with insights shared by Dr. Muqarrab Ali. Media engagements, including interviews with Dr. Unsar Naeem Ullah and Dr. Gulzar Akhtar on Rohi TV and PTV, highlighted the environmental benefits of trees and their role in combating climate change, reinforcing the day's message of sustainability and conservation.



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9.45. Interdepartmental Debate Competition at MNSUAM

To commemorate the historical significance and reinforce the ideology that marked the foundation of Pakistan, Debating Club organized an Interdepartmental Debate Competition titled “Izhar e Sukhan” under the patronage of Prof. Dr. Ishtiaq Ahmed Rajwana, Vice Chancellor of MNSUAM. A total of 52 students from various departments participated in the competition. Addressing the audience, Dr. Usman Jamshaid, Senior Tutor at MNSUAM, and Dr. Umar Akram, Convener of the Debating Club, highlighted that Resolution Day commemorates the union of thousands of Muslims from across the subcontinent who gathered in Lahore with a singular vision, mission, and dream: Pakistan. They appreciated the enthusiastic participation of the students and emphasized the importance of youth engagement in shaping the future of the nation.

9.46. Seminar on Crime Scene Investigation, Fingerprinting & Toxicology

The Department of Biochemistry and Biotechnology, Faculty of Veterinary and Animal Sciences at MNS-University of Agriculture Multan, in collaboration with the Punjab Forensic Science Agency (PFSA), Unit Multan, organized a National Seminar on 'Crime Scene Investigation, Fingerprinting, and Toxicology.' The event, chaired by Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana, along with Prof. Dr. Asif Raza, Dean of FVAS, and Prof. Dr. Junaid Ali Khan, Chairman of Biotechnology, aimed to raise awareness on critical forensic science topics.

Dr. Sarmad Farogh Arshad emphasized the role of Genetic and Forensic Studies in addressing social and cultural issues, while Mr. Aftab Ali Shahid, a Crime Scene Investigator from PFSA, detailed advancements in crime scene investigation and the services offered by the PFSA. He highlighted the agency's collaboration with the Department of Biochemistry and Biotechnology in national-level crime scene awareness initiatives.

Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana praised the efforts of the department and PFSA in enhancing public understanding of forensic science. The seminar concluded with a presentation of a souvenir to Mr. Aftab Ali Shahid, followed by Dr. Muhammad Usman, Coordinator of the Biotechnology Program, expressing gratitude to the participants for their engagement.

9.47. Seminar on Agricultural Transformations in the Kazakhstan-China Borderlands at MNSUAM

On April 15, 2024, MNS University of Agriculture, Multan, hosted a seminar featuring an invited talk by Dr. Henryk Alff, Senior Researcher from Eberswalde University for Sustainable Development, Germany. The event, attended by Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana as the chief guest, brought together academia and experts to discuss agricultural transformations in the Kazakhstan-China Borderlands.

Prof. Dr. Muhammad Asif Raza, Dean of the Faculty of Veterinary and Animal Sciences (FVAS), welcomed the attendees and highlighted the importance of international partnerships in advancing agricultural research and sustainability. Dr. Alff's presentation delved into the geopolitical dynamics of the Kazakhstan-China border, exploring its historical, political, and economic significance, the impact of Chinese development initiatives, and the legacy of Soviet modernization on local agriculture.



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The seminar saw active participation from professors, researchers, and students, who engaged in lively discussions and posed insightful questions. Vice Chancellor Prof. Dr. Rajwana praised Dr. Alff's contributions and emphasized the role of international collaboration in addressing agricultural challenges and promoting sustainable development. The discussions were further enriched by contributions from Prof. Dr. Junaid Ali Khan, Prof. Dr. Irfan Ahmad Baig, Prof. Dr. Nasir Nadeem, Dr. Tanveer Ahmad, and Dr. Umar Farooq.

9.48. National Conference on Agricultural Innovations for Food Security

On April 24, 2024, the Department of Agronomy at MNSUAM, in collaboration with the Doaba Foundation, hosted a national conference titled "Agricultural Innovations towards Food Security: Challenges and Opportunities." The event brought together experts to discuss critical issues and solutions in agricultural innovations for food security.

Mr. Mazhar Iqbal, Deputy Program Manager at Doaba Foundation, and Prof. Dr. Abdul Ghaffar, Chairman of the Department of Agronomy, opened the conference with an overview and gratitude to the organizers and sponsors. Keynote speakers included Prof. Dr. Abdul Khaliq from Agriculture University Faisalabad, who addressed challenges in agricultural innovations, and Dr. Naveed Akhtar Siddiqui from Ayub Agriculture Institute, who discussed essential measures for food security.

Prof. Dr. Shafqat Saeed, Dean of FAES, emphasized eco-friendly pest control methods, while other experts like Mr. Tanveer Zahid and Dr. Khuram Mubeen discussed climate resilience and spate irrigation. Dr. Asif Khan highlighted biotechnological advances for sustainability.

Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana praised the conference's alignment with the Baisakhi Festival and Farmers Day, noting its impact on local communities. The event concluded with Prof. Dr. Nazim Hussain Labar discussing future perspectives and Prof. Dr. Abdul Ghaffar offering a vote of thanks. Certificates and shields were awarded to speakers and guests, recognizing their contributions.

9.49. Baisakhi: Celebrating the wheat harvest season

The Baisakhi Festival was celebrated at the Research Farm Jalalpur Peerwala of MNS University of Agriculture, Multan, on April 25, 2024. In his inaugural address, Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana emphasized the critical importance of wheat as a staple crop in Pakistan. He highlighted the festival's role in encouraging farmers to achieve bumper wheat harvests to meet the nation's dietary needs. Dr. Rajwana praised the university's efforts in promoting modern production technologies to boost wheat production.

Prof. Dr. Abdul Ghaffar, Director of University Farms, spoke about the challenges of developing the 500-acre farm at Jalalpur Peerwala and the significant progress made through the dedicated efforts of the farm management team, with support from university authorities and government bodies. The farm now cultivates over 400 acres, with plans for further expansion. Additionally, approximately 42,000 trees have been planted to enhance the farm's greenery, and 14,000 guava, java plum, and jujube plants have been established in collaboration with WWF. The university has also introduced high-yielding hybrid wheat varieties. The event saw a large turnout of faculty, farmers, and students, underscoring the importance of the Baisakhi Festival in promoting agricultural advancements.



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9.50. Visit of Agriculture Minister Punjab, Mr. Syed Muhammad Ashiq Hussain Kirmani

The MNS University of Agriculture in Multan recently hosted an important meeting on May 2, 2024, to discuss the future of cotton farming. The meeting was chaired by the Minister of Agriculture Punjab, Mr. Syed Muhammad Ashiq Hussain Kirmani, and included many key figures from the agriculture sector. The Secretary Agriculture briefed about the successes and challenges of the past year, such as increased cotton production and area but also problems like unpredictable weather, high costs, water shortage, pests, and seed quality issues. The Minister emphasized the need to publicize efforts against fake pesticides more effectively, as recent fines of 30 million rupees hadn't made a big impact due to lack of media coverage. They also discussed creating a long-term plan for agriculture and received updates on weather conditions that have been favorable for early-season crops. Strategies were discussed to reach the 2024 goal of planting 4 million acres of cotton, including engaging local politicians and private companies. Looking ahead, the meeting decided to rotate meetings across different regions in Punjab and enforce strict measures against fake pesticides and fertilizers, ensuring these actions are well-publicized. Other plans include involving local politicians in agricultural decisions, using advanced farming machinery, and funding research and development. Accurate data collection from farmers and better communication of government support programs were also stressed. The Minister concluded by encouraging everyone to work together to improve cotton farming, acknowledging the vital role of private sector support. These combined efforts aim to boost the cotton industry, benefiting Pakistan's economy and agriculture.

9.51. Awareness Session about Electric Vehicles

The Society of Engineers and Technologists (SET) and Green Youth Movement (GYM) club collaborated with the students of Lahore University of Management Sciences (LUMS) to host an awareness session on electric four-wheeler functions and sustainability on May 3, 2024, at MNS University of Agriculture, Multan. The session explored the functionalities and environmental advantages of recently developed electric four-wheelers by LUMS University. The session provided a clear understanding of electric vehicles (EVs), particularly the latest advancements in four-wheeler technology. Economic benefits were another important topic discussed during the session. Although the initial cost of electric four-wheelers may be higher than that of conventional vehicles, the long-term savings are significant. The session encouraged active participation with students asking questions and sharing their thoughts. This exchange of ideas helped everyone gain a better understanding of the challenges and opportunities related to electric vehicles. Participants discussed obstacles to EV adoption in Pakistan such as the need for better charging infrastructure, public awareness, and supportive government policies. They also discussed the role of educational institutions in promoting sustainability and preparing future leaders to advocate for eco-friendly technologies. This educational session helped students understand the latest technology and its benefits for the environment. As the world seeks cleaner transportation options, learning about electric vehicles and what they can do becomes more and more important.

9.52. 1st South Punjab Library Festival

The first two-day South Punjab Library Festival, held at MNS University of Agriculture, Multan, on May 7-8, 2024, was inaugurated by Prof. Dr. Mazhar, Vice-Chancellor of Cholistan University, and Prof. Dr. Ishtiaq Ahmad Rajwana, Vice-Chancellor of MNSUAM. The festival featured a book exhibition and a digital competition for students from various universities. A Higher Education Commission Digital Library and Book Day were also organized, including a Library App Competition by the Institute of Computing, which featured in-spot programming challenges.



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In his opening address, Prof. Dr. Ishtiaq Ahmad Rajwana emphasized the enduring value of books as the most authentic and powerful source of knowledge, even in the digital age. He highlighted the role of books in spreading knowledge, enabling social transitions, and providing spiritual enlightenment. Prof. Dr. Mazhar praised the initiative, stressing the importance of reviving the habit of reading among the youth.

Ms. Rubina Ahmed, Librarian at MNSUAM, noted that over 100 book stalls were set up, offering a variety of literary and other books at discounted prices for faculty and students. Dr. Khalid Sangeera, Librarian at Islamia University Bahawalpur, also commended MNSUAM for this literary effort. The festival was attended by faculty members, including Prof. Dr. Shafqat Saeed, Prof. Dr. Irfan Ahmed Baig, and Prof. Dr. Muhammad Asif Raza, along with a large number of students from various faculties.

9.53. Digital Literacy Seminar in Collaboration with State Bank of Pakistan

A one-day seminar on digital literacy was held on May 16, 2024, at Muhammad Nawaz Sharif University of Agriculture, Multan, focusing on enhancing students' understanding of digital banking and financial awareness. Organized in collaboration with the State Bank of Pakistan, the seminar aimed to educate students on managing finances effectively in a digital age.

Ms. Ayesha, the State Bank Student Ambassador, discussed the importance of using capital safely and highlighted the need for financial awareness, especially among rural women. She emphasized how mobile banking facilities can empower women in villages by simplifying account setup and management. Ms. Shehzadi Bibi provided practical tips on avoiding financial fraud, teaching students to recognize phishing emails and secure personal information. Mr. Haider Ali addressed the concept of banking on equality, noting that women currently hold 39% of bank accounts in Pakistan. He stressed the need for an inclusive banking system that offers equal opportunities to all.

Dr. Asaf Khan concluded the seminar by praising digital banking as a tool for transparency and convenience. He encouraged students to embrace digital banking for its benefits, including reduced corruption and secure transactions. The seminar, attended by faculty members and students, successfully covered essential aspects of digital literacy, providing valuable insights into safe financial practices and the importance of gender equality in banking.

9.54. Seminar on the International Day of Living Together in Peace

The Young Students Peace Society of MNSUAM organized a seminar on the International Day of Living Together in Peace at Masjid Fatimah ul Zahra, MNSUAM. The event was facilitated by Dr. Mohsin Khan and Dr. Adnan Mughal. Dr. Mohsin Khan spoke about living together peacefully in society, emphasizing upon students the importance of increasing tolerance. He highlighted that the United Nations General Assembly designated May 16 as the International Day of Living Together in Peace, aiming to systematically activate efforts of international fraternity to promote peace, tolerance, inclusion, understanding, and solidarity. Dr. Adnan Mughal addressed the students, stating that the purpose of this day is to unite under the banner of peace to establish and act upon the desire for a sustainable world built on peace, unity, and harmony. The program aimed at creating a peaceful campus environment and nurturing educational factors responsibly within the university.



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The International Day of Living Together in Peace was celebrated to promote unity and understanding among diverse students and faculty, emphasizing tolerance, cooperation, and respect. It foregrounded the significance of fostering a harmonious academic environment that values diversity and inclusivity, nurturing a community where all members can thrive peacefully and contribute positively to a global society based on mutual respect and Collaboration.

9.55. International Conference on Bee Pollination and Conservation

The International Conference on Bee Pollination & Conservation was held on May 20, 2024, at MNSUAM, focusing on the latest innovations and advances in bee pollination and conservation, with special emphasis on native bees. The event was inaugurated by Mr. Saqib Ali Ateel, Secretary of Agriculture, South Punjab, as the chief guest. The conference brought together scientists, researchers, policy makers, beekeepers, and farmers, creating opportunities for collaboration and discussion on bee conservation and pollination.

The event featured keynote speakers from five countries (Argentina, USA, Australia, India, Brazil) and 15 presenters from six countries (Slovenia, Cuba, India, Pakistan, Sri Lanka, Brazil). The main themes included Bee Diversity, Crop Pollination, Bee Conservation, and Beekeeping. The conference aligned with the UN's celebration of May 20th as World Bee Day, with the 2024 theme "Bee Engaged with Youth," highlighting the crucial role of bees in sustainable agriculture and achieving the Sustainable Development Goals (SDGs).

More than 75% of key food crops depend on pollinators. To engage youth, the conference included a photo competition among entomology students featuring bees foraging from flowers and nesting sites, as well as a live poster competition on bees and the Quran. Winners received merit shields, and the chief guest was also honored with a shield. The event concluded with the planting of bee-friendly plants and an awareness walk to emphasize the importance of bees in our ecosystem.

9.56. International Day of Biological Diversity

On May 22, 2024, the Department of Outreach and Continuing Education at MNS University of Agriculture Multan, in collaboration with the UNESCO Chair of Low Carbon and Sustainable Agriculture at Biosphere Reserves, celebrated the International Day of Biological Diversity. The event emphasized the importance of biodiversity in maintaining ecological balance and supporting sustainable development through a series of engaging activities.

The day began with a Plantation Drive near Mulberry Courts (boys' hostel) at 9:00 am, where students, faculty members, and community leaders planted various native tree species. This initiative highlighted the role of urban forests in conserving biodiversity, mitigating climate change, and supporting urban livelihoods.

The Inauguration Ceremony followed at 10:00 am, led by Prof. Dr. Shafqat Saeed, Dean FAES, who emphasized biodiversity's crucial role in food security, health, and climate resilience. Prof. Dr. Irfan A. Baig, Dean FSSH, further highlighted the interconnectedness of all living things and the importance of biodiversity in achieving the Sustainable Development Goals (SDGs).

At 11:00 am, evaluations for the Poster and Video Competitions took place, with Prof. Dr. Junaid Ali Khan and his team judging the entries. The poster competition winners were Ms. Maryam Bibi (first place), Ms. Samia Ijaz (second place), and Ms. Maryam Irshad (third place).



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In the video competition, Mr. Hamza Haider won first place, followed by Ms. Hamna Aziz and Mr. Abdul Samad in second and third places, respectively.

The event, marked by enthusiastic participation, highlighted the commitment of MNSUAM and UNESCO to environmental sustainability and inspired attendees to contribute to biodiversity conservation. The activities provided a platform for students to express their ideas and act towards preserving the natural environment.

9.57. Seminar on Aging Gracefully: Modern Management of Osteoporosis

On May 29, 2024, a seminar titled "Aging Gracefully: Modern Management of Osteoporosis" was held at the Seminar Hall, Academic Block, Muhammad Nawaz Sharif University of Agriculture, Multan. The event, organized in collaboration with Chiesi Pharma, was graced by Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, who emphasized the seminar's importance in addressing osteoporosis, a significant health issue for the elderly.

The keynote speaker, Prof. Dr. Khalil Ahmed Gill, former Head of the Orthopedic Department at Nishtar Medical University, shared his extensive expertise on the subject. His presentation covered various aspects, including understanding osteoporosis, the latest diagnostic tools, modern treatment options, and preventive measures through lifestyle modifications.

The seminar attracted a diverse audience of students, faculty, and stakeholders interested in orthopedic advancements and geriatric care. Following Prof. Gill's comprehensive presentation, an interactive session allowed participants to pose questions, which Prof. Gill answered with detailed explanations, further enriching the audience's understanding.

The event concluded with Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana presenting Prof. Gill with a token of appreciation. The seminar successfully enhanced knowledge and fostered a productive environment for learning and professional development. Attendees expressed their gratitude for the valuable insights shared, marking the seminar as a significant contribution to their understanding of osteoporosis management.

9.58. MOU between MNSUAM and Syngenta Pakistan

The MNS University of Agriculture, Multan (MNSUAM), and Syngenta Pakistan have entered into a strategic Agreement of Cooperation (AoC) to elevate the quality of rice exports and address compliance challenges on May 30, 2024. This partnership, celebrated with a signing ceremony at MNSUAM, will focus on key initiatives such as enhancing rice residue management, providing practical learning opportunities, and fostering agricultural innovation. The collaboration aims to ensure compliance with Maximum Residue Levels (MRLs), improve rice quality for international markets, and contribute to sustainable agricultural practices. Prof. Dr. Ishtiaq Ahmad Rajwana, Vice Chancellor of MNSUAM, and Mr. Zeeshan Hasib Baig, Country General Manager of Syngenta Pakistan, officiated the agreement. Both leaders emphasized the collaboration's potential to significantly advance Pakistan's agricultural standards and global market reputation.



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9.59. Visit of Farmer Delegation from Balochistan

A delegation of farmers from Balochistan and Flood Based Livelihoods Network (FBLN) visited MNSUAM from May 30, 2024, to June 01, 2024. They visited the Hydroponic unit in the university at Block-C and actively engaged and showed keen interest in its requirements, benefits, challenges and feasibilities. A Floppy irrigation system was also demonstrated for them. Dr. Sarfraz Hashim and his team assisted in briefing along with its requirements and benefits. Moreover, the farmers visited conservation strips maintained for the protection of beneficial insects and environmental sustainability. Dr. Fawad Zafar Ahmad Khan briefed the delegation about the importance of resource and environment conservation and protection besides protection of beneficial flora and fauna. Small tree system at Block-B was also visited by the delegate. Dr. Kashif Razzaq Chairman, Department of Horticulture briefed the delegation about the success and the points to take care of for getting maximum economic returns from small tree systems besides other advantages. Dr. Shazia Hanif and her team briefed the delegate. It was followed by a solar drier system. The entrepreneurship models present in Block-A were also shown to the delegate. Ms. Beenish Sarfaraz briefed the delegate about them. The Spate Irrigation Model present in Block-B was also visited by the delegate. The briefing in this regard was imparted by Dr. Khuram Mubeen. The mango drier was also visited by the delegate and a briefing was done by Dr. Shabbir Ahmad from the Food Science Department.

9.60. Seminar on Spate Irrigated Agriculture

On May 31, 2024, the Department of Agronomy at MNS University of Agriculture Multan hosted a seminar titled "Spate Irrigated Agriculture." Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana welcomed the delegates from Balochistan, highlighting the university's role in advancing education, research, and outreach in agriculture. He commended the Balochistan farmers for their eagerness to learn and encouraged them to apply their newfound knowledge in their communities.

Assistant Professor Dr. Khuram Mubeen discussed the university's contributions to spate irrigation development, sharing research outcomes from spate-irrigated crop fields. Mr. Abdul Salam Buzdar, Country Coordinator for the Flood Based Livelihoods Network (FBLN), praised MNSUAM's exceptional cooperation in spate irrigation research and development. Farmer representative Mr. Ahsan Abro expressed gratitude for the learning opportunities provided, stating that the knowledge gained would be applied to enhance productivity in spate-irrigated lands in Balochistan.

Prof. Dr. Abdul Ghaffar, Chairman of the Department of Agronomy, thanked the Balochistan delegates and other participants for their involvement. The seminar concluded with an interactive session between the delegates and students, exploring future job opportunities and business ideas.

9.61. World Environment Day Celebrations

The Departments of Soil & Environmental Sciences and Climate Change at MNS-University of Agriculture, Multan, in collaboration with Green Youth Movement (GYM), Plant for Life Society, and local partners, celebrated World Environment Day on June 5, 2024. The event, titled "Celebrating World Environment Day: Land Restoration for a Sustainable Future," focused on raising awareness about the importance of healthy land and inspiring action toward its restoration. This year's theme, "Our Land. Our Future. We are #GenerationRestoration," emphasized combating desertification and enhancing drought resilience.



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Ms. Rizwana Anjum from the Punjab Cities Program delivered a keynote address highlighting academia's role in environmental and climate change research. Prof. Dr. Tanveer ul Haq, Chairperson of the Soil & Environmental Sciences and Climate Change departments, emphasized the importance of student involvement in environmental initiatives, stating, "By nurturing a generation passionate about land restoration, we can ensure a healthier planet for all."

The event featured a poster and model competition on land restoration, with prizes awarded to the winners. Participants also received plant saplings, encouraging them to contribute to a greener future. Awareness walks and informative seminars deepened understanding of land restoration challenges and solutions.

Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana praised the collaborative effort, noting, "By igniting a passion for environmental stewardship within our students, we empower them to become the #GenerationRestoration we need." The event successfully raised awareness, promoted action, and inspired a generation committed to a sustainable future.

9.62. International Seminar World Food Safety Day

On June 7, 2024, the Department of Food Science and Technology at MNS-University of Agriculture, Multan, organized a seminar to mark World Food Safety Day, with the theme "Prepare for the Unexpected." The event was attended by Vice-Chancellor Prof. Dr. Ishtiaq Rajwana, Dean Prof. Umar Farooq, and Dr. Muhammad Shahbaz, along with representatives from various food industries and regulatory authorities.

Prof. Dr. Rajwana emphasized the critical importance of food safety, urging the university to ensure food safety standards are maintained across all food points on campus. He encouraged students to pursue internships in food industries to gain practical knowledge. Mr. Amir Ramay from Eastern Scientific Corporation, the Chief Guest, highlighted their organization's role in ensuring food safety and urged attendees to apply the knowledge shared in the seminar.

Sagir Mehmood Khan, Global Head of Quality Assurance at Metro AG, discussed the significance of global food safety standards, noting that following these standards can help reduce foodborne diseases. A stall by Punjab Food Authority provided free food testing services, and the event concluded with a walk to raise awareness about food safety. The seminar was attended by over 200 participants, including industry experts, faculty, and students.

9.63. World Dengue Day Activities

World Dengue Day was observed on June 14, 2024, at MNSUAM with a series of activities organized by the Institute of Plant Protection (IPP). The day began with a comprehensive mosquito larval surveillance across the campus. The team inspected potential breeding sites like AC buckets, water coolers, bird pots, and leaky taps, removing water from these areas to eliminate breeding grounds and reduce the risk of dengue transmission. In addition to the surveillance, Anti-Dengue pamphlets were distributed to students in the Central Library, providing essential information on dengue symptoms, mosquito identification, and prevention of breeding sites. To extend awareness beyond the campus, pamphlets were also handed out to the public along Old Shujabad Road, a key route in Multan, reaching travelers from various villages and towns. Housekeeping activities, already a daily routine at MNSUAM, were intensified on World Dengue Day, focusing on maintaining a clean and mosquito-free environment throughout the campus.

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An awareness talk was also delivered by Dr. Unsar Naeem-Ullah, Associate Professor of Entomology, at Fatima Masjid before the Juma prayer. He educated the congregation about dengue symptoms, mosquito identification, breeding sites, and control measures, highlighting the importance of community involvement in dengue prevention.

Following the Juma prayer, an awareness walk was led by Vice Chancellor Prof. Dr. Ishtiaq A. Rajwana, with participation from key university figures, faculty, staff, and students. The walk reinforced the community's commitment to dengue prevention and control, making World Dengue Day a significant event at MNSUAM.

9.64. Graduation Day 2024 by Department of Food Science and Technology

The Department of Food Science and Technology, Faculty of Food and Home Sciences at MNS-University of Agriculture, Multan, organized a Graduation Day for the Batch of 2020-2024 on June 24, 2024. The event was graced by Vice-Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, Dr. Umar Farooq, Dean of the Faculty of Food and Home Sciences, Dr. Muhammad Shahbaz, Chairman of the Department of Food Science and Technology, and other esteemed faculty members. Renowned speaker Dr. Basit also attended the event to inspire and motivate the graduating students.

In his address, Prof. Dr. Ishtiaq Ahmad Rajwana encouraged the graduates to focus on entrepreneurship rather than seeking jobs, urging them to become job providers who contribute to the economy. Dr. Basit spoke to the students about future opportunities and the importance of perseverance, emphasizing that success comes to those who strive in the right direction and adapt to circumstances. He likened professional life to an ocean where survival depends on mastering technical skills and navigating challenges effectively.

Prof. Dr. Umar Farooq advised the students to carefully consider their decisions, particularly when balancing work with further studies, noting the challenges of managing both simultaneously. The event concluded with Dr. Muhammad Shahbaz expressing heartfelt thanks to all the guests.



Sports



Chapter 10 Sports





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SPORTS

Sports play a significant role in individual and societal development, contributing to various aspects of personal well-being and social cohesion. Sports are much needed in the context of development of the leadership skills in the students. Sports activities are meant to provide quality fitness and conclusive environment that inspires participants to engage in competitive events on various levels, institutional and national. Main goal of sports activities is to provide plenty of opportunities to students to keep them healthy with desirable character and remarkable personality traits. The Directorate of Sports in University Development is an integral part of the university system that focuses on fostering physical fitness, promoting sportsmanship, and encouraging a healthy and active lifestyle among students. The Directorate of Sports has been providing sports facilities to the male, female students and faculty. The Directorate has developed a system to encourage the students for participating in different sports activities. Collaboration with experts of different games in order to provide the best training facilities to the students is the part of its professional devoir. The sports activities are geared to provide wide participation in intramural activities (within the students), extramural activities (among various faculties of the university) and inter-tertiary or varsity sports activities in national sports events. Teams for Cricket, Football, Volleyball, Table Tennis, Badminton, Hiking and athletics are actively participating in the supporting events in the country.

The sports committee consists of following members

- Prof. Dr. Irfan Baig
- Mr. Muhammad Arqam Iqbal
- Mr. Qaisar Javed

Convener Sports
Director Sports
Sports Coach

Sr. No.	Sports Activities	Venue	Male	Female	Date
1.	HEC Intervarsity Basketball Championship Zone-J	MNSUAM	18	-	Sep. 14-16, 2023
2.	HEC Intervarsity Volleyball Championship Zone-J 2023	MNSUAM	17	-	Sep. 22-24, 2023
3.	All Pakistan HEC Intervarsity Kabaddi Championship	KFUEIT, RYK	20	-	Oct .29- Nov. 01, 2023
4.	South Punjab Women Cricket League at Multan	MCC Ground Multan	-	28	Nov. 14, 2023
5.	Cricket Championship	MNSUAM	216	24	Dec. 12-18, 2023
6.	Football Championship	MNSUAM	98	-	Dec. 13-15, 2023
7.	Badminton Championship	Sports Complex	160	30	Dec. 16-17, 2023

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8.	Marathon Race	MNSUAM	15	12	Dec. 16, 2023
9.	Tent Pegging Event	MNSUAM			Dec. 19, 2023
10.	HEC Football Championship Zone-J	MNSUAM	18	-	Feb. 22-24, 2024



Universities Building Leadership



Chapter 11 Universities Building Leadership



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UNIVERSITIES BUILDING LEADERSHIP

11.1. Faculty Leadership (Awards and representation in govt. policy making committees, memberships on various councils etc.)

- The MNSUAM is the member of various governing bodies of Higher Education Commission i.e. the Vice Chancellors' Committee Meeting, MS leading to Ph.D Program, Curriculum Revision Committees, and Quality Assurance etc.
- University is also contributing to the District Government Task Force for Anti-Adulteration, and Anti-Dengue Campaign.
- University is actively involved in policy making regarding mango fruit fly, mango post-harvest management, supply and value chain of mango and major vegetables, Punjab Cotton Control Act 1966, pink bollworm management, cotton mission, monitoring and evaluation of field activities of Agriculture Extension Department etc.
- Prof. Dr. Shafqat Saeed (Institute of Plant Protection) is a member of Cotton Technical Advisory Committee, Punjab.
- Prof. Dr. Shafqat Saeed (Institute of Plant Protection) and Dr. Muhammad Ishtiaq (Assistant Professor, Institute of Plant Protection) are the members of Cotton Protection Advisory Board, Punjab.
- Prof. Dr. Hammad Nadeem Tahir (Institute of Plant Breeding and Biotechnology) is a member of Oilseed Research and Development Board, Punjab.
- Prof. Dr. M. Hammad Nadeem Tahir (Institute of Plant Breeding and Biotechnology), is a member of Institutional Performance Evaluation (IPE) Committee constituted by HEC for Salim-Habib University Karachi.
- Prof. Dr. M. Hammad Nadeem (Institute of Plant Breeding and Biotechnology), is HEC nominee for Plagiarism Standing Committee of Sir Syed University of Engineering and Technology (SSUET), Karachi.
- Dr. Muhammad Saifullah (Assistant Professor, Agri. Engineering) is a member of Board of Study of the department of agriculture engineering, KFUEIT. He is also an external reviewer of QEC Department of Agriculture Engineering, KFUEIT.
- Dr. Sarfraz Hashim (Assistant Professor, Agri. Engineering) is a member of board of study of the department of agricultural engineering, BZU Multan. He is also a member of the Committee to conduct entry test of graduate studies of agricultural engineering, BZU Multan
- Dr. Umair Sultan (Assistant Professor, Agri. Engineering) is a member of National Curriculum Revision Committee (NCRC)-HEC of Energy Systems Engineering degree program.
- Dr. Sarfraz Hashim (Assistant Professor, Agri. Engineering) is a member of National Curriculum Revision Committee (NCRC)-HEC of Agro-industrial Engineering Technology degree program
- MNSUAM's Business Incubation and Agricultural Entrepreneurship Center (BIAEC) was approved by the Higher Education Commission under the leadership of Prof. Dr. Mubashir Mehdi.
- Dr. Irfan Ahmad Baig nominated as Focal Person for MoC signed between MNSUAM and Federation of Pakistan Chambers of Commerce & Industry (FPCCI).
- Prof. Dr. Muhammad Ashfaq (Institute of Plant Protection) is a member of Survey Committee for Cotton Crop at Agriculture Department, South Punjab.



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- Prof. Dr. Muhammad Ashfaq (Institute of Plant Protection) is a member of Board of Studies of Department of Plant Pathology, The Islamia University of Bahawalpur.
- Prof. Dr. Umar Farooq, Coordinator Faculty of Food and Home Sciences is a member of Scientific panel Punjab Food Authority.
- Dr. Ayesha Hakim and Dr. Nadeem Iqbal won National and Regional titles at She loves tech, PITB, National Idea Bank and Falling Walls Foundations Berlin Germany for their innovative projects namely SMARTRAP, A Block chain and AI-based Food Traceability System and AI-Based Bee Hive and PestiBot: An Automatic Weed Detection and Spraying mechanism which were headed by Dr. Ayesha Hakim and Dr. Nadeem Iqbal, respectively.

11.2. Directorate of Student Affairs

The Directorate of Students Affairs has the mandate to facilitate and maintain the services including admissions, welfare, sports, health care, guidance, scholarships, financial aid and hostel accommodation. The Directorate of Student Affairs has its mission to offer a variety of services, programs and activities to support and encourage the intellectual, personal, social and cultural development of students. The Directorate has Provided all necessary arrangements starting from the first admission inquiry to the last day at the Campus. The Directorate is also involved to check political or unlawful activities of the students. The Directorate also conveys the student's problems to higher administration to facilitate the students. The Directorate not only concentrates on curricular and co-curricular, but also profoundly concerned with the career building and financial assistance of the students.

The Directorate provides students different opportunities to take part in sports/games. It also provides them different platforms for the development of their literary and artistic potential. The purpose of all such activities is to provide students with a conducive environment during their academic years in the University. This office functions as a friend and guide for students and is proving a bridge between administration and students to address their genuine problems.

Following Societies/Clubs have been established to provide platform to the students for showcasing their skills and talent

1. Qirrat and Naat Club (QNC)
2. Islamic & Social Learning Forum
3. MNS-UAM Literary Club
4. MNS-UAM Debating Club
5. Music Club (Mossigala Beats)
6. MNS-UAM Art and Dramatic Society (MADS)
7. Media Club (Naqsh Media)
8. Young Students Peace Society (YSPS)
9. Rotaract Club of MNS-UAM



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10. Plant for Life Society (PLS)
11. Cleanliness & Environment Volunteer Force (CEVF)
12. Agri-Tourism Club
13. Character Building Society (CBS)
14. Blood Donation & Screening Society
15. Coding Hawk Society
16. Interfaith Harmony Club
17. Public Health Society
18. Society of Engineers and Technologist (SET)
19. Cyber Security Society
20. Rover Scout Unit
21. Agriculture Volunteers (AV)
22. MNS-UAM Data Science Society

Different activities conducted by MNSUAM Students Clubs and Societies are presented below:

11.2.1. Celebrations of National/International Day

- Independence Day was organized by the Office of the Senior Tutor with event coverage provided by Naqsh Media. (14-8-2023)
- Breast Cancer Awareness Day Organized by Public Health Society with event coverage provided by Naqsh Media (14-10-2023)
- Kashmir Day Organized by the Office of the Senior Tutor with the support of all Clubs and Societies (5-2-2024)
- Essay Competition (یوم یکجہتی کشمیر) organized by literary club on Kashmir Solidarity Day (05-02-2024)
- Theater performed by MADs on Kashmir Solidarity Day (05-02-2024)
- HIV/Aid awareness seminar organize by Public Health Society (28-2-2024)
- Pakistan Resolution Day organized by Debating Club and event coverage provided by Naqsh Media (23-3-2024)
- Society of Engineers & Technologists organized a comprehensive program to commemorate World Water Day 2024 (23-3-2024)
- International Women Day's Adbi Baithak (Khawateen, Ilam Walo ki Nazar Mein) organized by the Literary Club (8-3-2024)
- World Forest Day Seminar organized by Plant for Life Society (21-3-2024)
- World Book and Copyright Day Organized by Literary Club and event coverage provided by Naqsh Media (8-5-2024)
- World Peace Day Seminar organized by Young Students Peace Society and event coverage provided by Naqsh Media (16-5-2024)
- Biological Diversity Day poster Competition and field visit Organized by AV society and event coverage provided by Naqsh Media (13-6-2024)
- Plant Health Day Seminar organized by Plant for Life Society (12 -5-2024)



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UNIVERSITIES BUILDING LEADERSHIP

11.2.2 Inter-Faith Harmony and Peace Promoting Activities

- Mango Festival was Organized by MNS-UAM and all Clubs and Societies participated in its management (7-9 - 7-2023)
- Shaan e Rehmat ul Aalmeen Program at 12 Rabi-ul-awal Organized by Qirrat & Naat Club (17-9-2023)
- Seerat-e-Nabwi event organized by Qirrat & Naat Club (5-10-2023)
- Students Club /Societies Day Organized by the Office of the Senior Tutor with the support of all Clubs and Societies (24-10-2023)
- Adventure Day at Bank of Chenab River, organized by Rover Scout and All Clubs/Societies (12-12-2023)
- Winter Festival Organized by Department of Home Sciences MNS-UAM with the management support of all Clubs and Societies (14-12-2023)
- Happy New You Seminar Organized by YSPS and event coverage provided by Naqsh Media (22-2-2024)
- Seminar on Real You Organized by MNSUAM and event coverage provided by Naqsh Media (21-5-2024)
- Violence Against Women Seminar organized by Rotaract Club (8-12-2023)

11.2.2. Capacity Building and Professional Development

- Global Scholarship Opportunities organized by Rotaract Club (23-11-2023)
- Cyber Security Hackathon Seminar organize by Cyber Security Society (7-12-2023)
- Cyber Security Awareness Seminar Organized by Cyber Security Society (12-3-2024)
- Society of Engineers and Technologist organized a workshop on Outcome Based Education (OBE) (23-3-2024)
- USA based UGRAD Scholarship Seminar organized by Rotaract Club and (6-5-2024)
- Workshop on Plant Care organized by Plant for Life Society (23-5-2024)
- Seminar on Water and Land Management organized by Society of Engineers and Technologist (13-6-2024)

11.2.3.Social Drives and Volunteer Work

- Rescue Training for Students organized by Rotaract Club and Rover Scouts Unit and event coverage provided by Naqsha Media(29-8-2023)
- Awareness Seminar on World Polio Day organized by Rotaract Club and event coverage provided by Naqsha Media (28-10-2023)
- Disability inclusive in society seminar organized by Rotaract Club and event coverage provided by Naqsha Media (7-12-2023)



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- The Social Action Project by the Rotaract Club involves distributing gifts to the Christian Community during Christmas (28-12-2023)
- The Social Action Project by the Rotaract Club and MADs involves distributing gifts to the Edhi Village Multan (29-3-2024)
- Breaking Boundaries: Celebrating Disabilities Seminar organized by Rotaract Club and event coverage provided by Naqsha Media (2-5-2024)
- The Social Action Project by the Rotaract Club and MADs involves distributing gifts to the children of the Bait-e-Jamila Foundation (1-5-2024)
- Cleanliness Drive launched by Clean Environment Volunteer Force 26-2-2024)
- Blood Donation Camp organized by Blood Donation Society and event coverage Provided by Naqsh Media (27-28 - 2-2024)

11.2.4. Art, Literature and Culture

- Mango Festival Cultural Night was Organized by MNSUAM and MADs and Mossigala performance culture night (7-9 - 7-2023)
- Abdi Baithak (غیر مسلم شعرا کا نعتیہ کلام) organized by Literary Club (27-9-2023)
- Abdi Baithak (عمیر نجمی) organized by the Literary Club (17-10-2023)
- MADs Theatre performance on Societies day and musical performances by Mossigala beats (24-10-2023)
- Abdi Baithak (علامہ اقبال) Organized by the Literary Club (2-11-2023)
- Cultural Night organized by MADS and Mossigala at Venture Spark Entrepreneurship Promoting event (30-11-2023)
- Abdi Baithak (اختر عثمان) Organized by the Literary Club (6-12-2023)
- 45th Abdi Baithak Organized by the Literary Club (21-12-2023)
- event Organized by the Literary Club (4-1-2024)
- Library Festival Organized by MNSUAM Central Library and with the support of all Clubs and Societies (8 to 10 May 2024)
- Music Fest Competition Organized by Mossigala Beats (30-5-2024)

11.2.5. Entrepreneurial & Professional Skills

- Venture Spark Entrepreneurship Promoting Event Organized by BIC MNS-UAM and all Clubs and Societies participated in it (30-11-2023)
- Essay Writing Competition (Independence is Indispensable for Nations) organized by the Literary Club (11-8-2023)
- Essay Writing Competition (Personality of Muhammad (ﷺ) as a Mentor) organized by the Literary Club (3-10-2023)
- Essay Competition (بدعنوانی قوموں کا زوال) Organized by the Literary Club (24-11-2023)
- Review Writing Event organized by the Literary Club (21-3-2024)



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- The Orientation Seminar for Batch 2023 AIET organize by SET Society (28-11-2023)
- 5th South Punjab Bilingual Declamation Competition 2024 Organized by debating club. In this event many universities and more than 70 participants joined us. (8-5-2024)

11.2.6.Awards, Participations and Services

- MNS-UAM Debating Club secured 2nd Position in all Punjab Bilingual Declamation Competition in English Category Organized by BZU Debating Society (2-8-2023)
- Rover Scout Unit MNS-UAM secured 2nd position in the all Pakistan President Gold Medal Competition held at Scout Headquarters, Walton, Lahore (December 12th, 2023).
- Naqash Media Club secured 1st Position in all Pakistan Photography Competition (On spot photography) in 9th Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).
- Naqash Media Club secured 2nd Position in all Pakistan Photography Competition (On spot photography) in 9th Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12,3-2024)
- Naqash Media Club secured 2nd Position in all Pakistan Photography Competition (Product Photography) in 9th Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).
- Naqash Media Club secured 2nd Position in all Pakistan Photography Competition (Tasweer Kahani) in 9th Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).
- MNS-UAM Art and Dramatic Club won Best Character Award in Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).
- Team MNS-UAM won 1st Position and Team Trophy in all Pakistan Policy Making Competition in Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).
- MNS-UAM Web Radio Team won 1st Position and Team Trophy in all Pakistan Radio Buzz Competition in Lyallpur Art and Literary Festival Faisalabad (UAF) (9-12 March 2024).

11.3.Activities of Rover Scouts Unit, MNS University of Agriculture Multan 2023-24

- Rover Scouts Unit rendered services in the Mango Festival 2023 held at DHA Multan.
- Rover Scouts Unit rendered services in Kashmir SIEGE Day at MNS University of Agriculture Multan to serve and help the applicants.
- Rover Scouts Unit actively participated in 3rd all punjab Summer Hike from Sakurdu to Shiger Valley, Baltistan during July 09-16, 2023.
- Rover Scout Unit Arranged the Advisory Meeting and Elected the new Cabinet Members for Session 2023-24.
- The Rover Scouts Unit organized Three Day Camping for boy and Girls at Muhammad Nawaz Sharif University Of Agriculture Multan. More than 50 students participated in the camping.
- Rover Scouts Unit rendered services in 3rd Canvocation held at Muhammad Nawaz Sharif University Of Agriculture Multan.
- Rover Scouts Unit Participate in 3rd all Punjab Sirat-ul-Nabi Conference 2023.



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- Rover Scouts Unit Participate in President Rover Scout held at Scout Headquarter Walton, Lahore. In which Participate 10 Rovers.
- Rover Scouts Unit rendered services in Tent Pegging Event held at Muhammad Nawaz Sharif University Of Agriculture Multan.
- Rover Scouts Unit Participate in 17th All Punjab Desert Hike For Boys Organized by Punjab Boys Scout Association that was held in Cholistan Desert From January 23-29, 2024.
- Rover Scouts Unit Participate in 2nd All Punjab Desert Hike For Girls Organized by Punjab Boys Scout Association that was held in Cholistan Desert From 29 January to 02 February 2024.
- Rover Scouts Unit Participate in 13th All Punjab Snowfall Hike for Boys Held From February 12-15, 2024. at Murree Hills. The Nine Rover Participate in it.
- Rover Scouts Unit Participate in 08th All Punjab Snowfall Hike for Girls Held From February 12-15, 2024. at Murree Hills.
- Rover Scout Unit Arranged the Advisory Meeting and Selected the new Advisory Members for Session 2024-25.
- Rover Scouts Unit rendered services in the Hajj Operation 2024 held at Ministry of Religious Affairs and interfaith Harmony Multan.
- Rover Scouts Unit rendered services in Education Expo 2024 held at Multan Marquee, Multan.
- Rover Scouts Unit rendered services in the Admission Desk 2024.
- Rover Scouts Unit rendered services in the Mango Festival 2024 held at Muhammad Nawaz Sharif University Of Agriculture Multan.

11.4. Career Development Center/Placement Bureau

The Career Development Center/Placement Bureau was established with the aim of providing guidance / counseling to the students of MNS University of Agriculture, Multan, for career improvement and placement after the completion of their professional degrees. There are two members of CDC/PB i.e., Dr. M. Ishtiaq, Assistant Professor, Entomology (Focal Person), and Mr. Usman Jamshaid, Lecturer, Soil and Environmental Sciences (Member). Two students are working on a per hour basis, which helps them in office management, data collection, to organize seminars, webinars, and recruitment drives. Details of each activity performed during the years 2023-24 are given herewith.

11.4.1. Students Counseling and Information Sources

Students are being provided services through personal contacts and our online resources. They could call, email cdc@mnsuam.edu.pk, or visit our online resources to get help for different kinds of issues. They could also visit our Facebook page: "Career Development Center, MNS University of Agriculture, Multan". The link of Facebook page is <https://www.facebook.com/MNSUAM.CDC>. More than 2000 people are connected through social media, including students, faculty members, and employers.



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It has a great effect on disseminating information among the students, which includes scholarship information ads, Job postings, motivational posts, information regarding seminars, trainings, and important events to be held at MNSUAM. We received a good and quick response from this page.

Students are provided guidance for the following:

1. Major selection/career goals
2. Searching of jobs
3. Interviewing
4. Writing of resumes
5. Online application to various posts at NTS, PPSC, FPSC, etc.
6. Scholarship advice: Searching Foreign scholarships and applying
7. Required Contact information of any company or institute for applying
8. Information regarding government departments according to their subject

11.4.2. Alumni Data Collection and Maintenance of Alumni Association

Alumni play an important role in future academia-industry linkages. They could help to achieve our goals. They could help us in a better way than others. Keeping in view the importance of Alumni, A group of alumni students has been maintained by CDC/PB using social media such as WhatsApp, Gmail, and Facebook. We have received bio-data forms from all graduates of all degree programs passed out during each year. A database of the alumni students has been established with contact numbers and postal addresses. WhatsApp groups for each session have been maintained for the dissemination of information to the alumni graduates. Alumni students were invited to annual dinners arranged by each department to strengthen relationships as well.

11.4.3. Placement of Graduates of MNSUAM

Graduates of MNS University of Agriculture Multan are being placed in different organizations through the following activities.

11.4.3.1. Internship placement for final year students

Students in professional degree programs require real life experiences through market exposure, which is only possible through internships in professional organizations. In order to equip the students with professional experiences, internships play a vital role. This year, we were able to find internships for final year students of B.Sc. (Hons.) Agriculture at private sector professional organizations through internship committee. Dr. M. Ishtiaq, Focal Person of CDC/PB was in charge of the committee. One faculty member was nominated by the Chairman of each department as the focal person of the respective department for internship placements. The main objective of the committee was to find internships in well reputed private organizations, institutes, and progressive private farms, and the second option was to find paid internships. Different organizations were contacted for internship offers.



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Almost 65 % of the students were offered paid internships by Agro industries, Progressive Farms, Banks, and various organizations.

11.4.3.2. Summer Internship

Undergraduate students are also encouraged to work during summer vacations. The Career Development Center/ Placement Bureau issued letters to the students willing to serve in any organization of their own choice. We facilitated different organizations to conduct interviews with students for the selection of suitable candidates for summer internships and project based offers.

11.4.3.3. On Campus Orientation Seminars / Sessions and Recruitment Drives by industrial representatives of different organizations for job opportunities

Career Development Center/Placement Bureau helps University graduates find better job opportunities at different Companies / institutes, etc. Our initial survey indicated that the majority of our graduates wanted to continue their studies. But for those, who want to start their career, the following efforts have been made for the placement of our graduates during this year 2023-24. Different job and scholarship advertisements are being posted using the Alumni Network and notice board.

We helped the graduates find jobs at different Companies / Organizations and arranged their interviews through personal contacts, social media, mobile calls, SMS, and Emails. Fifteen awareness seminars and recruitment drives were conducted by different industries and facilitated by CDC/PB MSNUAM during this year. A number of students have joined and started their careers in these organizations.

A number of organizations, including progressive farmers across Pakistan, contacted us for assistance in the recruitment process, and our placement office assisted in the collection of CV's of graduates and encouraged graduates to apply for recruitment. Not only our graduates but also graduates from other Universities were getting benefits from our office.

11.4.3.4. Recruitment drive of Evyol Group on 07-03-2024

A recruitment drive was organized by Career Development Center and Placement Bureau on 07 March 2024 at 10:00 am in which Bilal Ahmed, HR Team Leader of Evyol Group and his team visited Muhammad Nawaz Shareef University of Agriculture, Multan. In this, the Focal Person of Career Development Center and Placement Bureau, Dr. Muhammad Ishtiaq, while addressing the agricultural graduates, highlighted the importance of the recruitment drive organized by CDC/PB. He talked the agricultural graduates that we keep organizing various programs in which banks, companies, agricultural farms visit the university and offer jobs to agricultural graduates. Along with he guided about job interview skills, dressing code, time management. Bilal Ahmed informed about the selection of Trainee Area Leader in Evyol Group of Companies. Later the written examination was conducted in which a large number of Agri. graduates participated.



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Umer Sharif Ph.D. Scholar, Muhammad Siddique Assistant Director Rajanpur, Umair Faheem Research Officer Government of Punjab and a large number of Agri. graduates were present on this occasion.

11.4.3.5.Awareness seminar on Future of Pakistani Agriculture graduates and money making opportunities in North America on 25-04-2024

Career Development Center and Placement Bureau and Dean Faculty of Agriculture and Environmental Sciences, Muhammad Nawaz Shareef University of Agriculture Multan organized a seminar "Future of Pakistani Agriculture Graduates and money making opportunities in North America" for students of Institute of Plant Protection, Agronomy and Horticulture. In which Rao Muhammad Ishtiaq, the owner of Crop Defenders Ltd., Canada, while talking to the Agriculture graduates, told them how they can make their knowledge and skills useful for the farmer and play their role in increasing the farmer's production. At the start of the seminar, Prof. Dr. Muhammad Ishtiaq, Vice Chancellor, Muhammad Nawaz Shareef University of Agriculture Multan welcomed the guests. After that, Prof. Dr. Shafqat Saeed, Dean, Faculty of Agriculture and Environmental Sciences, while talking to the agricultural graduates informed about the hard work and success journey of Rao Muhammad Ishtiaq Crop Defenders Ltd. Canada. Dr. Muhammad Ishtiaq Focal Person of Career Development Center and Placement Bureau briefed the agricultural graduates about the objective of the seminar. Rao Muhammad Ishtiaq, owner of Crop Defenders Ltd. Canada, while talking to the Agriculture graduates informed about his company's launch in Canada and emphasized how they can be useful to the farmer. He motivates the graduates to focus on their businesses instead of looking for jobs. He said that instead of looking for a job, be a job creator. On this occasion, Prof. Dr. Tanveer ul Haq, Chairman Soil Science Department, Associate Prof. Dr. Unsar Naeem-Ullah, Associate Prof. Dr. Mirza Abdul Qayyum, Assistant Prof. Dr. Nazar Farid, Rubina Ahmed Librarian, Umer Sharif Ph.D. Scholar (Representative of Career Development Center and Placement Bureau) and large number of students participated.

11.4.3.6.Awareness seminar about recruitment of IT, CS, Engineering graduates in PAF On 29-04-2024

Career Development Center and Placement Bureau, Muhammad Nawaz Shareef Agricultural University Multan organized an awareness seminar in which Squadron Leader Pakistan Air Force and his team came to Muhammad Nawaz Shareef Agricultural University Multan. Dr. Muhammad Ishtiaq, Focal Person of Career Development Center and Placement Bureau during his talk focused on warm greetings and introductions, Purpose of the Seminar, Importance of the 133 Course, Overview of the Seminar Agenda, Encouragement to engage and Ask Questions, Emphasis on the Values of the PAF and transition to the Seminar (introduction of the next speaker).

Squadron Leader Pak Air Force during his talk guides the students about 133 Combat Support Course. In which he discussed the entire selection process, necessary documents, education and other basic requirements, selection process and key stages of evaluation, training program and skills development, Career opportunities within the PAF, guidance for successfully passing the recruitment process. He informed the students that there are many vacant seats in various branches in Pakistan Air Force where students should apply. It is open to apply for seats in several branches such as Education (Edu), Admin and Special Duty (A&SD), Accounts (Acct), Logistics and Information Technology branch (IT). This was followed by a special question and answer session with the students.



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In which the students actively participated with great interest.

Prof. Dr. Salman Qadri, Director Institute of Computing in his talk reinforce the value of dedication, discipline, and a commitment to service that defines PAF personnel, remind attendees of the key messages shared by Squadron Leader, Share resources where attendees can learn more (Such as the PAF website, social media channels, or contact information) for further inquiries. Prof. Dr. Shafqat Saeed, Dean, Faculty of Agriculture and Environmental Sciences in his talk express gratitude for special guests, speakers, and organizers for their contributions to the success of the event.

On this occasion, Israr Hussain Lecturer Institute of Computing, Associate Professor Dr. Mirza Abdul Qayyum, Umer Sharif Ph.D. Scholar (Representative Career Development Center and Placement Bureau), Hasan Taha Ph.D. Scholar, Ahmad Ibrahim Jalali Research Associate and Junaid Khan Daha Scientific Officer were also present.

Table 11.1. List of Activities of CDC/PB involving industry for awareness sessions and Recruitment Drives during 2023-24

Sr. No.	Name of Organization	Events	Date
01	Syngenta Pakistan Pvt. Ltd.	Career Counseling Session by young Syngenta Professionals Community	15-09-2023
02	CDC/PB MNSUAM	Scholarship and Career opportunities at Canada	08-12-2023
03	Topsun Group Pvt. Ltd.	Interactive session & Interview	25-01-2024
04	Safe Crop Agrochemicals Pvt. Ltd	Registration of graduates & Interviews	1-02-2024
05	Evyol Group Pvt. Ltd.	Orientation Session / Recruitment Test	07-03-2024
06	Pakistan Air Force	Awareness seminar about various jobs available in PAF	29-04-2024
07	CDC/PB MNSUAM	Major Selection Seminar for 4 th semester students of BSc. (Hons.) Agriculture	13-06-2024

Finance





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FINANCE

12.1. Financial year at a Glance

Million PKR			
Particulars	Approved Budget 2023-24	Revised Budget 2023-24	Actual 2023-24
RECEIPTS			
Opening Balance	29.970	27.593	27.593
Govt. Grants	355.799	370.143	370.143
University's Own Sources (Self-Generated Income)	585.461	569.945	580.990
Donation	25.000	7.684	7.684
Total Receipts	996.230	975.365	986.410
EXPENDITURES			
Salary Expenditures	539.656	524.451	524.451
Non Salary Expenditures	479.188	436.139	435.664
Total Expenditures	1018.844	960.590	960.115
Surplus/Deficit	(22.614)	14.775	26.295
Development Budget	677.960	236.198	236.198
Recurring Budget	1018.844	960.590	960.115
Self-Generated Income	585.461	569.945	580.990
In PKR			
Trend of Per Student Spending (Salary Expenses Basis)	90,638	89,911	89,911
Trend of Per Student Spending (Non-Salary Expenses Basis)	80,482	74,771	74,690

University Governance





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UNIVERSITY GOVERNANCE

The MNS University of Agriculture, Multan, was announced by the Chief Minister, Punjab, on January 28, 2012. The University was established under the Act 2013 of the Punjab Assembly with the objective of imparting professional education in agriculture sciences and allied disciplines by catering to the needs of population, nationally and regionally. The Act XXII of 2013 authorized the University to establish the following authorities to supervise the affairs of the University for its smooth functioning.

13.1. Syndicate

The Syndicate is the executive body of the University and takes effective measures to raise the standard of teaching, research, technological development, publications, and other academic pursuits. As of June 30, 2024, a total of 41 meetings of Syndicate had been held, out of which, four held in 2023-24 are given below:

Sr. No.	Meeting	Date
1	38 th	24.07.2023
2	39 th	21.10.2023
3	40 th	22.12.2023
4	41 st	09.03.2024

13.2. Selection Board

The Selection Board considers the applications and recommends to the Syndicate, the names of suitable candidates for appointment to teaching and other posts and recommends a suitable salary for the selected candidate; it also considers cases of promotion or selection of officers of the University and recommends the names of suitable candidates for such promotion or selection to the Syndicate. The details of the selection board meeting held during current year are given below:

Sr. No.	Meeting	Date
1	21 st	22-23.07.2023
2	22 nd	02.09. 2023

13.3. Finance and Planning Committee (F&PC)

The Finance & Planning Committee prepares the annual statement of accounts, proposes annual budget estimates, makes recommendations to the syndicate, periodically reviews the financial position of the university, and advises the syndicate on all matters related to finance, investment, and accounts of the university. The following meetings of F&PC were held during the current year:



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UNIVERSITY GOVERNANCE

Sr. No.	Meeting	Date
1	15 th	11.12.2023
2	16 th	28.06.2024

13.4. Board of Faculties

Board of Faculty coordinates the teaching and research work in the subjects assigned to the faculty and scrutinizes the recommendations of a Board of Studies comprising the faculty with regard to the appointment of paper-setters and examiners for graduate and postgraduate examinations and forwards the panels of suitable paper-setters and examiners for each examination to the Vice Chancellor.

Sr. No.	Board of Faculties	Meeting Date
1	12 th Meeting of Board of FA&ES	05.07.2023
2	13 th Meeting of Board of FA&ES	27.11.2023
3	11 th Meeting of Board of FSS&H	03.05.2024
4	11 th Meeting of Board of FSS&H	01.03.2024
5	6 th Meeting of Board of FV&AS	07.05.2024
6	7 th Meeting of Board F&E&T	23.11.2023
7	8 th Meeting of Board F&E&T	20.05.2024
8	1 st Meeting of Faculty Board of IoC	29.04.2024

13.5. Board of Advanced Studies and Research (BASR)

The Board of Advanced Studies and Research advises on all matters connected to the promotion of advanced studies and research publications at the University. The following meetings of the Board were held during 2023-24:

Sr. No.	BASR	Meeting Date
1	21 st Meeting of BASR	18.10.2023
2	22 nd Meeting of BASR	15.11.2023

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UNIVERSITY GOVERNANCE

3	23 rd Meeting of BASR	06.03.2024
4	24 th Meeting of BASR	14.06.2024

13.6. Academic Council

The Academic Council is the highest academic body of the University and lays down proper standards of instruction, research, publication, and examination, regulates and promotes the academic activities of the University.

Sr. No.	Academic Council	Meeting Date
1	11 th Meeting of Academic Council	20.07.2023
2	12 th Meeting of the Academic Council	12.12.2023



Office of The Resource Generation/development





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OFFICE OF THE RESOURCE GENERATION/DEVELOPMENT

Sustainability of higher education institutions is possible only by employing various modern methods and using non-conventional techniques for resource generation and commercialization by involving the local community, staff, political leadership and foreign funding agencies.

The MNS University of Agriculture, Multan is working in coordination with the UC Davis and JICA on different doable proposals regarding modern lab development, date palm production/quality and mango production/quality.

The University's Financial Aid Office, P&D Office and ORIC are vigorously pursuing the funding agencies with the plan proposals in order to develop a state of the art agriculture institution in Southern Punjab.

14.1. Scholarship Program

MNS University of Agriculture, Multan always tries to make quality education accessible to all students in Pakistan, including those from lower and middle income households. Therefore, Students Financial Aid Office (SFAO) was established in 2015 at MNS University of Agriculture, Multan with the aim to commit the success of our students by providing financial aid and advising services that support student recruitment, retention, and timely degree completion, and ensures that a world-class education remains within reach for all eligible students who need financial assistance to achieve their educational goals.

Currently SFAO is offering following Scholarship to the deserving and merited students of MNS-University of Agriculture, Multan

1. University Merit Scholarship
2. BISP (EHSAAS) Scholarship
3. HEC Need Based Scholarship
4. Need Based Scholarship from own resources (MNSUAM)
5. USHR Scholarship
6. Punjab Education Endowment Fund
7. Pakistan Bait-ul- Mal Stipend
8. Student Loan Schemes
9. Karwan-e-Ilm Foundation Scholarship
10. Diya Foundation Scholarship
11. FFS Scholarship Scheme
12. Gurmani Foundation Scholarship
13. Muhammad Rasheed Memorial Scholarship
14. Sungreen Scholarship Program
15. Sona Welfare Foundation (SWF) Scholarship Scheme



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OFFICE OF THE RESOURCE GENERATION/DEVELOPMENT

14.2. Miscellaneous Facilities

1. Tuition Fee Concession (50%) to 10% of the students in the class by Dean Faculty.
2. Facility to deposit dues in installments for financially constrained students.
3. A number of students are working on various research projects sponsored by HEC/ Government Departments/ organizations (national and international) to perform work in exchange for money for their education
4. Hiring of students on hourly basis (Work-related learning experience for students who wish to develop hands-on work experience in a certain occupational field).

14.2. Under and Postgraduate Scholarships Awarded During (2023-2024)

Scholarship Type	No. of Awardees	Amount (Million PKR)
Merit Scholarship	355	2.00
BUSP (EHSAAS) Scholarship	176	31.86
HEC Need Based	137	5.14
PEEF	49	7.16
USHER Scholarship	122	3.81
Pakistan Bait Ul Mal	24	0.28
Rasheed Memorial Scholarship	4	0.24
Altaf Shahid	16	0.43
MORA Scholarship	33	0.4
Sona Wards of Farmers Scholarship	2	0.04
Goumani Foundation	23	0.80
Karwan-Ilm-Foundation	2	0.07
Diya Foundation	3	0.05



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OFFICE OF THE RESOURCE GENERATION/DEVELOPMENT

BEEF	33	2.77
Total	979	55.04

14.2. Planning and Development Office

The P&D Office of MNS University of Agriculture, Multan, is playing its role in resource generation for the university's development. Annual Development Programs worth Rs. 2215.00 Million have been successfully completed during their approved Gestation Periods under the auspices of the Agriculture Department, Govt. of Punjab. The project activities have been completed with 99.9% utilization, including physical infrastructure, procurement of lab equipment, furniture and fixtures, transport, generators, farm development, construction work, and allied activities. Specifically, a 9 Km underground pipeline from the bed of the River Chenab for cultivation of 500 acres of land with fresh irrigation water at Jalalpur Pir Wala Research Farm of the University. The training Hall, Input and Produce Stores, Animal and Implement sheds, and other allied facilities have also been completed under the ADP Scheme.

Another flagship ADP project (Pilot Project) has been completed with a cost of Rs. 200 million, a gestation period of 36 months, and the objective of training 376 interns, onboarding the contact farmers, and Monitoring through the GEO Tagging Application. A feasibility study for the establishment of a sub-campus of MNS-University of Agriculture Multan at Khanewal has also been completed for submission of the project for approval.

The details of following on-going projects and being submitted for approval at different Provincial and Federal agencies;

- ADP Project of Rs. 472.920 million for National Crop Genomics and Speed Centre for Agriculture Sustainability was approved with an execution period of 36 months (2021-22 to 2023-24). The three years of the project have been successfully completed with 90% utilization as per the PC-I provision. However, the scheme has already been submitted for revision at the cost of Rs.645.043 million with the increase amounting to Rs.172.123 million in Planning & Development Board Lahore.
- ADP Scheme titled "Strengthening of MNS-University of Agriculture Multan" of Rs. 646.600 million was submitted to the Agriculture Department for approval with a Gestation Period of 36 months (2022-23 to 2024-25). The agriculture department allocated the funds for the said project. The project proposal includes a female hostel for 350 students, a sports complex for indoor games, two computer labs, and three student buses. The two years of the project have been successfully completed with 100% utilization.

**CHAPTER-14****OFFICE OF THE RESOURCE GENERATION/DEVELOPMENT**

- A development project of Rs. 1356.378 million has also been approved for FY 2023-24 Funds amounting to Rs. 200 million have been allocated for the current financial year with an implementation period of 36 months by Higher Education Commission (HEC) Islamabad. The project proposal includes the Undergraduate lecture block and Teaching Labs, Central Library (FF), the boys hostel with capacity of 350 students each, the girls hostel with a capacity of 350 students each, the multipurpose hall with a capacity of 700, the faculty hostel, External Development and landscaping, Lab equipment for the newly established Faculty of Veterinary and Animal Sciences, and Faculty of Agricultural and Bio systems Engineering, Furniture and fixtures, IT equipment, and allied external services. The one year of the project has been successfully completed with 100 % utilization against releases.
- Consultant has been hired. All drawings, design, and detailed estimates have been prepared by a consultant. Payment made for the purchase of two student buses. Revised PC-I is being submitted for further administrative approval due to escalation.

Directorate External Linkages



Chapter 15 Directorate External Linkages



Chapter 15 Directorate External Linkages



Chapter 15 Directorate External Linkages





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DIRECTORATE EXTERNAL LINKAGES

The evolving mandate of universities necessitates enhanced connectivity and robust linkages with local, national, and international communities. Consequently, the Directorate of External Linkages was instituted at MNS University of Agriculture, Multan in 2016 under the auspices of the Higher Education Commission (HEC) of Pakistan.

MNS University of Agriculture, Multan endeavors to harness expertise from a broad spectrum of sources, both domestic and international, to amplify its academic and research endeavors. This approach, in turn, facilitates a profound impact on the realms of agriculture, science, and technology. To achieve this, the university forges collaborations with prestigious international universities, esteemed research and professional organizations, commercial entities, and distinguished professionals and scholars, all in pursuit of its academic and research aspirations. The university's faculty, researchers, and students continually augment the institution's value by maintaining active engagement with professional entities and individuals, contributing to research, the critical review of academic papers, and the orchestration of conferences and seminars. The MNSUAM has so far developed linkages with 75 international organizations (45 academia, 24 industries and 6 corporate sector) 110 national organizations (18 academia, 57 industries and 35 corporate sector) Therefore the MNSUAM has total of 185 linkages in form of Agreements of Cooperation (AoCs), Memorandums of Understanding (MoUs) and Memorandums of Cooperation (MoCs)

This office is also entrusted with the responsibility of attracting international students, facilitating the placement of university students and faculty in prestigious universities, fostering interactions between academia and industry, and drawing in financial support for the university's training, research, and development initiatives from national and international benefactors, alumni, civil society, and agro-industries. The Directorate of External Linkages similarly bears the obligation to attract international students, arrange placements for students and faculty in top-tier universities, promote faculty-industry collaboration, and secure funding for the university's training, research, and development endeavors from both national and international donors, alumni, civil society, and agro-based industries. The university routinely receives delegations from international and national entities to cultivate and expand partnerships focused on capacity building, research and development, and outreach initiatives, all aimed at enhancing the welfare of the nation's farming community.

15.1. Vision

To establish purposeful linkages with national and international academia, organizations, stakeholders, and industries for making a thriving win-win relationship.



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5.2. Mission

To create links and consortia with relevant organizations that could help to strengthen scientific collaboration and enhance capacity building with an aim to strengthen professional learning and extend community services to meet ever-changing local, regional, and global demands through social transformation.

15.3. Achievements

During the fiscal year 2023-24, External Linkages has signed 14 (10 academia and 4 industries) AoCs/ MoUs / MoCs with International organizations and 18 (2 academia, 10 industries and 6 corporate sector) AoCs/ MoUs / MoCs are signed with national private and public sector partners from Pakistan. Therefore, the MNSUAM has signed a total of 32 AoCs/ MoUs / MoCs during the financial year 2023-24.

15.4. AoCs/ MoUs / MoCs with International Organizations (Academia)

Sr. No.	Subject of on-going AoC / MoU	Name of Collaborator (Party)	Focal Person	Date of Commencement	Date of Completion	Scope of Collaboration
1	Joint Research and exchange of faculty and students	Tashkent State Agrarian University Uzbekistan	Prof. Dr. Muhammad Asif Raza	17-July-2023	Five Years	The scope of collaboration includes a broad spectrum of cooperative endeavors, encompassing the exchange of faculty and students, joint research initiatives, active participation in seminars, knowledge-sharing efforts, the development of specialized short-term academic programs, and the establishment of joint training programs, aimed at promoting educational excellence and fostering research advancement.
2	Research cooperation & joint efforts in education and training focused on the	Xinjiang Academy of Husbandry, Xinjiang, Uygur Autonomous Region, China	Prof. Dr. Muhammad Asif Raza	18-Jul-2023	Five Years	The collaboration focuses on standardizing animal husbandry practices, ensuring the quality and safety of animal products, and



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	standardization of animal husbandry practices					includes joint education and training efforts in these areas. It also involves exploring cattle and sheep germplasm resources and breeding grass seeds for improved agricultural practices
3	Joint training of scientific and pedagogical personnel and higher education specialists	Zhangir Khan West Kazakhstan Agrarian-Technical University	Prof. Dr. Muhammad Asif Raza	19-Jul-2023	Five Years	The collaboration includes joint training of scientific, pedagogical, and higher education specialists, leveraging each party's human resources. It also involves scientific and methodological cooperation, practical scientific collaboration, and information exchange to enhance mutual educational and research goals.
4	Curriculum development support, consultancy services & faculty exchange	EMIA, the African University of Science and Technology Dakar Senegal	Prof. Dr. Muhammad Ashfaq	12-Aug-2023	Four Years	Both parties agree to collaborate on areas of mutual interest, benefiting their organizations through curriculum development support, consultancy services, faculty exchange with lodging arrangements, technology transfer, student internships, joint research projects, and the organization of academic events such as seminars and exhibitions.
5	The exchange of teaching and research staff between faculties	Andijan Institute of Agriculture and Agrotechnologies, Andijan, Uzbekistan	Prof. Dr. Irfan Ahmad Baig	22-Sep-2023	Five Years	The collaboration fosters joint research initiatives, staff exchanges, student exchange programs, and double degrees. It



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includes sharing research data and teaching materials, scientific publication cooperation, joint academic events, and graduate study supervision. Additionally, it facilitates Andijan Institute graduates' applications to MNSUAM and provides access to research centers and labs for joint projects.

6	Exchange programs for both graduate and undergraduate students for study & Exchange of faculty members to engage in research, lectures, and discussions	The Technische Hochschule Lubeck, Department of Electrical Engineering and Computer Science	Dr. Nadeem Iqbal	11-Nov-2023	Five Years	The agreement includes student and faculty exchange programs, joint research activities, co-organization of academic events, and exchange of academic materials and non-academic staff. It also encompasses administrative cooperation and other mutually beneficial activities.
7	Foster the development of various exchange programs tailored to meet their academic and programmatic needs.	Hunan University of Science and Engineering, China	Prof. Dr. Umar Farooq	16-Feb-2024	Four Years	The parties will develop tailored exchange programs, designate focal persons for communication, and collaborate on need-based research programs, joint conferences, and training workshops. They will engage in staff exchanges and exposure visits for knowledge sharing and capacity building, encourage exchange programs for research students, and pursue combined



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research publications and projects. Additionally, they will exchange programmatic information and materials, consider launching shared diploma or degree programs, and share research facilities.

8	Students and Faculty exchange through Erasmus+ program	Sakarya University of Applied Sciences, Turkiye	Dr. Hafiz Nazar Faried, Assistant Professor, Department of Horticulture, Prof. Dr. Muhammad Ashfaq, Institute of Plant Protection	1-Mar-2024	Three Years	The institutions will exchange mobility-related data per GDPR and European Student Card Initiative standards. They will implement a faculty exchange program via Erasmus, organize seminars and workshops, and encourage participants to act as Erasmus+ ambassadors. Faculty, MS, and Ph.D. students can join mobility programs without extra fees, except for small local-like fees. Collaborative research projects will be submitted for funding, and separate agreements will define each objective's scope and terms.
9	Promoting low-carbon emissions and agricultural sustainability, building capacities of decision-makers and stakeholders in Biosphere Reserves	The United Nations Educational, Scientific and Cultural Organization (UNESCO)	Prof. Dr. Irfan Ahmad Baig	29-Mar-2024	Four Years	The Chair aims to promote research, teaching, training, and community engagement, facilitating collaboration among high-level researchers and teaching staff locally and internationally. Objectives include protecting biodiversity, improving the water-



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energy-food nexus, helping farmers adopt innovative technologies to increase income and reduce poverty, promoting low-carbon emissions and agricultural sustainability, building capacities of decision-makers in Biosphere Reserves, promoting sustainable agriculture, documenting and disseminating good practices, and cooperating with UNESCO, other UNESCO Chairs, and UNITWIN Networks.

10	Joint research and development projects, establish faculty and student exchange programs	University of Science and Technology of China (USTC)	Dr. Muhammad Arif	18-Apr-2024	Three Years	The parties will collaborate on joint research and development projects, establish faculty and student exchange programs, and organize academic activities like symposia, seminars, workshops, and conferences. They will exchange information, teaching materials, scientific publications, and high-yielding plant germplasm. The partnership will focus on technology transfer, establish a high-tech lab in Multan with shared resources, offer thesis review services, provide post-doctoral fellowships if funds permit, and explore joint degree programs and diplomas.
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15.5. AoCs/ MoUs / MoCs with Industries

Sr. No.	Subject of on-going AoC / MoU	Name of Collaborator (Party)	Focal Person	Date of Commencement	Date of Completion	Scope of Collaboration
1	Research and Development	ACN Private Limited	Dr. Amir Hussain	21-Jul-2023	Three Years	ACN and MNSUAM will establish the 'ACN-MNSUAM Platform' to build a sustainable intellectual and professional partnership. MNSUAM will address communication challenges with ACN's support in academic and research activities, while ACN will aid in developing systems to tackle media industry challenges and generate innovative solutions. The collaboration includes organizing seminars, workshops, competitions, and events, promoting knowledge exchange, and offering internships. ACN will provide technical support for developing communication technologies, and both parties will work on advisory boards and committees to support research, innovation, and commercialization.
2	Research and Development	Nestle Pakistan (International)	Mr. Mahmood Alam	22-Aug-2023	Five Years	(AoC) has been signed for a Rs. 5,000,000 project to establish an orchard with a drip irrigation system at University Farms Jalalpur



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Pirwala. Regular communication with Nestle representatives has begun, and fund release is in progress. A committee with specific Terms of Reference (TORs) has been formed to oversee the project, including land selection, planting geometry, and irrigation system recommendations. The committee has allocated 4 acres for drip irrigation and 3 acres for flood irrigation and completed soil sampling for all 7 acres.

3	Research and Development	Gold Tree Miller Pvt	Prof. Dr. Mubashir Mehdi	4-Sep-2023	Three Years	Gold Tree will provide two paid internships to MNSUAM students, engage in joint efforts to commercialize the laboratory testing facility, and support industry by offering testing services at approved rates. Additionally, Gold Tree will supply raw materials to students to facilitate research and development in the creation of new food products.
4	Research and Development	Alltech Pakistan Pvt Limited	Dr Naheed Bano, Dr. Atif Rehman	25-Sep-2023	Five Years	Promoting interaction among students, farmers, and stakeholders through the Aqua Club and Poultry Club, facilitating the exchange of the latest research findings, and creating career opportunities for students by providing paid internships.



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5	Research and Development	Mahmood Group of Textiles, Pakistan	Dr. Akash Fatima	10-Oct-2023	Three Years	joint research and development projects for sustainable cotton production and the commercialization of color cotton. It also includes activities such as organizing training, seminars, and workshops for knowledge transfer, identifying training opportunities to enhance national agricultural productivity, sharing research information and publications, and collaborating in digital-enabled agricultural technology, with a particular emphasis on precision agriculture and the adoption of advanced features.
6	Research and Development	Indus Sugar Mills Ltd. (ISML) Rajanpur	Dr. Plosha Khanum	22-Dec-2023	Three Years	The collaboration focuses on advancing biotechnology and improving sugarcane production through joint research, multiplication of disease-free planting material, and development of disease-resistant clones, particularly for Red Rot. The parties will explore tissue culture technology for rapid multiplication and commercialization of sugarcane varieties, with MNSUA sharing techniques with Indus Sugar Mills Ltd. Joint training sessions, workshops, and seminars will also be organized for academia, industry, and farmers.



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7	Research and Development	Shakarganj Limited, Jhang, Pakistan	Dr. Ambreen Naz	4-Jan-2024	Five Years	Both parties will collaborate on research, innovation, and knowledge dissemination, conducting joint projects and organizing seminars, workshops, and international meetings for idea exchange. They will pool resources for research and commercialization, with Party B covering mutual event expenses and Party A managing refreshments and speaker details. They aim to foster innovation through IT, joint promotions, and exchanges, with SLJ offering internships. Intellectual property rights will follow MNSUAM's framework, ensuring a mutually beneficial partnership.
8	Research and Development	Sojhal Savail Farmers Foundation (SSFF)	Dr. Tanveer Ahmad	12-Jan-2024	Three Years	The agreement focuses on joint innovation and development projects to enhance cooperation and achieve shared goals. It includes organizing training programs for farmers, students, and the community, and facilitating collaboration through invited sessions, symposia, webinars, and conferences. The partnership aims to provide exposure opportunities, share scientific and technical knowledge, exchange



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						information and materials, collaborate on fruit and vegetable value addition, and pursue technology transfer for wider implementation.
9	Research and Development	Khawaja Mineral Industries Multan	Dr Gulzar Akhtar	22-Feb-2024	Five Years	The collaboration aims to develop and implement 3D landscape design, exchange information and teaching materials, and enhance ornamental plant production for aesthetic and pollution control. It includes technology transfer, technical development, and sharing of books and data. Internship opportunities for students will be created, with the industry managing irrigation, fertilization, pruning, and providing DPL labor and covering scientist visit expenses. The project team will focus on landscape design development and execution.
10	Research and Development	Hussain Salman Chemicals, Multan	Dr. Farrukh Baig	15-Mar-2024	Three Years	The collaboration involves joint research projects, focusing on mosquito management methods, establishment of a high-tech lab at MNSUAM, organizing outreach activities, facilitating MSc degrees for two students, and clarifying intellectual property rights, primarily with MNSUAM.



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11	EFTN pilot project	Energy & Security Group, LLC (USAID) & LUMS	Prof. Dr. Junaid Ali Khan	6-May-2024	Until Project Completion	The MoU outlines the roles for MNSUAM, LUMS, and ESG in the EFTN pilot project. MNSUAM will manage liaison, community engagement, fieldwork, logistics, equipment safety, technical support, and data sharing. LUMS will provide technical expertise, equipment preparation, training, evaluation, digital tools, and business model assessment. ESG will fund the project, procure equipment, conduct impact assessments, monitor progress, and manage media. All parties will maintain data confidentiality, respect intellectual property rights, and ensure regular communication and review. The MoU is effective until project completion or mutual termination.
12	Research and Development	Patron Chemicals, Multan, Pakistan	Dr. Naeem Iqbal	24-May-2024	Three Years	The AOC/MOU covers joint research and development projects, urban pest management collaboration, exchange of high-yielding plant germplasm, and organization of academic activities like symposia and workshops. It includes student engagement in research funded by Patron Chemicals. Intellectual property rights for R&D products belong to



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						MNSUAM, with potential transfer to Patron Chemicals subject to agreed terms and MNSUAM's Intellectual Property Framework.
13	Research and Development	Syngenta Pakistan Limited	Prof. Dr. Shafqat Saeed	30-May-2024	Three Years	MNS University of Agriculture, Multan (MNSUAM) will allocate one acre of land for the 2024 rice season, providing irrigation and agronomic resources for trials on rice residue management. Syngenta will supply fertilizer, rice seed, and plant protection products, and will execute a residue management protocol to produce rice that meets EU/USA standards. Additionally, Syngenta will send rice samples for international residue analysis and invite researchers, students, and farmers to observe the trial results and agricultural innovations at the MNSUAM site.
14	Research and Development	Guard Agriculture Research & Services (Pvt) Ltd. Pakistan & Biotechnology Research Institute, CAAS, China	Dr. Zulqurnain Khan	4-June-2024	Five Years	The collaboration between MNSUAM, Guard Agri, and BRI, CAAS, China focuses on agricultural seed production for crops like cotton, wheat, pulses, oilseeds, and vegetables. It includes developing breeding and seed production capacities, creating seed production clusters, and using local technology for hybrid seeds. Key activities



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involve training in China, joint research, information exchange, workshops, and technology transfer. A Joint Working Group (JWG) will oversee the project, establish a breeding station at MNSUAM, and initiate a hybrid cotton project, with Guard Agri providing funding and other parties contributing expertise. Each party retains ownership of their germplasm and follows mutual agreements for commercialization and execution.

15.6. AoCs/ MoUs / MoCs with National Organizations

Sr. No.	Subject of on-going AoC / MoU	Name of Collaborator (Party)	Focal Person	Date of Commencement	Date of Completion	Scope of Collaboration
1	Promote Climate Smart Agriculture tools to enhance farm efficiencies	Pakistan Meteorological Department Islamabad Pakistan	Dr. Muhammad Habib Ur Rahman	17-Jul-2023	Five Years	The MoC formalizes a reciprocal relationship between PMD and MNSUAM, focusing on collaborative research on climate-related crops and livestock. It aims to adapt and promote ClimateSmart Agriculture tools to enhance farm efficiencies and benefit the farming community. PMD will support MNSUAM in related studies, and MNSUAM will include Agro-meteorology in its Climate Change programs and involve PMD in academic activities. Both parties will offer internships, facilitate knowledge exchange, and provide resources to achieve mutual goals.



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2	Research	Agriculture Research and Facilitation Complex, Military Family Rehabilitation Organization (MFRO) Bahawalpur	Dr. Muqarrab Ali	11-Aug-2023	Two Years	MFRO will allot initial two acre of lands to MNSUAM for research purpose at Chapu center Bahawalpur, The MFRO will provide all inputs required for the experiments, MNSUAM will share research findings
3		The Lahore University of Management Sciences (LUMS), Pakistan	Prof. Dr. Mubashir Mehdi	25-Dec-2023	Sixteen Months	The Taber Project focuses on onboarding the Business Incubation and Entrepreneurship Center (BIAEC), conducting a need -based assessment, and providing comprehensive training in BIAEC management, curriculum design, pedagogical approaches, and entrepreneurial coaching. It includes an onsite travel program to the United States to understand the entrepreneurial ecosystem. LUMS will manage the project, oversee award execution, capacity building, training, and travel for both BIAEC and MNSUAM.
4	Tree plantation initiative at MNSUAM under Corporate	Oil And Gas Development Company Limited, Pakistan	Dr. Muqarrab Ali	18-Mar-2024	Five Years	OGDCL will provide one million rupees for a plantation initiative at MNSUAM, with funds disbursed within 30 days of signing the MOU. The



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Social
Responsibility

project involves planting local tree species on MNSUAM's main campus, including procurement, planting, and initial watering. OGDCL will also provide technical expertise, conduct monitoring visits, and appoint a focal person for coordination with MNSUAM.

5	Academic	Cholistan University of Veterinary and Animal Sciences, Bahawalpur, Pakistan	Dr. Unsar Naeem & Dr. Asghar Abbas	3-Apr-2024	Four Years	Both parties will collaborate on advancing research, education, and technology in agriculture, veterinary sciences, and biosciences. This includes joint research projects, combined training programs, outreach activities, employee exchanges, technology transfer, thesis review services, and exchanging information, teaching materials, and scientific publications. The effort aims to foster knowledge exchange and promote innovation for mutual benefit.
6	Installation of a flux tower and lysimeter at MNSUAM	On-Farm Water Management, Punjab Agriculture Department (PAD)	Dr. Muhammad Saifullah	5-Apr-2024	Until Project Completion	The scope of this Agreement involves MNSUAM providing a 50'x50' plot and additional surrounding land at its Jalalpur Pirwala Research Farm for the installation of a flux tower and lysimeter. MNSUAM will assist with the installation, ensure security, and manage initial vendor-coordinated



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maintenance. MNSUAM will collect and share data with the PAD and the FAO, while both parties will have access to the data but cannot share it externally. The instruments and data usage are bound by government regulations, and any changes to the Agreement require mutual consent. Both parties will independently manage their relations and ensure no conflicts of interest arise.

7	Tree plantation initiative at MNSUAM under Corporate Social Responsibility	Alkhidmat Foundation South Punjab, Pakistan	Dr. Gulzar Akhtar	26-Apr-2024	Five Years	As part of their CSR project, AKFSP and MNSUAM will collaborate on tree plantation campaigns, with AKFSP providing plants and MNSUAM promoting environmental conservation. They will design and implement landscape projects, engage in R&D, and offer internships to MNSUAM students. MNSUAM students will participate in AKFSP's community service projects. Both organizations will co-organize awareness campaigns, seminars, and events, with promotional materials displayed at major events to enhance visibility and outreach.
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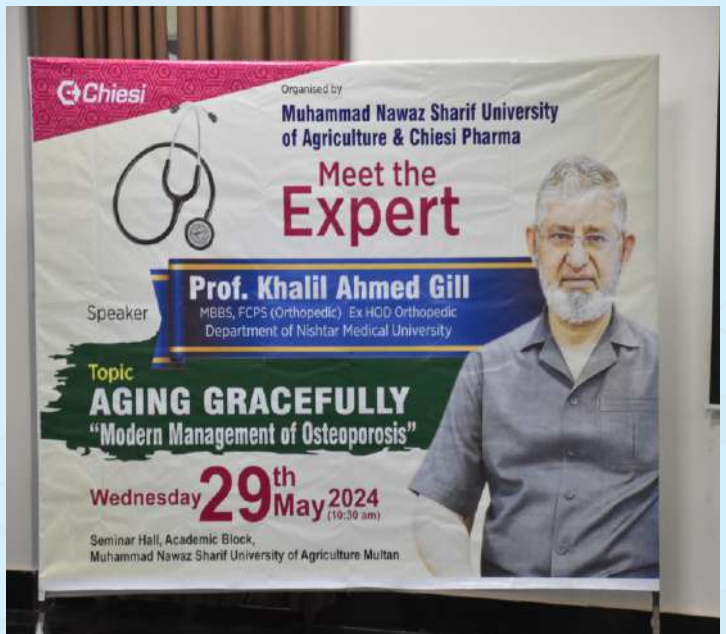
8	Admission campaign	DAKHLAY.com	Prof. Dr. Mubashir Mehdi	30-Jun-2024	Two Years	Dakhlay will enhance MNSUAM's degree program visibility on Dakhlay's platform by listing programs with promotions, enabling detailed searches, and streamlining the application process with status tracking. They will also provide information on scholarships and financial aid, and engage in joint marketing, webinars, virtual tours, and staff training. Continuous updates and regular meetings will ensure ongoing improvement and collaboration.
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Medical And Health Facilities



Chapter 16 Medical And Health Facilities





CHAPTER-16

MEDICAL AND HEALTH FACILITIES

16.1. Available Medical Facilities

- Free ambulance service
- First aid services for students and employees of the university
- HIV, Hepatitis B, and Hepatitis C screening at the Wellness Centre
- Eye checkups at the Wellness Centre
- Basic health checkups
- Free counseling services

16.2. Medical Camps

- Free HIV, Hepatitis B, and Hepatitis C screenings are available not only at the University Wellness Centre but also during community health checkups.
- An ongoing HIV screening initiative is in place for the transgender population of Multan to estimate the prevalence of HIV among this community.
- In collaboration with NIH and UC Davis, USA, we are working to establish a blood-based TB test for children under 10, addressing the challenge of sputum production in children. For this, we have collected blood samples from potential TB patients, clinically confirmed the disease, and sent the samples to the UC Davis lab to assess the sensitivity of the new test.
- A complimentary dental camp has been organized to ensure the oral health of university staff and students. Qualified professionals provide advice and treatment at no charge during these camps.
- Our medical camps offer a variety of free services, including hemoglobin, cholesterol, blood glucose, and uric acid tests. Visual acuity is assessed using the Snellen chart, while blood pressure, pulse rate, body temperature, and body mass index are measured. Additionally, free nutritional counseling is provided.

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16.3. Wellness Center Extension

- The University Wellness Centre now operates at three locations within the university: A Block, B Block, and the Girls' Hostel.
- Free HIV, Hepatitis B, and Hepatitis C screenings are available at the Wellness Centre.
- In addition to physical health services, the Wellness Centre addresses mental health concerns by offering counseling services to help individuals manage stress and improve overall well-being.

**CHAPTER-16****MEDICAL AND HEALTH FACILITIES****16.4. Public Health Society**

- The Public Health Society has actively promoted healthy lifestyles and raised awareness within the community throughout the year.
- The society has developed a health calendar to educate individuals on their health status and encourage proactive healthcare practices.
- The society observes various health-related awareness days and organizes seminars and campaigns for events such as Breast Cancer Awareness Month, World Heart Day, World AIDS Day, and World Health Day, among others.
- Additionally, the society enhances university students' ability to perform, understand, and analyze medical tests.
- To further its mission, the society collaborates with other institutions to gather up-to-date data on prevalent diseases, stigmas, nutritional misconceptions, lifestyle choices, healthcare facilities, and policy matters.

16.5. Memorandum of Understanding with Punjab Aids Control Program (PACP)

- Our collaboration with PACP has strengthened significantly. PACP conducted an HIV awareness seminar at the university, which included a poster competition. Students were awarded cash prizes worth PKR 120,000. Additionally, six MNSUAM students were sent to PACP for training in a Level 3 lab, where they worked on COVID-19, TB, and HIV.

16.6. BS and MS Public Health Programs

- The BS and MS Public Health programs at the university are highly successful, contributing to community health awareness through interventions, research, and awareness campaigns. These programs produce well-equipped graduates in the field of public health.

16.7. Collaboration with UC Davis

- In collaboration with UC Davis, USA, we are progressing towards developing a new blood-based TB test for patients where sputum production is problematic.

16.8. Mosquito and Mosquito Borne Diseases

1. Surveillance of mosquitoes, especially Dengue vectors, is carried out across the whole of the university every week throughout the year.



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2. Pictures of at least 30 activities per working day on average for Anti-Dengue, were uploaded to the dashboard of PITB created for Dengue and its vector mosquitoes.
3. Identification of samples of mosquito larvae received from the Health Department was done, occasionally.
4. Dr. Unsar Naeem-Ullah, Associate Professor, MNSUAM, attended the meetings of District Emergency Response Committee (DERC) for Dengue vector management.
5. Issued an Advisory to MNSUAM faculty and staff regarding Dengue and Dengue vector mosquitoes through email on 08-09-2023
6. Dr. Unsar Naeem Ullah, Associate Professor, MNSUAM invited as Guest speaker for presenting seminar on “Dengue Awareness” and a Walk in Department of Zoology, The Women University, Multan on December 22, 2023.
7. Dr. Unsar Naeem Ullah, Associate Professor, MNSUAM invited as Spokesperson for presenting seminar on “Awareness and Prevention from Dengue Virus” at University of Education Multan on February 15, 2024.
8. Dr. Unsar Naeem Ullah, Associate Professor, MNSUAM invited as Guest speaker for presenting seminar on “Dengue Awareness” and a Walk in Department of Zoology, The Women University, Multan on April 21, 2024.
9. Organized World Dengue Day on June 14, 2024, at the University in compliance with the directions of the government of the Punjab. Dr. Unsar Naeem-Ullah, Associate Professor lead following activities for the event:
 - Mosquito larval surveillance done by Dr. Farrukh Baig and Dr. Fawad Zafar A. Khan, Assistant Professors in Entomology at IPP.
 - Anti-Dengue pamphlet distribution at Central Library, MNSUAM was performed by the Librarian, Ms. Rubina Ahmad.
 - Anti-Dengue pamphlet distribution by Dr. Nadir Naqqash, Assistant Professor, IPP at MNSUAM Canteen and Old Shujabad road.
 - Housekeeping was done by Dr. Asif Farooq, Assistant Professor, IPP and Engr. Hafiz Abu Mazhar Deputy Director Estate Management.
 - Dengue Awareness Talk at Juma Prayer at Fatima Masjid, was delivered by Dr. Unsar Naeem-Ullah, Associate Professor Entomology, IPP. He informed the audience about symptoms and cure of Dengue fever, identification of its vector, information regarding potential breeding sites of Dengue vector mosquitoes and management practices for controlling the vector. Prof. Dr. Ishtiaq A. Rajwana, Vice Chancellor of MNS-UAM, Prof. Dr. Muhammad Ashfaq, Director IPP, Asif Nawaz, the Registrar, Muhammad Rafiq Farooqi, the Treasurer, Rao Zulfiqar Ali, Controller of Examinations, Dr. Abdul Rasheed, Prof. Dr. Tanveer ul Haq, Prof. Dr. Nasir Nadeem, Prof. Dr. Junaid Ali, Dr. Alamgir Akhtar Khan, Dr. Usman Jamshed Senior Tutor, Dr. Abid Mehmood Director Students Affairs, Dr. Mirza Abdul Qayyum Hall Warden, Dr. Hasan Riaz, Dr. Naeem Iqbal, Dr. Nadeem, Dr. Asif Farooq, Dr. Farrukh Baig, Dr. Fawad Zafar A. Khan, Dr. Nadir Naqqash, Dr. Akhtar Hameed, Dr. Arslan Khan, Dr. Kashif Razaq, Dr. Abid Hussain, Dr. Mahr Iftikhar, and Mahr Riaz Haraj PRO and a large number of faculty, staff and students attended the events.

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MEDICAL AND HEALTH FACILITIES

- Dengue Awareness Walk led by Prof. Dr. Ishtiaq A. Rajwana, Vice Chancellor, MNSUAM was conducted.

16.9. Community Services

- Dr. Muhammad Umair Waqas, along with the Public Health Society, is actively involved in a project focused on early screening of tuberculosis (TB) in slum communities of Multan, particularly in children. The project is carried out in collaboration with the National Health Institution in Islamabad and the University of California, Davis. The aim is to explore a more convenient method of TB diagnosis using blood samples, considering the challenge of sputum production in children.
- Furthermore, the Public Health Society has organized free medical camps in vulnerable communities in Multan. These camps aim to provide essential healthcare services to individuals in need, ensuring they have access to basic health facilities at no cost

