



ANNUAL REPORT

MNS University of Agriculture, Multan

2019-20

www.mnsuam.edu.pk

Old Shujabad Road,

Multan-Punjab-Pakistan



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2019-2020

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Vice Chancellor's Message

Dear Readers,

As we have drifted through another substantial yet challenging year, I am contented to share the annual report of MNS-UAM for the year 2019-2020. This report is an endorsement of another successful year of this University, where we have paved the way through various thresholds towards fulfillment of our vision. Our determination and stability has made it possible for us to make the new campus functional. All our achievements, whether related to academia, need based research, community services, stakeholder satisfaction, land development, construction, and administration are sheer outcome of the dedicated hard work and ownership of the campus community. I must say that the University has made notable progress and is achieving all its objectives based on its vision 'to strive for academic excellence and build knowledge-based economy'.

Our Business Incubation and Agricultural Entrepreneurship Centre (BIAEC) has made it possible to register 13 incubate including 06 winner ideas of DICE-AFS 2019 and has given a platform to the students and incubates who want to grow and become entrepreneurs. The needy students are being facilitated with scholarships and there has been a considerable growth in providing Need-based scholarships. The Office of External Linkages has facilitated to develop linkages with the industry and collaboration with high-ranked universities/organizations from around the world, providing an opportunity for the students to get higher education and excel in their fields. The Quality Enhancement Cell (QEC) is meeting all the challenges of quality assurance and enhancement. The QEC endured the challenges of maintaining standards of knowledge delivery and student's engagement through online systems during Covid-19.

The Office of Research, Innovation and Commercialization (ORIC) has been helpful in prioritizing research and innovations according to educational, industrial, social and economic needs as well as the University's vision. It also facilitated translation of research into commercialization through strong industry-academia linkages and entrepreneurship. The University successfully organized the mega events such as Mango Festivals,

Cotton Seminar, Sino-Pak Conference on Cotton Breeding and Biotechnology, DICE-AFS 2019, Plant Centric Meal and Pulses Value Addition Competitions, International Conferences on Climate Smart Agriculture, Smart Potassium Nutrition Management in Crops, Chickpea-Peanut Fest, workshop on Mango Supply Chain Improvement and Marketing, and Agri. Expo-2019 etc. Paradoxical agriculture, fish and shrimp farming, farms in arms project, field training on mango small tree system, training workshop for one-year internship program for agri. graduates, reduced freight charges for mango export and funded short courses to impart skills development education were the other key initiatives that have become success stories. Science for Farmers remained integral to every scientific conference. Further, the projects like kitchen gardening, rooftop farming, hydroponics, model villages, tree plantation campaigns have grown to become an integral part of the University's continuous efforts of community services. The MNSUAM in pursuit of its vision of developing a world class university in agricultural and allied sciences by providing effective systems and leadership for professional learning, research, entrepreneurship and community service is striving to combat global climate change and marching towards sustainability. This year, the University scored 4th position all over Pakistan out of 40 national universities and 311th position globally as World's Most Sustainable University in UI GreenMetric World University Ranking.

Our academic canvas is expanding day by day, as there are new degree programs introduced in the previous years and I proudly acknowledge the ownership from the highly qualified faculty of MNSUAM. Training workshops for the faculty helps them to learn from the experienced focal persons. Young and ambitious faculty members learn from these workshops, about workplace harmony and work dedication, which has always been at the top of my priority list. As we all know that 2020 was a year full of challenges, I am complacent with the efforts of my faculty to fight with COVID-led challenges. Our well-defined online system of classes and efficiently developed learning management system (LMS) has made it easier for the students and the teachers to cope up with this pandemic. Back in March 2020, the lockdown declared the country as a sanatorium and every individual was panicked and concerned about his/her health. Even in that uncertain situation, the faculty and management of MNSUAM, held back their nerves and facilitated the students with narrated and live session of classes. Regular meetings were held by the chairpersons in order to regulate and maintain the decorum of online learning system. Besides online classes, series of webinars were also organized. These webinars helped to maintain our international linkages and collaborations. Fruitful discussions were held and it bridged the gap between experienced experts in the field of agriculture from around the world, and our faculty members. Students were also given the platform to participate in various webinars and I am sure it helped them to learn a lot.

I would like to conclude by once again appreciating the campus community for their extra ordinary efforts in the extra ordinary times. The Covid pandemic has posed many threats and challenges but there are always opportunities for them who struggle. Insha Allah, the team MNSUAM will keep up the momentum in the coming years to come up to the expectations of the stakeholders.

Prof. Dr. Asif Ali
Vice Chancellor



EXECUTIVE SUMMARY

MNS-University of Agriculture, Multan has been established with an aim to provide education in various disciplines of agriculture and other branches of knowledge, make provisions for research & development, and to serve the farming community and agro-based industry. The University started its academic activities in 2012. However, the real kick-start of the University as an emerging educational institute was in the year 2016, and since then, it is progressing by leaps and bounds. This annual report documents another year of the University's journey and highlights its continuous growth and improvement in all expanses.

The report starts with an overview of the University, highlighting quick facts about institutional mission, vision, goals, greater agenda and core values. The first chapter covers the Academic Activities describing the degree programs offered and some details of faculties and departments besides key achievements. The chapter also presents a brief profile of Graduate Resource Center, which has been established to enhance the quality of graduate training to young researchers to cope with challenges of the agriculture sector in the country and around the world. During the COVID-19 crisis and the unforeseen lockdown, the communication from the MNS-University leadership has primarily aimed at reassuring the students and guiding them through the well-established online system of classes and the academic journey to the unexpected virtual road. This chapter also outlines the good practices that were adopted to embrace new horizons of quality education.

The Research and Development activities including research projects, publications, workshops, seminars and conferences are presented in the second chapter. This year faculty submitted 51 different research projects to various national and international funding agencies including HEC, PARB, PSF, CNSF, MoST, etc. and funding was awarded to 05 projects. The University organized 09 national and international conferences, 28 national and international seminars and 28 trainings/workshops with 42 other outreach, recreational and capacity building activities. This chapter includes the information regarding the travel grants. This chapter also covers



information related to Business Incubation Center established at the varsity to translate research findings of scholars into new products and technologies and provide entrepreneurs with an array of targeted resources and services. Details of DICE-2019 (Distinguished Innovations, Collaboration and Entrepreneurship) event are also presented in this chapter.

Chapter three focuses on Quality Assurance and its important aspects 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 continuous assessment for better outcomes. This chapter also highlights the details about the initiation of new postgraduate degree programs, annual technical review of TTS faculty, plagiarism checking, capacity building of faculty and students as well as impact of quality assurance at the campus.

The fourth chapter encompasses Faculty Development through trainings/workshops attended by the faculty to hone their teaching, research, and leadership skills. During 2019-20, eight faculty members were benefited from development programs, and number of pre-service and in-service professional development programs was 51.

Chapter five elaborates quick facts about discipline-wise and gender-wise student enrollment, and teacher-student ratio etc. Basic enrollment during 2019-20 was 1241 with 852 and 289 male and female students, respectively. The maximum enrollment of 521 students was observed in B.Sc. (Hons.) Agriculture program. Furthermore, 248 students were enrolled in M.Sc. (Hons.) programs of agriculture, and 09 scholars started pursuing doctorate degrees. Till the end of the academic year 2019-20, the total number of faculty reached to 98, out of which 70 possess doctorate degrees.

Chapter six 'Universities Building Economies' contains information about linkages developed by the University with local and foreign institutions/organizations like NESCAP, USAID, FAO, DICE-AFS and Care New Holland etc. In this Chapter, the collaborative activities and events like Mango Festivals, Cotton Seminar, Sino-Pak Conference on Cotton Breeding and Biotechnology, International Conference on Climate Smart Agriculture, International Conference on Smart Potassium Nutrition Management in Crops, Science for Farmers, Mango Supply Chain Improvement and Marketing, Agri. Expo-2019 are discussed in details. Initiatives undertaken such as Paradoxical Agriculture, Fish and Shrimp Farming, Farms in Arms Project, Field Training on Mango Small Tree System, Egypt, Training Workshop for One-Year Internship Program for Agri. Graduates, Reduced Freight Charges for Mango Export and funded short courses to impart skills development education are also discussed.

Strengthening of Physical Infrastructure plays a vital role in the development of any educational institute. 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 exhibits the information of regarding the developmental projects undertaken at the University and success stories in this regard. The 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. The next chapter provides details of ICT infrastructure and automation services including research equipment and computer labs, digital library, PERN services, video conferencing facilities, wireless LAN, biometric attendance system, learning management system, Microsoft Dynamics 365 implementation and online admission portal.



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. The 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 community awareness seminars of SIOF projects, symposium on smart nutrition in human health, launching of 2+2 HND degree program, sensitizing students on Kashmir issue, Every Person – Two Trees campaign, advocating rooftop farming to promote kitchen gardening, curriculum review and development for building disaster resilience in Pakistan, cooperative system of Model Village at Jahanian, awareness seminars on protection and registration for intellectual property rights, road safety, pink ribbon campaign, violence against women & girls, anti-drug awareness, EHSAAS Undergraduate Scholarship Program, utilizing the internet for benefit of students and society, healthy mother, healthy child, healthy society etc. Awareness campaign for farming community, organizing webinars and support to deprived local community were the special initiatives undertaken in the back drop of COVID-19 pandemic. University also took the lead for promoting the plant based diet via plant centric meal competitions and pulses exhibition. Science for farmers/farmer conventions after an international conference, field activities to combat whitefly, pink-bollworm and locust outbreak were also in full swing throughout this year. Course on social and religious tolerance was offered and cultural shows to express and promote diversity and pluralism were also held. Farm advisory and weather forecasting services are also being rendered by the Varsity.

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 2019-20 are elaborated in Chapter ten. Whereas, Chapter eleven 'Universities Building Leadership' 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. The Chapter twelve provides financial information about development and non-development budget and expenses made by the University, while Chapter thirteen gives a glimpse of the University excellence governance and meetings of various statutory bodies held during 2019-20.

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 2019-20, an amount of 34.861 million rupees was distributed by Financial Aid Office of MNS-UAM among 606 students of undergraduate and postgraduate programs for Financial Support. The chapter fifteen entitled 'External Linkages' specifies the MoUs/agreements signed between MNS-UAM and national/international institutions/organizations for promoting R&D activities through external collaboration. During the 2019-20, the University signed 4 MoUs with international institutions, while the 11 agreements were successfully executed with private and public-sector partners from Pakistan. The report concludes with Chapter sixteen that provides detail of medical / health facilities for employees and students of the University.

An aerial photograph of Multan, Pakistan, showing a large stadium on the left, a central green park area, and dense urban development. The top half of the image is overlaid with a semi-transparent image of a mango market stall, featuring several crates filled with ripe mangoes. A yellow and orange wavy graphic element is in the top left corner. A small white circular sticker on the mango market image reads "MANGO TEST 13-1".

MULTAN

Mango Capital

An introduction to Multan- “Madinatul Auliya”

“Ishq Yun he to nahi hai tere Multan ke sath
Shams ke shehr main kuch Shams-numa rehte hain”

Multan-the epitome of grandeur and cultural heritage, is rightly known as “the city of saints.” Ever since the influx of Sufism in the subcontinent, the tombs and mausoleums present in Multan city, have become its ne plus ultra. People associate the scorching summer heat of Multan with an anecdote of Shams Tabriz-a renowned Sufi saint, when he was abandoned from food supply, the sun became hotter and it roasted the raw fish for him. There are many other stories like these associated with other Sufis buried in this city such as Bahauddin Zikriya, Shah Rukne Alam, Shah Sabzwari, Shah Yosuf Gardezi, Sultan Ali Akbar and Hafiz Muhammad Jamal. The old city was fortified with 6 gates which served as thresholds to the city; Daulat gate, Lohari Gate, Haram Gate, Pak Gate, Bohar Gate and Delhi gate. Sadly, 3 of them were destroyed during the British rule. These gates are intricately yet beautifully designed and these unique designs take us back to the Bronze Age, where the history of this city was enrooted. A famous Persian verse has summarized the quintessential elements of Multan, Gard-dust, Garma-summers, Gada-beggars and Goristan- graveyards. With reference to this verse, the ancient city was built on a mound, so dust pervades the city. There are many ancient grave yards in there which have sentimental and spiritual connection with the people. The beggars refer to the disciples of the saints, whose tombs are served by their dedicated devotees. The kinship of dust and heat result in the most awaited result of the year-the Mangoes. The suburbs of Multan city is surrounded by lush and lavish mango fields. This king of fruits rules throughout the summers not only in Pakistan but its fame is recognized globally. Mango varieties like Chaunsa, Anwar Ratol, Langra and Dussehri, are exported internationally and many people consider it as Multan's trade mark. The old city is rich in historical artifacts like Multani mitti and the most famous Blue Pottery. The bazars and mazaars (tombs) of Multan stand straight even to this date narrating the history and adding to the grandeur of this city. The Sarafa Bazaar, Hussain Agahi and Chowk Bazaar are the oldest bazars that surround the famous and historical Jain Mandir. From pigeons to the wooden canopies of Dadda-potta (Grandfather and grandson), every shrine, every tomb and every nook and corner of this city is historical, magnanimous and pompous. Modern day Multan is enriched with infrastructure and industries like cotton, fertilizers and flour mills. Universities like MNS-university of agriculture are another mile stone towards the development of Multan. Trained research areas of this university will be covering an extra mile to refine the quality of agricultural products incorporating the modern techniques with old agricultural practices to enhance productivity and innovation. The modernization of this city is blended with the colors of history beautifully.



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MNS-University of Agriculture, Multan

MNS University of Agriculture, Multan (MNSUAM) is an HEC recognized higher education institution that started its academic activities in 2012. Since then, the University has made rapid progress in terms of expansion of its academic programs, students enrolment, physical infrastructure, campus network, and hiring of highly qualified and experienced academic and administrative staff. As a matter of fact, MNSUAM is 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, Govt. of the Punjab and other local and foreign experts, who have visited the varsity in recent time. The main campus of the University is located at Agriculture Complex, Old Shujabad Road, Multan, neighboring several different wings and formations of Punjab Agriculture Department located 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. Since all departments have a common agenda of facilitating the farmers, it has been decided that all offices and the University be combined under the ambit of "Agriculture Complex".

After successfully getting possession of the 180 acres of allotted land at Multan, the construction work of University buildings including Academic Block, Administration Block, Girls and Boys hostels, Faculty and Staff residences etc., has been completed. For carrying out agricultural research activities, the University has established 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. Besides bachelor's level degree programs in Agriculture, Agribusiness, Computer Science and Information Technology; the University also offers F.Sc. Pre-Agriculture, M.Sc. and Ph.D in various disciplines of Agricultural Sciences. The University has also started B.Sc. (Hons.) Human Nutrition and Dietetics, B.Sc. (Hons.) Poultry Science, B.Sc. (Hons.) Fisheries and Aquaculture, B.Sc. AgroIndustrial Engineering Technology. Moreover, six more MS/M.Sc./PhD programs were initiated this year.

The University has strengthened its teaching resources by hiring new qualified faculty through regular, TTS and IPFP appointments through 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 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 provide all necessary support to students with respect to their admission, selection of subjects,

registration, financial support etc., whereas the Career Development Center help them find suitable jobs after completion of their degrees. 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 Sino-Pak International Cotton Conference, International Conference on Climate Smart Agriculture, Pulses and Wheat for Food Security, Spring Festival, Kisan Mela, Fish Mela, Annual Cotton Seminar and Mango Festival. The University also got the privilege of becoming first ever institution of Pakistan to organize an International Mango exhibition in a foreign country i.e. Uzbekistan. 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, MNSUAM is actively playing its part to explore new horizons for economic betterment of Pakistan.

Besides academic and research based activities, the University has actively engaged its students in various co-curricular and sports activities. Intervarsity Badminton Championship (Male), Multan Sultan Cricket Tournament, HEC Intervarsity Volley Ball Tournament, HEC Intervarsity Badminton Championship (Female), Dramatic Day, Awareness Seminar on Peace with Art and Culture, Annual Aman Mushaira, Peace Theatre at MNSUAM and Cultural Night are some of the significant events organized by the University.

Community outreach has also been in focus at the University and various Students Societies are engaged in conducting activities like tree plantation to turn Multan green, training of students for active citizenship, special focus on social and religious tolerance, peace incubation in youth, youth-led change making process, and effective social action plans. There is a strong sense of openness at MNSUAM as the University actively interacts with the surrounding society through continuous dialogues and knowledge exchange. With learning based environment and new perspectives, the University aims to contribute to a better future.



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CHAPTER - 01 ACADEMIC ACTIVITIES



60%
ADMISSIONS
F.Sc
A-Level

B.Sc (Hons)
Human Nutrition & Dietetics

- ✓ Open Merit
- ✓ 4 years Degree Program
- ✓ Male and Female Equal Opportunity
- ✓ Semester System

ADMISSIONS OPEN

Shared program of
UAG University of Agriculture, Multan &
MUM Multan Medical University, Multan

Department of Food Science and Technology
UAG University of Agriculture, Multan
Contact # 351-6214174, 3511-5566670, 3511-8027708

FSc BSc
BSc BSc
BSc BS
BBA BS
MSc
PhD

Admissions Open 2019

UNIVERSITY OF AGRICULTURE, MULTAN

FSc Agriculture
BSc Agriculture
BSc Food and Nutrition
BSc Food Science
BSc Horticulture
BBA Business Administration
BS Business Administration
BS Computer Science
MSc Food Science
MSc Food Safety and Quality Management
PhD

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CHAPTER - 01 ACADEMIC ACTIVITIES



ACADEMIC ACTIVITIES

In order to ensure production of trained human resource and to meet a wide array of needs of scientists, experts and extension workers in rapidly growing agriculture sector, allied trades and industries, the University offers integrated teaching and research programs in agriculture and allied sciences at the main campus. Since its establishment, the University's contribution, in conformity with its concept, scope, and canvas of academic activities has magnified many-folds.

1.1. Faculties & Departments

- Faculty of Agriculture 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
 - Weed Science
 - Post-harvest
 - Department of Agronomy
 - Department of Food Science and Technology
 - Department of Horticulture
 - Department of Soil and Environmental Sciences
- 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
 - Department of Computer Science
 - Department of Continuing Education
- Faculty of Sciences
- Faculty of Food and Home Sciences
- Faculty of Veterinary and Animal Sciences
 - Department of Anatomy
 - Department of Pharmacology and Physiology
 - Department of Biochemistry and Biotechnology
 - Department of Pathobiology
 - Department of Clinical Sciences
 - Department of Poultry Sciences
 - Department of Animal Feed and Production
 - Department of Fisheries and Aquaculture

1.2. Degree Programs Offered

1.2.1. Intermediate

Program	Duration	Minimum Entrance Qualification
F.Sc. Pre-Agriculture	2 years	Matric in Science with Minimum 50% marks

1.2.2. Undergraduate

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

Name of Degree	Credit hours and duration	Academic qualification	Minimum requirement
B.Sc. (Hons.) Agriculture	141 credit hours for duration of 8 semesters	Intermediate science (Pre-Medical/ Pre-Engineering)/ Pre-Agriculture	Minimum 50% of total marks
BBA Agribusiness	132 credit hours for duration of 8 semesters	Intermediate science (Pre-Medical/ Pre-Engineering)	
BS Computer Science	133 credit hours for duration of 8 semesters	<ol style="list-style-type: none"> 1. F.Sc. (Pre-Engineering)/ICS/A-level students (with Mathematics)/ F. Sc. (Pre- Medical)/ A-level students (with Biology). 2. Minimum 50% marks in intermediate 3. Reserve two (02) seats for DAE (specialized in electrical, electronics and Telecommunication) students. <p>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.</p>	
BS Information Technology	135 credit hours for duration of 8 semesters	<ol style="list-style-type: none"> 1. F.Sc. (Pre-Engineering) / ICS / A-level students (with Mathematics) / F. Sc. (Pre- Medical)/ A-level students (with Biology). 2. Minimum 50% marks in intermediate. 3. Reserve two (02) seats for DAE (specialized in electrical, electronics and Telecommunication) students. <p>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.</p>	
B.Sc. Agro-Industrial Engineering Technology	138 credit hours for duration of 8 semesters	Intermediate Science F.Sc. (Pre -Engineering / Pre-Agriculture / Three years Diploma of Associate Engineering (DAE), A-Level	

Name of Degree	Credit hours and duration	Academic qualification	Minimum requirement
B.Sc. (Hons.) Poultry Science	135 credit hours for duration of 8 semesters	Intermediate science (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)	Minimum 50% of total marks
B.Sc. (Hons.) Fisheries and Aquaculture	136 credit hours for duration of 8 semesters	Intermediate science (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)	
BS Microbiology	135 credit hours for duration of 8 semesters	Intermediate science (Pre-medical)	
B.Sc. (Hons.) Animal Science	138 credit hours for duration of 8 semesters	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 F.Sc. Pre- Agriculture degree are eligible for admission subject to qualify the deficiency course in Biology: Essentials of Biology BIO-301, 3(2-1)	
B.Sc. (Hons.) Human Nutrition and Dietetics	B.Sc. (Hons.) Human Nutrition and Dietetics	Intermediate science (Pre-medical), A-Level	Minimum 60% of total marks

1.2.3. Postgraduate

Degree/ Discipline	Duration (Semester)		Admission Criteria	Eligibility
	Minimum	Maximum		
M.Sc. (Hons.) Agronomy, Agriculture Economics, Biotechnology, Entomology, Food Science and Technology, Horticulture, Plant Breeding and Genetics, Plant pathology, Soil Science	4	6	Screening test (50%), B.Sc. (Hons.) Agri. With major in relevant field of study from any HEC recognized university/DAIs (Deficiency course will be given where necessary) <u>For Agricultural Economics</u> 1. A minimum CGPA of 2.5 on a scale of 4.0 in field of B.Sc. (Hons.) Agricultural Economics, B.Sc. (Hons.) Agriculture and Resource Economics. OR A minimum CGPA of 2.50 on a scale of 4.0 in field of BBA Agribusiness.	(a)CGPA = 2.5/4.00 (b)At least 2 nd Division (c) Entry Test
M.Sc. (Hons.) Seed Science and Technology	4	6	Screening test (50%) with major in Agronomy, Entomology, Food Science and Technology, Horticulture, Plant Breeding and Genetics, Soil Science, Biotechnology, Plant Pathology from HEC recognized university / DAIs. (Deficiency course will be given where necessary)	(a)CGPA = 2.5/4.00 (b)At least 2 nd Division (c)Entry test
M.Sc. (Hons.) Climate change			Screening test (50%) Sixteen years of education in following disciplines: Agricultural Sciences (All majors)/ B.Sc. (Hons.) Soil and Environmental sciences/ Agri. Engineering/Environmental Engineering/Environmental Sciences/Agri. Economics/ Food science & Technology/Dairy Technology/Dairy Science and Technology/DVM /Animal Husbandry/Poultry Sciences/Fisheries/Agribusiness from HEC recognized university/ DAIs. (Deficiency course may be given to students on the recommendation of supervisory committee where necessary).	(a)CGPA = 2.5/4.00 (b)At least 2 nd Division (45% Marks) (c)Entry test
MS Computer Science			1. BS (CS) 4 year degree program (Minimum 130 credit hour), or Computer Science conversion course 2 year degree program referred to as "MCS" or MSc Computer science). 2. Candidates having Computer Engineering/ Bachelor of Science in Software Engineering/ Bachelor of Science in Information Technology/ Bachelor of Engineering (Computer and Information System)/ B.Sc. Computer System Engineering (16 year education) and MIT from a recognized institution are also eligible but have to qualify deficiency course(s) before entering in the MSCS. Deficiency courses will be decided by departmental committee	(a)CGPA = 2.5/4.00 (b) First division where GPA system not implemented. (c) Entry Test.

Degree/ Discipline	Duration (Semester)		Admission Criteria	Eligibility
	Minimum	Maximum		
MS Management (Specialization in Agribusiness) Note: Program shall be offered Subject to NOC from HEC.	4	6	a. BBA (Agribusiness)/B.Sc. (Hons.) Agri. (Agriculture Economics/Agriculture and Resource Economics, Marketing and Agribusiness Major) (four years degree programs) b. MBA (Agri. Business) (two years degree program) c. M.Sc. (Economics) (with deficiency courses of one semester as decided by BoS) B.Sc. (Hons.) Agri. (all other majors)/ B.Sc. (Hons.) A.H./DVM/B.Sc. (Hons.) Food Sciences/ B.Sc. (Hons.) Agri. Engineering/B.Sc. (Hons.) (with deficiency courses of one semester to be decided by Board of Studies of the Department.	(a) CGPA = 2.5/4.00 (b) At least 2 nd Division (c) Entry Test
PhD (Agronomy, Biotechnology, Entomology, Food Science and Technology, Horticulture, Plant Breeding and Genetics, Plant Pathology, Seed Science and Technology, Soil Science)	4	10	Subject Based Screening Test (70%), M.Sc. (Hons.)/M.Phil. in relevant subject from HEC DIAs, Subject based entry test, Deficiency courses	(a) CGPA not less than 3.00/4.00 (b) At least 1 st Division

1.3. Directorate of Graduate Studies

1.3.1. Mission

The mission of Directorate of Graduate Studies is to streamline 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.A., M.Sc., M.Phil./MS/M.Sc. (Hons.) and Ph.D. students and arranging their approval by GSRB/BASR.

- Scrutiny of the thesis of postgraduate students to ensure their proper format as laid down by GSRB.
- Preparation of agenda and conduct of meetings of GSRB/BASR.
- Execution of the policies and decisions of GSRB/ 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 Executive Committee of the University. The GRC is an interdisciplinary program 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:

- Postgraduate research skills development
- Scientific/community seminars
- Leadership and interpersonal skills development
- 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 as 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 on every Wednesday at 9:40 a.m. in seminar Hall of the University.
- Membership and participation of all PhD scholars at MNSUAM is compulsory, while all interested master or undergraduate students can participate voluntarily.
- All faculty members and scientists from South Punjab Agriculture Forum can contribute and participate voluntarily.

1.4.3. Activities of Graduate Resource Center

Activity	Title and Resource Person	Date
Seminar	Green Metric University Ranking Dr. Muqarrab Ali, Assistant Professor, Department of Agronomy, MNSUAM	3.07.2019
Synopsis defense of Ph.D scholars	Development of Chemosterilants Bait: An Ecofriendly Management Tool of <i>Bactrocera zonata</i> (Diptera: Tephritidae) M. Hasnain, PhD scholar, Institute of Plant Protection, MNSUAM Entomotoxic Potential of Nanoparticles for Ecofriendly Management of Dusky Bug, <i>Oxycranus</i> spp. (Hemiptera: Lygaeidae) M. Javaid, Ph.D Scholar, Institute of Plant Protection, MNSUAM	10.07.2019
Seminar	Synopsis Writing Prof. Dr. Hammad Nadeem, Director, QEC, MNSUAM	7.08.2019

Activity	Title and Resource Person	Date
Seminar	Carbon Fertilizers for Reducing Greenhouse Gas Emission and Improving Food Security Dr. Ghulam Haider, Assistant Professor, Department of Agronomy, MNSUAM Effect of Biochar on Nutrient and Herbicides Use Efficiency Muhammad Muavia Ghauri and Ms. Zarmeena Khan Department of Agronomy, MNSUAM	18.9.2019
Seminar	Summer Hiking and Trekking Course Ex-Scouts of Agriversity Scouts Group, University of Agriculture Faisalabad	2.10.2019
Seminar	Commercial Application of Biofertilizers Dr. Farrukh Hasan, Entrepreneur	10.10.2019
Seminar	Awareness Seminar about "DENGUE" Dr. Unser Naeem Ullah, Assistant Professor, Institute of Plant Protection, MNSUAM	16.10.2019
Seminar	Role & Functions of Federal Tax Ombudsman in Resolving Taxpayers' Complaints Mr. Saleem Raza Asif Advisor Incharge at Federal Tax Ombudsman Secretariat, Regional Office Multan	23.10.2019
Seminar	Characterization of Techniques Helpful for Peer Review Publications Dr. Mohsin Nawaz is Assistant Professor at the Department of Agriculture Engineering, MNSUAM	06.11.2019
Workshop	Hands on Basic Statistical Analysis with Statistix 8.1 Arslan Khalid, Ph.D. Scholar, Institute of Plant Breeding and Biotechnology	20.11.2019
Seminar	High Mountain Farming and Social-Ecological Change in the Karakoram of Northern Pakistan Dr. Michael Spies, Eberswalde University for Sustainable Development in Eberswalde, Germany	04.12.2019
Seminar	Mega Collaborative Research Projects Opportunities Under National Innovation Basket Prof. Dr. Zulfiqar Ali, Director ORIC, MNSUAM	01.01.2020
Seminar	Biplot Analysis and Interpretation Prof. Dr. Zulfiqar Ali, Director ORIC, MNSUAM	08.01.2020
Seminar	Presentation Skills And Audience Etiquette Dr. Ummara Waheed, Assistant Professor, Institute of Plant Breeding and Biotechnology, MNSUAM	15.01.2020
Seminar	Data Analyses using Microsoft Excel Dr. Muhammad Imran, Assistant Professor, Department of Soil and Environmental Sciences, MNSUAM	22.01.2020
Seminar	Endnote Usage for Reference Management and Citation Dr. Muhammad Mahmood Ahmed, Assistant Professor, Institute of Plant Breeding and Biotechnology, MNSUAM	12.02.2020
Seminar	Motivational Talk for Special Persons Mr. Sajid Jameel, LEO Foundation, Multan	19.02.2020
Seminar	Scientific Research Methodology Prof. Dr. Muhammad Hammad Nadeem Tahir, Director QEC and Director of Institute of Plant Breeding and Biotechnology, MNSUAM	26.02.2020

Activity	Title and Resource Person	Date
Seminar	Introduction to R-software and Regression Analysis by R-software Dr. Sami Ullah, Assistant Professor, Department of Agri-Business and Applied Economics, MNSUAM	04.03.2020
Seminar	How to Use University Complaint Box / HEC Policy Guidelines Against Sexual Harassment and Security Issues at Universities Dr. Ayesha Hakim, Assistant Professor, Department of Computer Science, MNSUAM	11.03.2020
Due to pandemic situation, GRC sessions were shifted to online mode with effect from April 22nd 2020		
Seminar	How to Present a Poster Presentation Dr. Shoaib Ur Rehman, Assistant Professor, Institute of Plant Breeding and Biotechnology	22.04.2020
Seminar	Indigenous Hydroponic Vegetable Cultivation Technology in Pakistan Dr. H. Nazar Faried, Assistant Professor, Department of Horticulture, MNSUAM	29.04.2020
Seminar	Concept about Anxiety and How to Manage Anxiety Stress During COVID-19 Ms. Misbah Saghir, Psychologist, MNSUAM	05.05.2020
Seminar	How to Write Effective Blogs Dr. Ayesha Hakim, Assistant Professor, Department of Computer Science, MNSUAM	13.05.2020
Seminar	Trouble Shooting in Real-Time qPCR Experiment Hira Maryam, Ph.D. Scholar, Institute of Plant Breeding and Biotechnology	20.05.2020
Seminar	LAB Biosafety and Workforce Behaviour Dr. Sarmad Farogh Arshad, Assistant Professor, Institute of Plant Breeding and Biotechnology	10.06.2020
Seminar	Potential of PGPR for food security in climate change scenario Dr. Muhammad Baqir Hussain, Department of Soil and Environmental Sciences, MNSUAM	17.06.2020
Seminar	Dealing with the Journal (Submission and Communication, Response to Peer Review Comments, Fate of a Rejected Paper, Proof Reading etc.) Dr. Amar Matloob, Assistant Professor, Department of Agronomy, MNSUAM	024.06.2020

1.5. Academic Calender (2019-20)

Sr. No.	Particulars/ Activity	Date
A	Enrollment Winter Semester 2019	September 24 to October 04, 2019
1.	Commencement of Classes	07-10-2019
2.	Mid-Term Examination	02-12-2019
3.	Final Term Examination	03-02-2020
4.	Result Declaration	17-02-2020
Total Duration		19 Weeks

B	Enrollment Spring Semester 2020	Feb. 18-25, 2020
1.	Commencement of Classes	26-02-2020
2.	Mid-Term Examination	23-04-2020
3.	Final Term Examination	25-06-2020
4.	Result Declaration	13-07-2020
Total Duration		19 Weeks

C	Enrollment Summer Semester 2020	July 14-17, 2020
1.	Commencement of Classes	20-07-2020
2.	Mid-Term Examination	18-08-2020
3.	Final Term Examination	15-09-2020
4.	Result Declaration	29-09-2020
Total Duration		10 Weeks

1.6. Academic Achievements

- All postgraduate programs have attained NOC from HEC
- All undergraduate programs accredited by National Agriculture Education Accreditation Council (NAEAC)
- Constitution of Online Academic Council and certification of teachers to impart online education
- Initiation of online classes through Learning Management System like Moodle, Google Classroom and video conferencing tools like Zoom and Google Meet for all courses of Spring 2020 in accordance with the "Online Preparedness Guidelines" of HEC and University's SoPs.
- Department of Agronomy will offer a new undergraduate elective course "Spate irrigated Agriculture" from upcoming winter semester 2020-21.
- Department of Food Science and Technology has launched a new degree program B.Sc. (Hons.) Human Nutrition and Dietetics. This is a four year degree program jointly offered by MNSUAM and NMU, Multan and is designed to produce the experts of nutrition and dietetics.
- Department of Agribusiness and Applied Economics played a major role in conceptualization and approval of Centre for Agricultural Sustainability in South Punjab (CAS-SP).
- Department of Agribusiness and Applied Economics has got approval for the initiation of new degree program B.Sc. (Hons.) Agricultural and Resource Economics (4-year degree, direct admission) by the Board of Studies.
- Initiation of Farm Management as major subject of B.Sc. (Hons.) Agriculture after approval of scheme of studies from Academic Council and Syndicate.
- Successfully completion of the zero visits of NAEAC for B.Sc. (Hons.) Agriculture, major Agricultural and Resource Economics, Biotechnology, Plant Pathology, and BBA Agribusiness

degree programs.

- Another new postgraduate degree program of M.Sc. (Hons.) Postharvest Management Technology has been approved by the syndicate of the University under the umbrella of Institute of Plant Protection, and application has been sent to HEC for NOC to start this degree program.
- Review Meetings of NAEAC regarding undergraduate programs of Agronomy, Entomology, Plant Breeding and Genetics, Entomology, and Soil science.
- Department of Computer Science has successfully launched an MS Computer Science program this year.
- Department of Computer Science has successfully accredited BS Computer Science programs from the National Computing Education Accreditation Council (NCEAC) & BS Information Technology program application has been submitted for the accreditation.
- New undergraduate degree programs, i.e. B.Sc. (Hons.) Animal Sciences, and BS Microbiology being offered by Faculty of Veterinary and Animal Sciences have been approved by Academic Council in its meeting held on 20 June 2020. Moreover, three new postgraduate (MS) programmes (MS Poultry Sciences, MS Fisheries, and Master in Public Health) have been approved by Academic Council and will be initiated after obtaining NOC from HEC.
- Successfully revision of scheme of studies for various programs from the Board of Study, Faculty Board, and Academic Council.
- The numbers of faculty members has been increased to 101 (71 PhD and 30 Non PhD) and most of which are HEC approved supervisors.

1.7. Foreign Academic Linkages

1.7.1. Faculty of Agriculture and Environmental Sciences

- Department of Agronomy has organized two international conferences in collaboration with Hochschule Geisenheim University, Germany under the framework of DAAD funded project and FAO to mitigate climate change for food security. The title of these conferences was "Climate Smart Agriculture: the Way of Farming for 21st Century" and "Climate Smart Agriculture: the Way towards Sustainability", respectively. The second conference in 2019, was organized with active involvement of Food and Agriculture Organization in addition to the existing partners. Moreover, Department is also actively contribution towards ACIAR funded project (CIM/2015/041) "Increasing productivity and profitability of pulse production in cereal based cropping system in Pakistan".
- In the back drop of climate change, Department of Agronomy, MNS-University of Agriculture with technical support of Food and Agriculture Organization of United Nations AO intends to offer a Diploma related to Climate Smart Agriculture. The idea is to equip the farmers with practical knowledge and skills to cope with the challenges of agricultural production under dwindling natural resource base in the backdrop of climate change. Another objective is to connect farmers with our agricultural experts so that they (farmers) can earn more while they learn more.
- The Memorandum of Understanding was signed between the Department of Agronomy, MNS-UAM and University of Bonn, Germany for research collaboration and faculty exchange program.
- Department of Horticulture, MNSUAM has established institutional linkages with Huazhong Agricultural University, Wuhan, China, Industrial Crop Research Institute (ICRI), Yunnan Academy of Agri. Sci., China, HortResearch South Africa, Mango Research Institute, Multan, University of

Agriculture Faisalabad, Mango Research Station, Shujabad, Bahauddin Zakariya University, Multan, Punjab Mango Research and Development Board, Punjab Postharvest Research and Development Board, Horticulture Research Station, Bahawalpur, and Roomi Foods (Pvt.) Ltd.

- Department of Plant Pathology signed MOU with College of Agriculture and Biotechnology, Zhejiang University, China to carryout research activities related to Cotton leaf curl virus and whitefly.
- Department of Entomology signed MOUs with School of Environmental Science and Engineering, Shandong University China, Okinawa Institute of Science and Technology School Corporation Japan, and College of Agriculture and Biotechnology, Zhejiang University, China
- Department of Soil and Environmental Sciences has established foreign linkages with Shandong University China, and University of Tasmania, Australia.
- The foreign academic linkages of Institute of Plant Breeding and Biotechnology include University of California Davis, USA, National Agricultural Technology Institute Cordoba, Argentina, College of Agriculture and Biotechnology Zhejiang University Hangzhou, China, Biotechnology Research Institute Chinese Sciences of Agricultural Science Beijing, China, Huazhong Agricultural University Wuhan, China, Ghazi University Ankara, Turkey, and Tonglu County local/district government, Zhenjiang China.

1.7.2. Faculty of Social Sciences and Humanities

- Department of Agribusiness and Applied Economics is key partner of Punjab team in ACIAR project "Improving groundwater management to enhance agriculture and farming livelihoods in Pakistan".
- Academic and research linkages with CSU and UoC for preparation and submission of ACIAR funded project "Living with Salinity".
- Academic and research linkages with Uni. of Adelaide for writing a book chapter on "Water markets".
- LUMS and Department of Agribusiness and Applied Economics, MNSUAM have submitted a GCF project in HEC.

1.7.3. Faculty of Agricultural, Biosystems Engineering and Technology

- The MoC between Shihezi University, China and MNSUAM.
- The MoU between School of Vehicle and Mobility, Tsinghua University, Beijing, P.R. China and Department of Agricultural Engineering, MNSUAM.
- State Grid Hu Nan Electric Power Limited Company Research Institute, Changsha, China (HEC-NRPU joint proposal).
- School of Resource, Environment and Safety Engineering, Hunan University of Science and Technology, Beijing, China (PSF-NSFC joint proposal).
- Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China (PSF-NSFC joint proposal).

1.8. Institutional Linkages

1. Ayub Agricultural Research Institute, Faisalabad
2. Mango Research Institute, Multan
3. Central Cotton research Institute, Multan
4. Cotton Research Institute, Multan

5. Pesticide Quality Control Lab, Multan
6. Soil and Water Testing Laboratory, Multan
7. Agricultural Mechanization Research Institute, Multan
8. Bahauddin Zakariya university, Multan
9. Khawaja Fareed University of Engineering and Information Technology
10. Women University, Multan
11. Nishtar Medical University, Multan
12. University of Agriculture, Faisalabad
13. National University of Science and Technology, Islamabad
14. University of Engineering and Technology (JET) Lahore
15. COMSATS University, Islamabad
16. U.S.-Pakistan Centre for Advanced Studies in Energy
17. Food and Agriculture Organization of the United States
18. Pakistan Meteorology Department, Islamabad
19. Nestle, Pakistan
20. Engro Fertilizers Ltd. Pakistan
21. Fatima Fertilizers Company Ltd. Pakistan
22. Alternative Technologies, 389- B Faisal Town Lahore
23. Best Technologies, Multan
24. Doaba Foundation
25. PMAS-Arid Agriculture University, Rawalpindi

1.9. Honors and Awards

- Prof. Dr. Ishtiaq Ahmad Rajwana, Pro-Vice Chancellor, MNS-UAM was appointed as Chairman, National Agriculture Education Accreditation Council (NAEAC) by Chairman, HEC for a period of four years.
- Mr. Muhammad Arif, Lecturer, Soil and Environmental Sciences, Mr. Furqan Ahmad, Mr. Babar Farid, Lecturers, Institute of Plant Breeding and Biotechnology won PhD scholarship of Chinese Academy of Sciences.
- Alexander von-Humboldt Foundation awarded Von-Humboldt Postdoctoral Fellowship to Dr. Fahim Nawaz at University of Hohenehim, Stuttgart, Germany
- Federal Ministry of Education and Research, Germany awarded Postdoctoral Fellowship to Dr. Muhammad Habib ur Rehamn at The Institute of Crop Science and Resource Conservation (INRES), Crop Science Group, University of Bonn, Germany.
- Dr. Mirza Abid Mehmood completed Doctoral Degree from Huazhong Agricultural, Wuhan, Hubei, China.

1.10. Good Practices Implemented

- Class monitoring
- Curriculum revision regarding course objectives, contents and learning resources
- Outcome based learning
- Online/Hybrid courses on Google Class Room and Moodle
- 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
- Use of class management software
- Engagement of undergraduate students in research activities by attaching them with postgraduate students
- Constitution of Research and Vigilance Committee
- Started Alumni Follow up
- Career counseling sessions for students
- International seminars/conferences/workshops
- Hands-on Training of faculty and students
- Compulsory internship of B.Sc. (Hons.) 8th Semester students at private sector companies and farms



2019-20 ANNUAL REPORT

CHAPTER - 02 RESEARCH AND DEVELOPMENT



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RESEARCH AND DEVELOPMENT

The Office of Research, Innovation and Commercialization (ORIC) has been objectively established to facilitate students and faculty to develop, improve and manage research and innovations at MNS University of Agriculture, Multan (MNS-UAM) since 2015. This Office also helps in prioritizing research and innovations according to educational, industrial, social and economic needs as well as University's vision. It also facilitates in intellectual property (IP) protection, implementation of operational and quality standards, and in the translation of research into commercialization through strong industry-academia linkages and entrepreneurship.

During 2019-20, 23 projects worth 61.849 million rupees were completed and 5 new projects were initiated (worth 227.824 million rupees) for the proliferation of scientific culture at the campus with technological methods and innovative research. The ORIC believes in reciprocal understanding, which is indispensable for coordination and research between academia and industry. During 2019-20, 15 (National/International) new MoUs have been signed and ORIC will take the lead for their implementation with the said partners. The ORIC organizes training for capacity building of the faculty and encourages research-based new innovative ideas and funds these ideas through competitive grants. The Office keeps the faculty updated about new national and international funding opportunities and assists them in the preparation and submission of research projects. Moreover, ORIC facilitates the principal investigators in the smooth running of their projects and serves as an effective liaison between the principal investigator and the funding agency.

During the year 2019-20, ORIC has facilitated the faculty for the submission of 51 different research projects to various national and international funding agencies, including HEC, PARB, PSF, CNSF, MoST, etc. Moreover, 05 research projects were awarded to MNS-UAM during the reported period. At the same time, ORIC has also facilitated the faculty in the successful completion of 23 research and 02 skill development projects. The execution of 31 on-going research projects is underway. Due to the provision of ideal research and working environment facilitation by ORIC, the faculty was able to publish 108 research articles in well reputed national and international peer-reviewed journals and 19 book chapters.

Similarly, ORIC has organized 05 national and international conferences, 09 competitions/expos/festivals, notable were Mango Festivals, DICE-AFS 2019 and Pulses Value Addition Exhibition. 28 national and international seminars/Webinars and 28 trainings/workshops to train the faculty as well as students with 42 other outreach, recreational and capacity building activities are in addition. Likewise, ORIC has facilitated the achievement of 04 travel grants to present research achievements at international conferences in different countries across the globe for the enhancement of learning. Moreover, 07 international linkages and 20 national linkages for research and development have been made.

2.1. Research Projects Completed

The following research projects have been completed in MNS-UAM

Sr. No.	Project	Principal Investigator	Amount (Million PKR)	Duration (Months)	Funding Agency
1.	Vegetable nursery production and supply system for kitchen gardening	Prof. Dr. Asif Ali	3.001	24	AIP
2.	Sino-Pak Joint Laboratory for Cotton Biotechnology	Prof. Dr. Asif Ali	16.558	12	BRI-CAAS

Sr. No.	Project	Principal Investigator	Amount (Million PKR)	Duration (Months)	Funding Agency
3.	Farms in Arms Project	Prof. Dr. Irfan A. Baig	10.000	06	Industry (PCPA, Engro etc.)
4.	Ensuring food security through fish farming; An alternate policy option	Dr. Nasir Nadeem	0.937	12	NRPU
5.	Subsistence farmer's production diversity and market access: Impact on rural woman and children's dietary diversity	Dr. Umar Ijaz Ahmad	0.868	12	NRPU
6.	Introduction and promotion of one-pass conservation tillage machinery for cotton wheat cropping system	Dr. Alamgir Akhtar Khan	12.290	36	TDF
7.	Automation solution for controlled surface Irrigation System	Dr. M. Abid	0.400	09	SRGP
8.	Quantitative quality assessment of Labeo rohita from selected areas of Multan	Dr. Naheed Bano	0.470	09	SRGP
9.	Prevalence and associated risk factors of avian coccidiosis in ostrich, quail and pigeons of district Multan	Dr. Kashif Hussain	0.480	08	SRGP
10	Pilot-scale constructed wetland for domestic and industrial wastewater treatment and its reuse for agriculture	Dr. M Imran/Dr. Shah Rukh	0.490	09	SRGP-HEC
11	Library Support program	Prof. Dr. Asif Ali	1.000	08	HEC
12.	Social and Religious Tolerance	Dr. Irfan Baig	0.900	07	SAHE
13.	Ug1 Class formation System	Dr. Aamir Hussain	0	02	Ignite
14.	Heart Ware	Dr. Aamir Hussain	0.020	07	Ignite
15.	An automatic content based Facial image recognition using CNN	Abdul Razzaq (Supervisor)	0.067	07	Ignite
16.	Virtual Tour of MNS-UAM	Abdul Razzaq (Supervisor)	0.070	07	Ignite
17.	Blind people Examination system using leap sensor	Abdul Razzaq Supervisor)	0.070	02	Ignite
18.	Smart Surface Irrigation System	Dr. Aamir Hussain	0.080	08	Ignite
19.	Smart Car Automation System	Dr. Aamir Hussain	0.080	12	Ignite
20.	Smart Health Care System	Dr. Ayesha Hakim	0.628	12	Ignite
21.	Sensor Based Climate Automation in Agriculture	Dr. Ayesha Hakim	0.700	12	Ignite
22.	Automated Identification of Mosquitoes using Acoustic Signals	Dr. Ayesha Hakim	0.750	12	Ignite
23.	Molecular Characterization of Eimeria species prevalent in crows, peacock and pigeons of district Multan	Dr. Asghar Abbas	0.850		SRGP

The following skill development projects have been completed in MNS UAM

Sr. No.	Project	Principal Investigator	Amount (Million PKR)
1.	Women Training on Livestock Management (LPP)	Prof. Dr. Shafqat Saeed	2.400
2.	Skill for Jobs 2019	Prof. Dr. Shafqat Saeed	9.590
3.	Skill for Jobs 2020	Prof. Dr. Shafqat Saeed	2.013
4.	Prime Minister Kamyab Jawan Kamyab Pakistan	Prof. Dr. Shafqat Saeed	3.750

2.2. Newly Launched Projects

The following research projects were launched during the reported year 2019-20:

Sr. No.	Project	Principal Investigator	Amount (Million PKR)	Duration (Months)	Funding Agency
1.	Enhancing productivity in 10 low producing tehsils through deployment of agri scientists at farm level	Prof. Dr. Asif Ali	200.000	24	ADP, Govt of Punjab
2.	Sino-Pak Joint Laboratory for Cotton Biotechnology	Prof. Dr. Asif Ali	16.558	12	BRI, CAAS
3.	Exploring the nutritional and functional properties of mango seed oil in bakery products	Dr. M. Shahbaz	2.300	36	NRPU
4.	Optimizing production practices and fruit quality of pomegranate in Southern Punjab	Prof. Dr. Ishtiaq A. Rajwana	6.664	35	NRPU
5.	Local development of Micro Plot Seeders for improving efficiency of agricultural experiments	Dr. Alamgir A Khan/ Dr. Umair Sultan	2.302	24	EFS

2.3. On-Going Research Projects

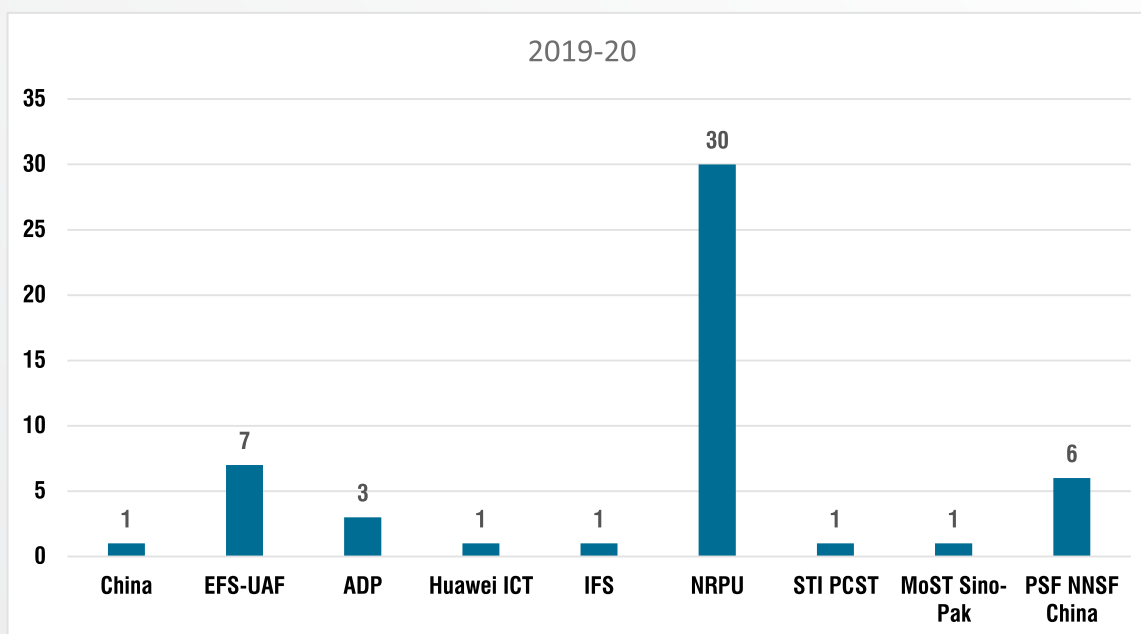
The below-listed projects are on-going in MNS-UAM:

Sr. No.	Project	Principal Investigator	Total Amount PKR	Duration (Months)	Funding Agency
1.	Hybrid Wheat for Food Security	Prof. Dr. Asif Ali	12.600	60	DFID
2.	Enhancing productivity in 10 low producing tehsils through deployment of agri. scientists at farm level	Prof. Dr. Asif Ali	200.000	24	ADP
3.	Increasing productivity and profitability of pulse production in cereal based cropping system in Pakistan	Prof. Dr. Zulfiqar Ali/ Dr. Amar Matloob	42.000	60	ACIAR
4.	Improving yield, drought and salinity tolerance in wheat through GA-sensitive dwarfing gene system	Prof. Dr. Zulfiqar Ali	47.189	60	PARB

Sr. No.	Project	Principal Investigator	Total Amount PKR	Duration (Months)	Funding Agency
5.	Commissioned research for the development of cotton seed	Prof. Dr. Zulfiqar Ali	90.935	60	GOP
6.	Breeding soybean for adaptation and high yield in current scenario of climate change in Punjab	Prof. Dr. Hammad Nadeem	34.460	60	PARB
7.	Climate resilient and bio fortified maize germplasm evaluation and dissemination by MNSUA Maize program	Babar Farid/Ali Sher	0.338	12	CIMMYT
8.	A comprehensive integrated scientific approach for the development of sustainable management strategies of Pink Bollworm (<i>Pectinophora gossypiella</i>)	Prof. Dr. Shafqat Saeed	3.919	36	PARB
9.	Fruit and shoot borers of mango, <i>Mangifera indica</i> L.; A potential quarantine pest and threat to mango industry	Prof. Dr. Shafqat Saeed	3.435	36	NRPU
10.	Management of whitefly by integrated strategies and development of resistant cotton germplasm through genetic engineering	Prof. Dr. Shafqat Saeed	4.803	36	PARB
11.	Smart monitoring and control of the dengue vector	Prof. Dr. Shafqat Saeed	3.105	06	Innovate UK
12.	Development of production and formulation technologies for Eco-Friendly entomopathogenic fungus for managing fruit fly	Dr. Mirza Abdul Qayyum	4.950	36	NRPU
13.	Current status, genetic variability and molecular characterization of major viruses infecting onion and garlic crops in Punjab, Pakistan	Prof. Dr. Muhammad Ashfaq	1.800	30	IFS
14.	Genetic variability and molecular characterization of RNA viruses infecting cucurbits in Punjab, Pakistan	Prof. Dr. Muhammad Ashfaq	8.870	36	NRPU
15.	Water conservation and improvement in soil fertility through tillage and strip cropping of legumes in spate irrigated area of Pakistan	Dr. Khuram Mubeen	1.900	36	NRPU
16.	Investigations on crop nutrition, commercial potential and market constraints in Guar Bean industry	Dr. Muqarrab Ali	1.008	36	NRPU

Sr. No.	Project	Principal Investigator	Total Amount PKR	Duration (Months)	Funding Agency
17.	Carbon fertilizers for reducing greenhouse gas emissions and improving food security	Dr. Ghulam Haider/ Dr Abdul Ghaffar	12.596	36	DAAD
18.	Exploring the nutritional and functional properties of mango seed oil in bakery products	Dr. M. Shahbaz	2.300	36	NRPU
19.	Development of nutritious energy dense emergency relief food products for disastrous areas of Pakistan	Dr. Ambreen Naz	2.510	24	NRPU
20.	Development of Innovative Process and Technology for the Preparation of Jujube (<i>Ziziphus jujube</i>)	Dr. Ambreen Naz	9.400	36	PARB
21.	Optimizing production practices and fruit quality of pomegranate in Southern Punjab	Prof. Dr. Ishtiaq A. Rajwana	6.664	35	NRPU
22.	Various supply chain issues and commercial potential of some minor fruits	Prof. Dr. Ishtiaq A. Rajwana	7.800	36	NRPU
23.	Collection and characterization of Phalsa (<i>Grewia Subinaequalis</i> D. C.) landraces having high sugar and carotene contents	Dr. Kashif Razzaq	2.980	36	ALP
24.	Vegetable grafting against soil borne diseases, salinity and drought	Dr. Hafiz Nazar Faried	3.480	36	NRPU
25.	Improving chickpea production on sandy soils by using biochar produced from cotton sticks at different temperatures	Dr. Tanveer Ul Haq	2.620	36	NRPU
26.	Development of endophytic bacteria-mycorrhizal fungi consortium to mitigate the drought stress in chickpea	Mr. Usman Jamshaid	3.270	36	NRPU
27.	Improving Groundwater Management to Enhance Agriculture and Farming Livelihoods in Pakistan	Prof. Dr. Irfan Baig	4.400	48	ACIAR
28.	Local development of Micro Plot Seeders for improving efficiency of agricultural experiments	Dr. Alamgir Akhtar Khan/ Dr Umair Sultan	2.302	24	EFS
29.	Development and Indigenization of Floppy Sprinkler system for future irrigation	Dr. Sarfraz Hashim	6.658	24	TDF
30.	Molecular characterization of gut microbiota between ischemic heart disease patients and healthy volunteers in Pakistan	Dr. Hafiz Muhammad Ishaq	0.480	08 (Extended)	SRGP
31.	Improving fruit quality and reducing postharvest losses in strawberry fruit	Prof. Dr. Ishtiaq A. Rajwana	7.500	36	PARB

2.4. Submitted Projects to Various Funding Agencies



2.5. Publications

The following research papers were published during 2019-20.

Sr. No.	Paper	Authors	Year	Journal	Volume	Pages
1.	Resistance status of <i>Helicoverpa armigera</i> against Bt cotton in Pakistan	Ahmad S, HMN Cheema, AA Khan, RSA Khan and JN Ahmad	2019	Transgenic Res.	22	199-212
2.	Superfruit in the niche-underutilized sea buckthorn in Gilgit-Baltistan, Pakistan.	Nawaz MA, AA Khan, U. Khalid, A Buerkert and M Wiehle	2019	Sustainability	11	5840
3.	Evaluation of citrus rootstocks against drought, heat and combined stress based on growth and photosynthetic pigments	Shafqat W, MJ Jaskani, R Maqbool, AS Khan and Z. Ali	2019	Intl. J. Agric. Biol.	22	1001-1009
4.	Antidiabetic potential of persimmon pulp powder on alloxan induced diabetic rabbits	Choudhry F, U Farooq, K Akram and A Shafi	2019	Int. J. Food Allied Sci.	4	1-6
5.	Comparative biology of <i>Trilocho varians</i> (Walker, 1855) (Lepidoptera: Bombycidae), a new pest of ficus plant in Punjab, Pakistan	Ramzan M, U Naeem-Ullah, M Javaid, M Nadeem, N Iqbal and S Saeed	2019	Pak. J. Sci.	71	220-225
6.	The response of glyphosate-resistant and susceptible biotypes of annual sowthistle (<i>Sonchus oleraceus</i>) to mungbean (<i>Vigna radiata</i>) density	Mobli A, A Matloob and BS Chauhan	2019	Weed Sci.	67	642-648

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7.	In vitro anticoccidial activity of <i>Trachyspermum ammi</i> (Ajwain) extract on oocysts of Eimeria species of Chicken	Abbas A, R Zahid abbas, M Asif Raza ,MK Khan, K Saleemi and Zuhab Saeed	2019	Adv. Life Sci.	7	44-46
8.	Potential of botanical driven essential oils against Haemonchus contortus in small ruminants.	Fayaz MR, RZ Abbas, A Abbas, MK Khan, MA Raza, M Israr, JA Khan, MS Mahmood, MK Saleemi, T Rehman, MA Zaman and Z. Sindhu	2019	Bol. Latinoam. Caribe Plantas Med. Aromát.	18	547-557
9.	Nutritional status of different biosolids and their impact on various growth parameters of wheat	Dad K, A Wahid, AA Khan, A Anwar, M Ali, N Sarwar, S Ali, A Ahmad, M Ahmad, KA Khan, MJ Ansari, AB Gulshan and AA Mohammed	2019	Saudi J. Biol. Sci.	26	1423-1428
10.	Text sentiment analysis using frequency-based vigorous features	Razzaq A, M Asim, Z Ali, S Qadri, I Mumtaz, DM Khan and Q Niaz	2019	China Commu.	16	145-153
11.	Machine vision approach for classification of citrus leaves using fused features	Qadri S, SF Qadri, M Husnain, MMS Missen, DM Khan, MU Rehman, A Razzaq and S Ullah	2019	Int. J. Food Prop.	70	2071-2088
12.	Development and quality evaluation of strawberry based value added product	Qasim Z, A Naz, S Ahmad and K Razzaq	2019	Agri. Sci. J.	1	44030
13.	Effect of irrigation intervals on growth of annual flowers under climatic conditions of South Punjab, Pakistan	Akhtar G, IA Rajwana, N Farid, M Younas, Y Sajjad, M. Amin, K Razzaq and S Ullah	2019	Pure Appl. Biol.	8	2169-2177
14.	Protective effect of potassium and chitosan supply on growth, physiological processes and antioxidative machinery in sunflower (<i>Helianthus annuus</i> L.) under drought stress	Shehzad MA, F Nawaz, F Ahmad, N Ahmad and S Masood	2019	Ecotoxicol. Environ. Saf.	187	109841
15.	Supplemental potassium mediates antioxidant metabolism, physiological processes, and osmoregulation to confer salt stress tolerance in cabbage (<i>Brassica oleracea</i> L.)	Ahmad W, CM Ayyub, MA Shehzad, K Ziaf, M Ijaz, A Sher, T Abbas and J Shafi	2019	Hortic. Environ. Biote.	60	853-869
16.	Simulation and analysis of the water balance of the Nam Co Lake Using SWAT Model	Adnan M, S Kang, G Zhang, M Saifullah, MN Anjum and AF Ali	2019	Water	11	1383
17.	Development of threshold levels and a climate-sensitivity model of the hydrological regime of the high-altitude catchment of the Western Himalayas, Pakistan	Saifullah M, S Liu, AA Tahir, M Zaman, S Ahmad, M Adnan, D Chen, M Ashraf and A Mehmood	2019	Water	14	1454
18.	Investigating the role of anodic potential in the biodegradation of carbamazepine in bioelectrochemical systems.	Tahir K, W Miran, M Nawaz, J Jang, A Shahzad, M Moztahida, B Kim, M Azam, SE Jeong, CO Jeon, SR Lim and DS Lee	2019	Sci. Total Environ.	684	56-64

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19.	Effect of drying methods and extraction solvents on the antioxidant properties of cooked and raw spinach leaves	Amjad A, MS Javed, M Shah, A Hameed, M Shahbaz and S Ahmad	2019	Int J Food Sci Nutr.	4	471-483
20.	Antioxidant potential of pomegranate lemonade	Ahmad S, UFarooq, A Naz, MA Shehzad and Mahjabeen Zaib	2019	Agric. Sci. J..	1	34-47
21.	Factors affecting female labor force participation in Punjab, Pakistan	Riaz S. and N. Nadeem	2019	PJSS	39	1059-1066
22.	Evaluation of irrigation scheduling techniques: a case study of wheat crop sown over permanent beds	Ansari R, MJM Cheema, MU Liaqat, S Ahmed, H Ihsan Ullah	2019	JAPS	17	9-21
23.	Quantitative ethnopharma-cological profiling of medicinal shrubs used by indigenous communities of Rawalakot, District Poonch, Azad Jammu and Kashmir, Pakistan	Hussain S, A Hamid, KS Ahmad, A Mehmood, F Nawaz, H Ahmed	2019	Rev. Bras. Farmacog.	29	665-676
24.	Role of salicylic acid and ascorbic acid in alleviating the harmful effects of water stress in Maize (<i>Zea mays</i> L.)	Qasim M, M Aziz, F Nawaz, M Arif	2019	Asia J. Agri. Bio.	7	442-449
25.	A brief review of the combustion diagnosing techniques for coal-fired boilers of power plants in china	Wang X, H Chen, U Sultan, X Zhu, Z Wang, G Xiao	2019	IEEE Access	7	126127-126136
26.	Map-based cloning of QBWT-C12 and analysis of candidate gene, GhBRH1-A12, in cotton	Ahmed M, H Cong, A Qadir, ZX Lin	2019	Plant Sci.	291	110315
27.	Feedstock-induced changes in composition and stability of biochar derived from different agricultural wastes	Choudhary TK, KS Khan, Q. Hussain, M. Ahmad and M. Ashfaq	2019	Arab. J. Geosci.	12	617-629
28.	Integration of entomopathogenic fungi and eco-friendly insecticides for management of red palm weevil, <i>Rhynchophorus ferrugineus</i> (Olivier)	Qayyum A, MA Saleem, S Saeed, W Wakil, M Ishtiaq, W Ashraf, N Ahmed, M Ali, RM. Ikram, M Yasin, S Maqsood, S Kiran, MF Qaiser, RAAyaz, MZ Nawaz, AD Abid, KA Khan, SA Alamri	2019	Saudi J. Biol. Sci.	27	1811-1817
29.	Serological and biological characterization of Zucchini yellow mosaic virus (ZYMV) infecting cucumber in Pothowar, Pakistan	Asad Z, and M Ashfaq	2019	Int. J. Biosci.	15	22-28
30.	Incidence and distribution of zucchini yellow mosaic virus (ZYMV) infecting Cucumber (<i>Cucumis sativus</i> L.) crop in Pakistan	Zohaib A, M Ashfaq, T Mukhtar and M Tariq	2019	Pure Appl. Biol.	8	2036-2048
31.	Integrated management of whitefly; the vector of okra yellow vein mosaic virus through diverse germplasm and plant extracts	Khan MA, M Atiq, MW Alam, M Sarwar, M Ishtiaq, and K Sarwar	2019	Agric. Sci. J.	1	85-92

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32.	Moringa leaf and sorghum water extracts and salicylic acid to alleviate impacts of heat stress in wheat.	Afzal I, S Rashid, MW Akram, HU Rehman, SA Basra	2019	South Afr. J. Bot.	129	169-174
33.	Study on evaporative cooling assisted desiccant air-conditioning system for livestock application in Pakistan	Niaz H, M Sultan, AA Khan, T Miyazaki, Y Feng, ZM Khan, Y Niaz, MH Mahmood, I Ali, MA Imran	2019	Fresenius Environ. Bull.	28	8623-8633
34.	Ultrasonographic and gross pathological studies on testes and epididymides of rams and bucks with potential lesions	Murtaza S, N. Ahmad, MA Raza, MS Akhtar, MM Ayaz, M Ali, R Ahmed	2019	Pak. J. Zool.	51	1911-1917
35.	Selenite uptake through roots improves the tolerance to cell disruptors and fungal infection in canola seedlings after exogenous selenium application.	Javed HMR, R Qamar SI Zamir, A Rehman, F Nawaz, MM Faheem, M Ali, A Rehman, A Farooq, A. Zakir.	2019	Pak. J. Agri. Sci.	56	329-337
36.	<i>Mesorhizobium ciceri</i> -CR-39 inoculation to wheat for drought tolerance at critical growth stages	Hussain MB, ZA Zahir, I Mehboob, S Mahmood, N Ahmed, T Haq, I Ahmad and M Imran	2019	Pak. J. Bot.	51	65-72
37.	Synthesis of WO ₃ H ₂ O spherical particles for efficient photocatalytic properties under visible light source	Aslam I, MH Farooq, MW Iqbal, R Boddula, M Abid M Ashfaq and U Ghani	2019	Mater. Sci. Technol.	2	187-193
38.	Role of education in women empowerment: a case of rural Punjab, Pakistan	Aslam M, M Aslam and MA Ayub	2019	Pak. J. Edu. Res.	2	20-30
39.	Examination of main fruit and vegetables market in Multan District of Pakistan	Hamza M, M Aslam, B Sharif, S Ullah, A Iqbal, MA Imran	2019	IOARP J. Manag. Leadership	3	69-81
40.	Dynamics of Marketed surplus of major vegetables in Multan, Pakistan	Aslam M., MA Ayub, M Yasin, Q Iqbal, B Atta	2019	IOARP J. Manag. Leadership	2	23-34
41.	The impact of nepotism on employment status in public sector institutions: an evidence from fresh graduates from Pakistan	Yasin M, N Tahir, M Aslam, A Bakhsh, S Ullah, M Ali Imran, MT Khaliq	2019	J. Econo. Impact	1	7-11
42.	Genetic Plasticity among genotypes of <i>Rosa centifolia</i> and <i>Rosa damascena</i> from Pakistan, USA and Iran	Akhtar G, MJ Jaskani, Amjad Farooq, David H. Byrne, Ishtiaq A. Rajwana, Yasar Sajjad, Shahid M. Shah and Faisal S. Awan	2019	Int. J. Agric. Biol.	21	513-519
43.	Effect of irrigation intervals on growth of annual flowers under climatic conditions of South Punjab, Pakistan	Akhtar G., IA Rajwana , N Farid, MY Sajjad, Amin, M., Razzaq, K. and Ullah, S.,	2019	Pure Appl. Biol.	8	2169-2177

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44.	Maulana 'Ubaid Allah Sindhi's contribution to Qur'anic studies: An Introduction	Ahamd R	2019	Fikr o Nazar	56	9-31
45.	Root vacuolar Na ⁺ sequestration but not exclusion from uptake correlates with barley salt tolerance	Wu H, L Shabala, M Zhou, N Su, Q Wu, T Ul-Haq, J Zhu, S Mancuso, E Azzarello and S Shabala	2019	The Plant J.	100	55-67
46.	Silicon application improve maize (<i>Zea mays</i> L.) performance through ionic homeostasis and ameliorating adverse effects of brackish water	Jan M, MA Ul-Haq, T Ul-Haq, A Ali, M Yousaf, S Bashir and S Khan	2019	Asian J Agric Biol	7	458-466
47.	Transcript profiling of ZIP genes to unzip their role in zinc assimilation in <i>Solanum lycopersicum</i> (L.)	Aslam, N., A. A. Khan, H. M. N. Cheema, and B. Sadia	2020	Pak. J. Agric. Sci.	57	413-423
48.	Molecular analysis of pedilanthus leaf curl virus and associated satellites infecting <i>Chenopodium album</i> in Pakistan	Ijaz S, M Mubin, MSNU Rehman and AA Khan	2020	Pak. J. Agric. Sci.	57	
49.	Photo-Fenton reaction for the degradation of sulfamethoxazole using a multi-walled carbon nanotube-NiFe ₂ O ₄ composite	Nawaz M, A Shahzad, K Tahir, J Kim, M Moztahida, J Jang, M B Alam, S-H Lee, H-Y Jung and DS Lee	2020	Chem. Eng. J.	382	123053
50.	Automatic mosquito surveillance and visualization using acoustic signals	A Hakim	2020	Pak. J. Engg. Appl. Sci.	26	102-108
51.	An efficient convolutional neural network for remote-sensing scene image classification	Baloch A, S Ali and A Hussain	2020	Journal of Computers	15	48-58
52.	Experimental analysis of on (Log N) class parallel sorting algorithms	Ali M, Z Nazim, W Ali, A Hussain, N Kanwal and MK Paracha	2020	Int. J. Comput. Sci. Netw.	20	139-148
53.	Repellent and acaricidal activity of essential oils and their components against rhipicephalus ticks in cattle	Salman S, RZ Abbas, M Israr, A Abbas, K Mehmood, MK Khan, ZD Sindhu, R Hussain, MK Saleemi and S Shah	2020	Veterinary Parasitology	283	109178
54.	The effect of surface charge on cellular uptake and inflame-matory behavior of carbon dots	Usman M, Y Zaheer, MR Younis, RE Demirdogen, SZ Hussain, Y Sarwar, M Rehman, WS Khan and A Ihsan	2020	Colloid Interfac. Sci.	35	100243
55.	Pollination of <i>Grewia asiatica</i> (Malvaceae) by <i>Megachile cephalotes</i> (Hymenoptera: Megachilidae): Male vs. Female Pollination	Akram W, A Sajjad, S Ali, MA Farooqi, G Mujtaba, M Ali and A Ahmad	2019	Sociobiol.	66	467-474
56.	Assessing indigenous and local knowledge of farmers about pollination services in cucurbit agro-ecosystem of Punjab, Pakistan	Ali M, A Sajjad, MA Farooqi, MA Bashir, MN Slam, M Nafees, MN Aslam, M Adnan and KA Khan	2020	Saudi J. Biol. Sci.	27(1)	189-194

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57.	Challenges and prospects for weed management in Pakistan: A review	Matloob A, ME Safdar, T Abbas, F Aslam, A Khaliq, A Tanveer, A Rehman and AR Chadhar	2020	Crop Prot.	134	104724
58.	Interaction of HaNPVs with two novel insecticides against <i>Helicoverpa armigera</i> Hubner (Noctuidae: Lepidoptera)	Abid A D, S. Saeed, S. M. Zaka, M. Ali, M. S. Shahzad, M. Iqbal, U. Shahzad, N. Iqbal and S. M. Alghanem.	2020	Saudi J. Biol. Sci.	27	2124-2128
59.	Toxicity of four different insecticides against <i>Trilocho varians</i> (Bombycidae: Lepidoptera)	Naeem-Ullah U, M Ramzan, S Saeed, N Iqbal, U Umar, ZM Sarwar, M Ali, S Saba, AD Abid, KA Khan and HA Ghramh	2020	J. King Saud Univ. Sci.	32	1853-1855
60.	Mitigation of salinity stress in wheat (<i>Triticum aestivum</i> L.) seedlings through physiological seed enhancements	Saddiq, M.S., S. Iqbal, I. Afzal, A.H. Ibrahim, M.A. Bakhtavar, M.B. Hafeez, Jahanzaib and M.M. Maqbool.	2020	J. Plant Nutr.	42(10)	1192-1204
61.	Manifold passages in an assorted infection in a host could improve virulence of <i>Helicoverpa armigera</i> Nucleopolyhedrovirus (HaNPV)	Abid AD, S Saeed, SM Zaka, M Ali, MS Shahzad, KA Khan and N Iqbal	2020	Saudi J. Biol. Sci.	27	1419-1422
62.	Growth and yield response of autumn planted hybrid maize to horse purslane (<i>Trianthema portulacastrum</i>) interference	Parvaiz S, K Mubeen, M Aziz and TU Haq.	2020	Pak. J. Weed Sci. Res.	26	17-36
63.	Response of hybrid maize to multiple soil organic amendments under sufficient or deficient soil zinc situation	Sarwar N, K Mubeen, A Wasaya, AU Rehman, O Farooq and M Shehzad	2020	Asian J. Agric. Biol.	8	38-43
64.	Anticoccidial effects of <i>Camellia sinensis</i> (Green Tea) extract and its effect on blood and serum chemistry of broiler chickens	Zhang K, X Li, C Na, A Abbas, RZ Abbas, and MA Zaman	2020	Pak. Vet. J.	40	77-80
65.	Genotypes and harvest maturity influence the nutritional fruit quality of mulberry	Nayab S, K Razzaq, S Ullah, IA Rajwana, M Amin, HN Faried, GAkhtar, AS Khan, Z Asghar, H Hassan and A Naz	2020	Scientia Horticulturae	266	109311
66.	Exogenous application of salicylic acid influences fruit softening and quality of flordakingâ peach during ripening at ambient conditions	Ullah S, AS Khan , AU Malik, K Razzaq, M Amin, G Akhtar and HN Faried.	2020	Pure Appl. Biol.	9	1009-1024
67.	Sulfate-mediated drought tolerance in maize involves regulation at physiological and biochemical levels	Usmani MM, F Nawaz, S Majeed, MA Shehzad, KS Ahmad, G Akhtar, M Aqib and RN Shabbir	2020	Sci. Report	10	1-13

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68.	Effect of apple pomace on nutrition, rheology of dough and cookies quality	Usman M, S Ahmed, A Mehmood, M Bilal, PJ Patil, K Akram and U Farooq	2020	J. Food Sci. Technol.	3	60-69
69.	Bayesian analysis of jujube canopy transpiration models: Does embedding the key environmental factor in Jarvis canopy resistance sub-model always associate with improving transpiration modelling?	Chen D, K Hsu, X Duan, Y Wang, X Wei and S Muhammad	2020	Agric. Water Management	234	106-112
70.	Study on desiccant and evaporative cooling systems for livestock thermal comfort: theory and experiments	Kashif M, H Niaz, M Sultan, T Miyazaki, Y Feng, M Usman, MW Shahzad, Y Niaz, MM Waqas and I Ali	2020	Energies	13	2675
71.	Postharvest respiration rate, physiological weight loss and physico-chemical quality of mango fruit as influenced by different hot water quarantine treatments under simulated shipment conditions	Amin M, AU Malik, IA Rajwana, K Razzaq, HN Faried, S Ullah, G Akhtar, AS Khan, R Anwar and MS Zafar	2020	J. Hortic. Sci. Tech.	3	12-18
72.	Modeling pesticide use intention in Pakistani farmers using expanded versions of the theory of planned behavior	Khan FZA, SA Manzoor, M. Akmal, MU Imran, M Taq, SA Manzoor, M Lukac, HT Gul and SV Joseph	2020	Hum. Ecol. Risk Assess.	26	1-21
73.	Microwave heating as a tool to enhance antioxidant activity and release soluble conjugates from Feutrellà Early (citrus mandarin cultivar) peels.	Hayat K, X Zhang, S Qamar, A Hussain, M U Tahir and S Hussain.	2020	J. Food Process Preserv.	44	e14574
74.	Gel immobilization: A strategy to improve the performance of anaerobic ammonium oxidation (anammox) bacteria for nitrogen-rich wastewater treatment	Ahmad HA, SQ Ni, S Ahmad, J Zhang, M Ali, HH Ngo, W Guo, Z Tan and Q Wang	2020	Bioresource Technology	313	123642
75.	Protective effect of potassium application on NaCl induced stress in tomato (<i>Lycopersicon esculentum</i> L.) genotypes	Jan M, MA Haq, T Haq, A Ali, S Hussain and M Ibrahim	2020	J. Plant Nutr.	43	1988-1998
76.	Nanotechnology: Transformation of agriculture and food security	Ghoury MZ, Z Khan, S H Khan, M Ismail, SO Aftab, Q Sultan and A Ahmad	2020	American J. Biotech. Bioscience	3	1-21
77.	Impact of varying load conditions and cooling energy comparison of a double-inlet pulse tube refrigerator	Arslan M, M Farooq, M Naqvi, U Sultan, ZR Tahir, S Nawaz, N Waheed, SR Naqvi, Q Ali, MS Tariq, IA Chaudhry, JM Anderson, A Anukam	2020	Processes	8	352
78.	Eriodictyol can modulate cellular auxin gradient to efficiently promote in vitro cotton fiber development	Qadir A, L Z Hua, M Ahmed, T Lili, Z Xianlong	2020	BMC Plant Biology	19	1-15

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79.	Genetics and association of yield contributing characters for achene yield in sunflower	Ahmed M, W Akram, HN Tahir and A Abbas	2020	Aerobiological Records	1	26-30
80.	Study of land cover/land use changes using RS and GIS: a case study of Multan district, Pakistan	Hussain S, M Mubeen, W Akram, A Ahmad, MHU Rahman, A Ghaffar, A Amin, M Awais, HU Farid, A Farooq and W Nasim	2020	Environ. Monit. Assess	2	192
81.	Interference of horse purslane (<i>Trianthema portulacastrum</i> L.) on growth and yield of soybean [<i>Glycine max</i> (L.) Merr.].	Habib R, K Mubeen, A Matloob and M B Hussain	2020	Pak J. Weed Sci. Res.	26	61-73
82.	Molecular characterization of novel isolates of <i>Rhizoctonia solani</i> , <i>Trichoderma atroviride</i> and <i>Fusarium</i> spp. isolated from different plants and cutting woods in Iraq	Abedy AN., RGAL Janabi, ZA. Tmeme, AT Salim and M Ashfaq	2020	Pak. J. Bot.	52	1073-1082
83.	First report of cucurbit aphid borne yellows virus (CABYV) infecting melon in Pakistan	Ahsan M, M Ashfaq, T Mukhtar, NA Abbasi and Z Asad	2020	J. Plant Pathol.	102	563-564
84.	Quantitative trait loci (QTL) mapping for physiological and biochemical attributes in a Pasban90/Fontana recombinant inbred lines (RILs) population of wheat (<i>Triticum aestivum</i>) under salt stress condition	Noshin I, MW Amjid, MA Saleem, WKhan, F M Wattoo, RM Rana, RH Maqsood, A Zahid, GA Shah, A Anwar, MQ Ahmad, M Shaheen, H Riaz and MJ Ansari	2020	Saudi J. Biol. Sci.	27	341-351
85.	Identification of valuable traits through molecular and morphological markers in diploid wheat.	Sarfaraz, Z, MM Shah, MS Iqbal, MF, Nazir and SA Fatima	2020	Pak. J. Biotechnol.	17	71-77
86.	Cause and effect relationship of morphological attributes with yield in a-genome wheat.	Sarfaraz Z, MM Shah, MS Iqbal, MF, Nazir and SA Fatima	2020	J. Appl. Res. Plant Sci.	1	13-19
87.	Influence of ascorbic acid seed priming on physico-chemical attributes of pea	Hussain G, H Raza, M Imran, STH Shah, MF Anwar, MA Sher, F Zhao and M Nawaz	2020	Int. J. Biosci.	16	274-281
88.	Sclerotia of phytopathogenic fungus restrict microbial diversity and improve soil health by suppressing other pathogens and enriching beneficial microorganisms	Mehmood MA, H Zhao, J Cheng, J Xie, D Jiang and Y Fu	2020	J. Environ. Manag.	259	109857
89.	The sucrose non-fermenting 1-related protein kinase 2 (SnRK2) genes are multifaceted players in plant growth, development and response to environmental stimuli	Mao X, Y Li, SU Rehman, L Miao, Y Zhang, X Chen, C Yu, Y Wang, C Li and R Jing	2020	Plant cell Physiol.	61	225-242
90.	Effects of CO ₂ enrichment by fermentation of CRAM on growth, yield and physiological traits of cherry tomato	Karim, MF, P Hao, NHB Nordin, C Qiu, M Zeeshan, AA Khan and IH Shamsi	2020	Saudi J. Biol. Sci.	27	1041-1048

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91.	Field performance evaluation and finite element simulation of cotton stalk puller-shredder; a sustainable mechanical solution to control pink bollworm (<i>Pectinophora gossypiella</i>)	Ahmad F, MT Jamil, A Akhtar, ZM Khan, B Qiu, J Ma and FA Chandio	2020	Sustainability	12	3407
92.	Biotreatment of high-salinity wastewater: current methods and future directions.	Zhao Y, X Zhuang, S Ahmad, S Sung and SO Ni	2020	World J. Microbio. Biotechnol.	36	1-11
93.	Adaptations in <i>Imperata cylindrica</i> (L.) Raeusch and <i>Cenchrus ciliaris</i> L. for altitude tolerance	Ahmad KS, A Wazarat, A Mehmood, MSA Ahmad., MM Tahir, F Nawaz, H Ahmed, M Zafar and A Ulfat.	2020	Biologia	75	183-198
94.	Effect of osmopriming and hydro priming on seedling traits of soybean	Rahman SU, MHN Tahir, Z Ali, F Nawaz, and S Jamil	2020	Agri. Sci. J.	2	67-73
95.	Response of hybrid maize to multiple soil organic amendments under sufficient or deficient soil zinc situation.	Sarwar N, K Mubeen, A Wasaya, AU Rehman, O Farooq and M Shehzad.	2020	Asian J. Agric. Biol.	8	38-43
96.	Adaptability of proso millet (<i>Panicum milliaceum</i>) in Multan- Pakistan	Akber MA, RM Ikram, S Iqbal, K. Mubeen, M. Imran, M.H. Rahman, W. Ahmad	2020	Agric. Sci. J.	1	9-15
97.	Role of salicylic acid in regulating ethylene and physiological characteristics for alleviating salinity stress on germination, growth and yield of sweet pepper	Ahmed W, M Imran, M Yaseen, T Haq, MU Jamshaid, S Rukh, RM Ikram, M Ali, A Ali, M Maqbool, M Arif, MA Khan	2020	Peer J	2	1-16
98.	Industrial sawdust waste: An alternative to soilless substrate for garlic (<i>Allium sativum</i> L.)	Yasin M, K Jabran, I Afzal, S Iqbal, M A Nawaz, A Mahmood, M Asif, MA Nadeem, Z Rahman, M Adnan, M Siddiqui, MQ Shahid and C Andreassen	2020	J. Appl. Res. Med. Aroma.	18	100252
99.	Burkholderia Phytofirmans PsJN stimulate growth and yield of quinoa under salinity stress	Yang A, SS Akhtar, Q Fu, M Naveed, S Iqbal, T Roitsch and S Jacobsen	2020	Plants	9	672
100	Inorganic fertilization improves quality and biomass of <i>Moringa oleifera</i> L.	Aslam MF, SMA Basra, MB Hafeez, S Khan, S Irshad, S Iqbal, MS Saddiq and MZ Akram	2020	Agroforest. Sys.	94	975-983.
101	Cadmium Partitioning, physiological and oxidative stress responses in Marigold (<i>Calendula calypso</i>) grown on contaminated soil	Farooq A, M Nadeem, G Abbas, A Shabbir, MS Khalid, HMR Javeed, MF Saeed, AA, A Younis and G Akhtar	2020	Bullet. Environ. Contam. Toxicol.	105	270-276
102	Alleviation of gladiolus (<i>Gladiolus grandiflorus</i>) corm dormancy through application of 6-benzylaminopurine and gibberellic acid	Yasar Sajjad, Muhammad Jafar Jaskani, Asim Mehmood, Muhammad Qasim and Gulzar Akhtar	2020	.Pak J. Bot.	52	831-838

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103	Response of glyphosate-resistant and susceptible biotypes of <i>Echinochloa colona</i> to low doses of glyphosate in different soil moisture conditions	Mollaee, M., A. Matloob, A. Mobli, M. Thompson and B.S. Chauhan	2020	Plos ONE	15	e0233428
104	Postharvest respiration rate, physiological weight loss and physico-chemical quality of mango fruit as influenced by different hot water quarantine treatments under simulated shipment conditions	Amin M, AU Malik, IA Rajwana, K Razaq, HN Faried, S Ullah, G Akhtar, AS Khan, R Anwar and MS Zafar	2020	Hortic. Sci. Technol.	3	12-18
105	Postharvest exogenous application of various bacterial strains improves the longevity of cut 'royal virgin' Tulip flowers	Bashir, M., M. Asif, M. Naveed, R.W.Ks. Qadri, H.N. Faried and F. Anjum	2019	Pak. J. Agri. Sci.	56	71-76
106	Pre-harvest exogenous application of bacterial strains to assess the flower and bulb quality of cut Tulip (<i>Tulipa gesneriana</i> L.) Cv. clear water	Bashir, M., M. Asif, M. Naveed, R.W.K. Qadri, H.N. Faried and A. Baksh	2019	Discovery	55	73-80
107	Moisture adsorption isotherms and quality of seeds stored in conventional packaging materials and hermetic Super Bag	Bakhtavar, M.A., I. Afzal and S.M.A. Basra	2019	PLoS ONE		14(2): e0207569
108	Implementing the dry chain during storage reduces losses and maintains seed quality of maize	Bakhtavar, M.A., I. Afzal, S.M.A. Basra and A. Wahid	2019	Food Security	11(2)	345-357

2.6. Books/Book Chapters

Sr. No.	Book	Chapter	Editors	Authors	Publisher	Year
1.	Agronomic Crops	Alternate Wetting and Drying System for Water Management in Rice	Hasanuzzaman M	Mubeen K and K Jabran	Springer Nature, Singapore	2019
2.	Agronomic Crops, Vol. 2: Management Practices	Green Manuring for Soil Health and Sustainable Production of Agronomic Crops	Hasanuzzaman M	Tanveer A Hafiz H Ali and NA Ikram	Springer Nature, Singapore	2019
3.	Agronomic Crops, Vol. 2: Management Practices	Soil management for better crop production and sustainable agriculture	Hasanuzzaman M	Ahmed N, S Masood, S Ahmad, S Bashir, S Hussain, W Hassan, RI Khandekar, MB Hussain and MA Ali.	Springer Nature, Singapore	2019

Sr. No.	Book	Chapter	Editors	Authors	Publisher	Year
4.	Agronomic Crops, Vol. 3: Stress Response and Tolerance	Responses and Tolerance of Cereal Crops to Metal and Metalloid Toxicity	Hasanuzzaman M	Ahmad I, M Tahir, U Daraz, A Ditta, MB Hussain and ZUH Khan	Springer Nature, Singapore	2019
5.	Fruit crops: Diagnosis and management of nutrient constraints	Fruits and nutritional security	Srivastava AK , C Hu	Farooq, U., A Shafi, K Akram, and Z Hayat	Elsevier Science	2019
6.	Agronomic Crops, Vol. 2: Management Practices	Soil management for better crop production and sustainable agriculture	Hasanuzzaman M	Ahmed, N., S. Masood, S. Ahmad, S. Bashir, S. Hussain, W. Hassan, R.I. Khandekar, M.B. Hussain and M.A. Ali.	Springer Nature, Singapore	2019
7.	Bioactive Compounds from Plant Origin Extraction, Applications, and Potential Health Benefits	Phytochemicals from fruit wastes for sustainable and socially acceptable poultry production	Goyal MR	Hayat Z, K Akram, A. Mahmud, U Farooq, MA Farid, and A Shafi	Apple Academic Press.	2019
8.	Bioactive Compounds from Plant Origin Extraction, Applications, and Potential Health Benefits	Phytochemistry and potential therapeutic perspectives of melon seeds	Goyal MR	Shafi A, U Farooq, K Akram, and Z. Hayat,	Apple Academic Press	2019
9.	Reactive Oxygen, Nitrogen and Sulfur Species in Plants: Production, Metabolism, Signaling and Defense	Reactive sulfur species: Key regulators of abiotic stress tolerance in plants	Hasanuzzaman M, V Fotopoulos, K Nahar and M Fujita	Nawaz F, S Majeed, KS Ahmad, M Aqib, MA Shehzad, M Aurangzaib and M Shabbaz	Wiley, UK	2019
10.	Agronomic Crops	Use of Biofertilizers for Sustainable Crop Production	Hasanuzzaman M	Shabbir RN, H Ali, F Nawaz, S Hussain, A Areeb, N Sarwar and S Ahmad	Springer Nature, Singapore	2019
11.	Reference Series in Phytochemistry: Bioactive Molecules in Food	Persimmon (<i>Diospyros kaki</i>) Fruit: Bioactive Natural Therapeutic Strategy for the Management of Nutritional and Chronic Disorders	Srivastava AK and C Hu	Farooq U, A Shafi, K Akram and Z Hayat	Springer	2019

Sr. No.	Book	Chapter	Editor's Name	Author's Name	Publisher	Year
12.	Cotton Production and Uses Agronomy, Crop Protection, and Postharvest Technologies	Cotton-Based Cropping Systems and Their Impacts on Production	Ahmad S and M Hasanuzzaman	Matloob A, F Aslam, HU Rehman, A Khaliq, S Ahmad, A Yasmeen and N Hussain	Springer Nature, Singapore	2020
13.	Emerging Technologies in Environmental Bioremediation	Immobilization of anaerobic ammonium oxidation bacteria for nitrogen-rich wastewater treatment	Shah MP, SRCouto, and SS Sengor	Ni SQ, HA Ahmad and S Ahmad	Elsevier	2020
14.	Microbial Bioremediation & Biodegradation	Energy-Efficient Anaerobic Ammonia Removal: From Laboratory to Full-Scale Application	Shah MP	Ni S, HA Ahmad, Yi Zhao, Q Li, Y Dong, S Ahmad, Z Cui and Z Qiao	Springer Nature Singapore	2020
15.	Wheat Production in Changing Environments - Management, Adaptation and Tolerance	Use of osmolytes in improving abiotic stress tolerance to wheat (<i>Triticum aestivum</i> L.)	Hasanuzzaman M, Knahar and MA Hossain	Nawaz F, S Majeed, KS Ahmad, A Hamid, RN Shabbir, M Aqib	Springer Nature	2020
16.	Agronomic Crops	Role of mineral nutrition in improving drought and salinity tolerance in field crops	Hasanuzzaman M	Nawaz F, MA Shehzad, S Majeed, KS Ahmad, M Aqib, MMunir Usmani and RN Shabbir	Springer Nature, Singapore	2020
17.	Plant Ecophysiology and Adaptation under Climate Change: Mechanisms and Perspectives II	Sulfur-Mediated Physiological and Biochemical Alterations to Improve Abiotic Stress Tolerance in Food Crops	Hasanuzzaman M	Nawaz F, S Majeed, M Aqib, KS Ahmad, A Ghaffar, MM Usmani, RN Shabbir, BA Shafiq	Springer Nature, Singapore	2020
18.	Handbook of Bioremediation- Physiological, Molecular and Biotechnological Interventions	Interplay between selenium and mineral elements to improve plant growth and development	Hasanuzzaman M, MNV Prasad	Farman M, F Nawaz, S Majeed, KS A, R Rafeeq, MA Shehzad, RN Shabbir, MM Usmani	ELSEVIER Science, USA	2020
19.	Agronomic Crops, Vol. 3: Stress Response and Tolerance,	Responses and Tolerance of Cereal Crops to Metal and Metalloid Toxicity	Hasanuzzaman M	Ahmad I, M Tahir, U Daraz, A Ditta, MB Hussain and	Springer Nature, Singapore	2020

2.7. Seminars/Webinars

Sr. No.	Title	Organizer/Focal Person	Date
1.	Vegetable Nursery Production and Supply System for Kitchen Gardening	Team of AIP Project	01.7.2019
2.	Challenges and Potentials for Rural-urban Transformation: An Agro-ecological Perspective by Prof Dr Andreas Buerkert, and Dr Barbara Buerkert from University of Kassel, Germany	ORIC/Veterinary & Animal Sciences Department	19.7.2019
3.	Youth as Positive Catalyst for Development by Director NAB	ORIC	31.7.2019
4.	Bio-Char Production, Characterization and Advance Applications	Agri. Engineering	19.9.2019
5.	FIS Orientation Session	ORIC	27.9.2019
6.	Vegetable Nursery Production and Supply System for Kitchen Gardening for FAO master trainers from Sindh, Punjab and KPK province.	Team of AIP Project	5.9.2019
7.	World Cotton Day	MNS-UAM/CRI, Multan	7.10.2019
8.	Our Actions are Our Future, Healthy Diets for A Zero Hunger World	Department of Food Science & Technology	16.10.2019
9.	World Food Day 2019	Department of Food Science & Technology	16.10.2019
10.	Awareness Session on Dengue	Dr. Unsar Naeem Ullah/ Multan Family Lions Club	16.10.2019
11.	Traffic Awareness and Road Safety	DSA/Transport Office	23.10.2019
12.	Institute of Electrical and Electronics Engineering (IEEE)	Computer Sciences	24.10.2019
13.	Farms in Arm Project	Prof. Dr. Irfan A. Baig	29.10.2019
14.	Pink Ribbon	Ms. Saima Rasheed	30.10.2019
15.	Emerging Entrepreneurs	USAID-PEEP/ORIC	20.11.2019
16.	Foreign Scholarship in France	Senior Tutor	18.11.2019
17.	Emerging Entrepreneurs	ORIC	21.11.2019
18.	Awareness on the Issue of Violence against Women & Girls	Dr. Ayesha Hakim/ Mr. Israr Hussain	25.11.2019
19.	Drug Abuse by Mr. Amjad Javaid Saleemi, Federal Secretary, Ministry of Narcotics Control	DSA	13.12.2019
20.	Utilizing the Internet for the Benefit of Students and Society	Dr. Ayesha Hakim	31.12.2019

Sr. No.	Title	Organizer/Focal Person	Date
21.	Students Mobilization Seminar by dramatic Society	DSA	17.01.2020
22.	Students Mobilization Seminar for Literary and Debating Society	DSA	18.1.2020
23.	Paradoxical Agriculture	MNS-UAM	28.1.2020
24.	Policy Reforms for Better Cotton Production in Pakistan	MNFS&R/MNS-UAM	01.2.2020
25.	Students Mobilization Seminar with Literary and Media Society	DSA	18-20.2.202
26.	Healthy Mother, Healthy Child and Healthy Society	FST/ District Population Welfare Department	025.2.2020
27.	Corona Virus and its Epidemic	Principal Officer (Student Affairs)	13.3.2020
28.	Awareness webinar on "Daily Life during COVID-19"	DSA	18.6.2020

2.8. Conferences

Sr. No.	Title	Organizer	Date
1.	Importance of Nutrition in Human Health	NMU/MNSUAM	08.08.2019
2.	3 rd Sino-Pak International Conference on Cotton Breeding and Biotechnology	MNSUAM/China	4-6.9.2019
3.	Strategic Value Addition and Innovations in Food & Agriculture	Ignite/MNSUAM	9-10.10.2019
4.	Climate Smart Agriculture: The Way towards Sustainability	MNSUAM & FAO-Pakistan	26-27.11.2019
5.	Smart Potassium Management in Crops under Changing Climate	MNSUAM/Engro Fertilizers, Limited	3.3.2020

2.9. Other Outreach/Recreational/Capacity Building Activities/Competitions

Sr. No.	Event	Organizer	Date
1.	DICE-AFS, 2019	ORIC/Dean FSSH	9-10.10.2019
2.	Pulses Value Addition Competition	ACIAR Pulses Project Team	9-10.10.2019
3.	Strategic value addition and innovations in Food & Agriculture	Ignite/MNSUAM	9-10.10.2019
4.	Plant Centric Meal Competition 2020	Department of Food Science & Technology	13.02.2020

2.10. Expos

Sr. No.	Event	Organizer	Date
1.	The News Education Expo	MNSUAM and Jang Group	3.7.2019
2.	International Industrial Expo	MNSUAM/MCCI	9-10.10.2019

2.11. Festivals

Sr. No.	Event	Organizer	Date
1.	Mango Festival 2019 - Multan	MNSUAM	4-6.07.2019
2.	Mango Festival 2019 - Centaurs Mall, Islamabad	MNSUAM	26-28.07.2019
3.	Mango Festival 2019 - Packages Mall, Lahore	MNSUAM	1-4.08.2019
4.	Pulses exhibition at Centaurs Mall, Islamabad	ACIAR Project Team, MNSUAM	10.2.2020

2.12. Social Action Plans

Sr. No.	Title	Date
1.	Transgender Development and Empowerment Organized by Jawanz	10.5.2020
2.	Rashan Distribution in Transgender Organized by Alla Welfare Organization	10.5.2020
3.	Distribution of Food among Transgender Organized by RRES	15.5.2020
4.	Wellness Recovery Action Plan Phase I	27.5.2020
5.	Mask and Food Distribution among Transgender Organized by Legends	21.6.2020
6.	Awareness about Covid-19 and Mask distribution Organized by Iqbalianz	24.6.2020
7.	Awareness about Covid-19 among Transgender Organized by Developing Agents	24.6.2020
8.	Food Distribution among Transgender Organized by Parwaaz	24.6.2020
9.	Mask Distribution in Public Organized by Ideal Group	24.6.2020
10.	Helping Transgender in Covid-19 Organized by Ghaazi	24.6.2020
11.	Distribution of Food Organized by Gladiators	24.6.2020
12.	Covid-19 awareness Organized by Shaheen	24.6.2020
13.	Mask Distribution during Covid-19 Organized by United	24.6.2020

Sr. No.	Title	Date
14.	Mask and Food Distribution during Covid-19 Organized by Shining Stars	24.6.2020
15.	Rashan Distribution Organized by Grow Together	25.6.2020
16.	Food distribution among Public Organized by Social Constructor	25.6.2020
17.	Transgender and Public Organized by Alpha	26.6.2020
18.	Mask Awareness Organized by Rashid Minhas	26.6.2020
19.	Awareness on Covid-19 in Transgender community Organized by Fighters	27.6.2020
20.	Welfare of Transgenders Organized by AQ Khan	27.6.2020
21.	Awareness about Covid-19 in Traffic Wardens Organized by Legends	27.6.2020
22.	Mask Distribution among poors Organized by Champions	28.6.2020
23.	Food Distribution Organized by Lions	28.6.2020
24.	Mask distribution among Traffic Wardens Organized by Shaheen	28.6.2020
25.	Transgender Welfare and Food Distribution Organized by Jinnah	28.6.2020
26.	Transgender Empowerment Organized by Salvatore's	29.6.2020
27.	Mask Distribution Organized by Warriors of Peace	29.6.2020
28.	Wellness Recovery Action Plan Phase II	8.7.2020

2.13. Research and Industrial Linkages

2.13.1. International

Sr. No.	Organization	Country	Signing Date
1.	Shihezi University, Xinjiang, China	China	17-12-19
2.	Millat Education Foundation Inc., USA	USA	10-03-20
3.	University of Bonn, Germany	Germany	13-03-20

2.13.2. National

Sr. No.	Organization	Signing Date
1.	Jaffer Agro Services Private Limited	11-07-19
2.	Sustainable Development Policy Institute (SDPI), Islamabad	01-08-19
3.	IdeaGist, Pakistan	18-09-19
4.	Ali Tareen Farms	29-01-20
5.	Gurmani Foundation	03-03-20

2.14 Faculty and Staff Trainings/Workshops Organized

Sr. No.	Title	Organizer	Date
1.	Preparation of Self-Assessment Report (SARs)	QEC	26.8.2019
2.	Protection and Registration of Intellectual Property Rights (IPRs)	ORIC/Engineering	16.9.2019
3.	Data Analysis and Visualization Using Python	CS/IT	24.9.2019
4.	Training on CIRAS-3	ORIC	30.9.2019
5.	Result based Management for Downstream Implementing Partners and Govt. Stakeholders	FAO	30.9-1.10.2019
6.	Hands-on Training on RT-PCR	ORIC	17-18.10.2019
7.	Mango Marketing & Market Development Strategies	Horticulture/MRI	19.10.2019
8.	How to Get into Exchange Program	ORIC	24.10.2019
9.	Bayer Safe Use Ambassadors	Entomology/Bayer Pakistan	30.10.2019
10.	Statistical Tools using SPSS	FoSSH	4-5.11.2019
11.	Business for Peace	SDPI / ORIC	7.11.2019
12.	Effective Strategies for Maintaining Work-Life Balance" by Dr. Khuram Jahangir from UAE	ORIC	14-15.11.2019
13.	Farmer Integrated Learning Model (FILM)	Soil Science & Uni. of Canberra, Australia	16-17.12.2019
14.	Hands-on Training on Latex	CS/IT	23&30.12.2019, 6.1.2020
15.	Real-Time Leadership Strategy Building with LEGO Serious Play Methodology	QEC	27&28.2.2019
16.	Mango Small System and General Orchard Management, Hyderabad	BIAEC/ORIC	8-9.2.2020
17.	Mango Small System and General Orchard Management, Rahim Yar Khan	BIAEC/ORIC	15.2.2020
18.	Harbingers of Change	DSA	18-19.2.2020
19.	Peace Building & Conflict Management	DSA	21-23.2.2020
20.	Mango Small System and General Orchard Management, Multan	BIAEC/ORIC	22.2.2020
21.	Publishing of Newsletter for Fund Raising	External Linkages/ Accountability Lab	2.3.2020

Sr. No.	Title	Organizer	Date
22.	Peace Building & Conflict Management	DSA	2-5.3.2020
23.	Establishing of Business Incubation Center	External Linkages/ Accountability Lab	3-4.3.2020
24.	Peace Building & Conflict Management	DSA	6-9.3.2020
25.	Peace Building & Conflict Management	DSA	16-19.3.2020

2.15. Travel Abroad

Sr. No.	Name	Purpose	Date
1.	Mr. Azher Khan	Chinese Language Course at HBIBE, China	1.3.2019 to 01.01.2020
2.	Rana Muhammad Naeem	Chinese Language Course at HBIBE, China	1.3.2019 to 18.12.2019
3.	Engr. Shahzad Ahmad	Chinese Government Scholarships-University Program and Presidential PhD Fellowships of Southern University of Sciences and Technology.	1.3.2019 to 30.8.2020
4.	Dr. Abu Bakar Saddique	Workshop on Application of Smart Organic Agriculture Models and Traceability Systems for Agricultural Products, Hanoi, Vietnam	5.10.2019 to 13.10.2019
5.	Mr. Nabeel Ahmad Ikram	Workshop on Smart Farming Models, Bangkok	4.11.2019 to 8.11.2019
6.	Dr. Naheed Bano	International Workshop entitled "Fish Culture Development", Egypt	4.10.2019 to 15.12.2019
7.	Prof. Dr. Zulfiqar Ali	Hybrid Wheat for Food Security, DFID project, Australia	8.10.2019 to 19.10.2019
8.	Dr. Fahim Nawaz	Post-Doctoral Fellowship, Germany	24.11.2019 till date
9.	Dr. Muhammad Habib ur Rehman	Post-Doctoral Fellowship, Germany	01.9.2019 till Date
10.	Prof. Dr. Irfan Ahmad Baig and Dr. Tanveer Ul Haq	Training Visit to Australia for scoping of living with salinity in Indus basin Project (ACIAR) Charles Stuart University Australia	8.10.2019 to 26.10.2019

2.16. Visits of International Delegations

Sr. No.	Visitors	Date
1.	Egyptian Delgation	11-17.11.2019
2.	Chinese Delagation	16-18.12.2019
3.	Dr. Neil Forrester	01.02.2020
4.	Australian Delegation	13.2.2020

2.17. Inculcating the Culture of Research and Consultancy

The MNS-UAM is striving hard to inculcate the culture of research and consultancy. 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 common target like establishment of South Punjab Agriculture Forum.
4. For the benefits of local community, this University intends to provide funds from its own resources to the researchers to carry out problem-oriented research.

2.18. BUSINESS INCUBATION AND AGRICULTURAL ENTREPRENEURSHIP CENTRE (BIAEC)

Business Incubation and Agricultural Entrepreneurship Centre (BIAEC) under the umbrella of Office of Research, innovation and Commercialization (ORIC) MNS-University of Agriculture, Multan (MNSUAM) 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 towards economic development through business and social enterprise. The BIAEC provides excellent counseling to the students. The BIAEC initiate the ground-breaking thoughts of students into valuable business activity. The aim of BIAEC at MNSUAM is to promote the culture of entrepreneurship.

Following incubates were incubated during 2019-20

Sr. No.	Company	Focal Person	Business Type	Advisory Person	Date of Agreement
1.	Bytes Software Development Private Limited	Mr. M. Farooq	I.T Solutions	Dr. Abdul Razzaq, CS/IT,UAM	4.10.2019
2.	Sharan Herbal and Food Supplement	Mr. M. Naeem, ORIC, UAM	Herbal Product	Ms. Benish Sarfraz, Agribusiness, UAM	28.10.2019
3.	Multan Fresh Honey	Mr. Samiullah	Beekeeping	Ms. Benish Sarfraz, Agribusiness, UAM	22.11.2019
4.	Al Saif	Mr. Wakeel ur Rehman	Food Market	Mr. Shoaib Nasir, Agribusiness, UAM	8.01.2020

Sr. No.	Company	Focal Person	Business Type	Advisory Person	Date of Agreement
5.	Household Organic Waste Management through Hungry Bin and Fertilizer Production for Kitchen Gardening	Mr. Seemab Shafqat	Vermicompost	Prof Dr Shafqat Saeed, IPP and Dr Shakeel Ahmad, SES UAM	21.1.2020/+
6.	Green Agriculture Services	Dr. M. Amin, Horticulture, UAM	Consultancy Services	–	24.1.2020
7.	New Heights	Mr. M. Shees	Roof Top Hydroponic and Tunnel Dryer	Dr. M. Abid, Physics, UAM	17.4.2020

2.19. DICE-AFS 2019

MNS University of Agriculture, Multan in collaboration with DICE (Distinguished Innovations, Collaboration and Entrepreneurship) foundation USA organized DICE-AFS-2019 Innovation Competition and Industrial Expo at University on 09-10 October 2019. The idea for all stakeholders was to join common platform to showcase innovations and technologies, share knowledge and further collaborate with each other for the rapid development of innovative products, necessary for the socio-economic development of the country. The event was attended by hundreds of students, faculty, and industry from all across Pakistan. Students displayed their Agri. and Food Science related projects in DICE-AFS- 2019 along with display of Agro-based Industrial Stalls. During the event, more than 130 ideas were presented by the students. Several renowned speakers (domestic & international) from academia, industry and government also participated in national seminar sessions and shared their experience on various topics. Various notables from academia and Industry stakeholders attended the event. Print & electronic media at local as well as national level provided coverage for the event and exhibition.

The following business ideas from DICE-AFS 2019 were selected by DICE Shark Committee

Sr. No.	Project	Presenter	Institute / Organization	Shark Organization/ Focal Person
1.	Preparation of Moringa spread with its leaves for children growth and to enhance nutrient adequacy	Asia Khan	Jinnah University for Women, Karachi	M. Naveed Hashmi
2.	Moringa Tea	Umar Farooq	MNSUAM	M. Naveed Hashmi
3.	Monolaurins + Butyric Acid : an alternative to antibiotic growth promoters in poultry and dairy animals	Noreen Aslam	Univ. of Agriculture Faisalabad	M. Zulqarnain
4.	Management of organic kitchen waste by natural system	Seemab Shafqat	MNSUAM	USAID
5.	Smart surface controlled Irrigation	M. Farooq	MNSUAM	Waqas Ahmed CEO
6.	Introduction of Seed Tape for crop growth enhancement via precision planting	Shahrukh khan	MNS-UAM	Sohaib Shahid

2.20. IdeaGist Startup Pakistan Cohort 2

IdeaGist is supporting PM's Startup Pakistan program that offers practical entrepreneur training program for free to all Startup Pakistan participants. Developed for first-time entrepreneurs to give them a good view of the path ahead, Practical Entrepreneur covers an entrepreneur's journey through four stages of maturity. This program builds a basic foundation of entrepreneurial knowledge that is practical, and it can be done at your own pace. Above 250 students of MNSUAM applied for startup Pakistan 2nd Cohort. They got training from well-known entrepreneurs of the world and after their training 90 students qualified the test and a student (Waseem Arif) from BBAA 2nd semester got second highest marks in startup Pakistan Cohort 2. The MNSUAM feels proud that he has been selected from all over Pakistan as number one. Honestly speaking it tendered Youth of MNSUAM possess potential. Selected candidates have participated in the graduation ceremony held on 11th of July, 2020 which was also chaired by the Vice-Chancellor of MNSUAM. He appreciated the students of cohort 2 and also motivated the students for their next ideation phase. After the selection of students from test, they submitted their business plans and now they are waiting for the funding agencies calls.

2.21. UI GreenMetric (World University Rankings)

MNS-University of Agriculture Multan, Pakistan took part in UI GreenMetric, World University Ranking on Sustainability. The UI GreenMetric is an annual publication of university rankings on sustainability. It is an initiative from the University of Indonesia that ranks universities around the world based on their commitment and actions towards sustainability. The University initially submitted the data in 2018 towards this ranking and got 5th Position in National Level and 367th at worldwide. In 2019, MNS-University of Agriculture, Multan improved its point and is now ranked as 4th national and 311th worldwide. The Vice Chancellor has greatly emphasized on every aspect of sustainability. He always appreciates the efforts of academic staff and administration to increase awareness regarding this issue and protect our environment from drastic effects of pollution. The UI GreenMetric World University Rankings and MNS-University of Agriculture Multan, aim to increase awareness towards sustainability.

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CHAPTER - 03 QUALITY ASSURANCE



QUALITY ASSURANCE

3.1. Quality Enhancement Cell

MNS University Agriculture Multan, established Quality Enhancement Cell (QEC) in March 2016 for quality assurance in teaching and other academic 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. During the year 2019-20, QEC assisted the faculty members to offer courses online using various platforms (Moodle, Google Classroom, Zoom, and WhatsApp etc.) in the scenario of COVID-19 Pandemic to continue academic activities and provision of quality education to the students. Furthermore, QEC ensured the implementation of MNSUAM and HEC policies regarding online education.

3.2. Functions of QEC

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

- 1) Capacity building of faculty, through seminars and trainings, for the preparation of Self-Assessment Reports (SARs) of the academic programs by various departments.
- 2) Preparation of SARs by Program Teams and evaluation by Assessment Teams.
- 3) Conduct the meetings of Departmental Technical Review Committees for annual review of TTS faculty.
- 4) Accreditation of under-graduate programs from respective Accreditation Councils.
- 5) Training of faculty and implementation of policies for offering courses online.

During the year 2019-20, the detail of various activities of QEC is as follows:

3.3. Course and Teacher Evaluation Proforma

With the objective of improving the course contents and teaching for a conducive classroom environment, feedback of students is collected in the form of HEC Course and Teacher Evaluation Proformas at the end of every semester. Proformas for Course and Teacher Evaluation were filled online for Spring Semester 2020 in the scenario of COVID-19. Following is the detail of number of Courses for which this information was collected:

Sr. No.	Semester	Number of Courses	
		Undergraduate	Postgraduate
1.	Winter 2019-20	324	65
2.	Spring 2020	306	50

3.4. Visit of National Agriculture Education Accreditation Council (NAEAC)

The QEC makes necessary arrangement for the visit of Accreditation Inspection Committee (AICs) of Accreditation Councils, and acts as a bridge between the teaching departments and Accreditation Councils. During the year 2019-2020, following visits of (AICs) of National Agriculture Education Accreditation Council (NAEAC) were arranged for various programs of Agriculture.

Nature of Visit	Discipline
Zero Visit	<ul style="list-style-type: none"> · B.Sc. (Hons.) Agricultural Economics, · B.Sc. (Hons.) Agribusiness · B.Sc. (Hons.) Biotechnology · B.Sc. (Hons.) Plant Pathology
Review Meeting	<ul style="list-style-type: none"> · B.Sc. (Hons.) Plant Breeding & Genetics · B.Sc. (Hons.) Entomology · B.Sc. (Hons.) Soil & Environmental Sciences · B.Sc. (Hons.) Agronomy

3.5. NOC 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 HEC for launching new post-graduate degree programs. During the year 2019-20, two cases were submitted to the HEC for NOC to initiate following degree program.

- M.Sc. (Hons.) Postharvest Management Technology
- MS Agribusiness Management

3.6. Departmental Technical Review Committee (DTRC) of TTS Faculty

Third meeting of Departmental Review Committee (DTRC) was held on December 16, 2019 for the annual review of TTS faculty. The details of number of cases in different Institutes and Departments is as following

Departments/Institutes	Departments/Institutes
Institute of Plant Breeding and Biotechnology	1
Institute of Plant Protection	2
Horticulture	3
Food Science and Technology	2
Agronomy	5
Agri-Engineering	1
Agribusiness and Applied Economics	1
Computer Science and Information Technology	2
Total	17

3.7. Assessment of Self-Assessment Reports (SARs)

Program Teams (PT) of Institutes/Departments prepare SARs and submit to QEC, Assessment Teams (AT) conduct the assessment and submit reports to QEC. The Departments/Institutes prepare and submit implementation plans to QEC based on the findings of ATs. QEC arranged the assessment of following programs by Assessment Teams during the year 2019-20:

- Plant Breeding & Genetics
- Seed Science & Technology
- Biotechnology
- Entomology
- Plant Pathology
- Agronomy
- Food Science & Technology
- Soil & Environmental Sciences
- Agribusiness and Applied Economics
- BBAA Agri. Business
- Fisheries & Aquaculture
- Agro Industrial Engineering Technology

3.8. Plagiarism/Similarity Index Checking for Post-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.

Synopses	Theses	Papers/Articles
201	117	3

3.9. Trainings/Workshops Organized

The QEC conducted following capacity building trainings/seminars for the faculty to assure quality in the academic programs at the university.

1. Effective Strategies For Maintaining Work Life Balance
2. Workshop on Preparation of Self-Assessment Report
3. Real-time Leadership Strategy Building
4. What is Plagiarism, How we can avoid plagiarism, HEC Policy, and Consequences
5. Hands-On Training Workshop on “Preparation of Research Projects and Scientific Writing” covering the following areas:
 - What is Science? and Scientific Methods
 - Concept, Purpose, and Kinds of Scientific Research
 - Making, refining, and unpacking the research title and determining research questions, planning research, choosing research design and method.
 - Use of Reference Managers in Scientific Writing (EndNote, Mendeley etc.)

- Collection and organization of source material (Literature Searching)
- Scientific Writing, Scientific Style, and word usage Reviewing Scientific Literature
- Reporting Scientific Results Effective presentation of the data – tables and figures Preparation of research proposals
- PC I, PC II, PC III, PC IV, PC V Preparing PC 1's for different funding agencies Budgeting for project activities
- Editing and Proofreading, proofreading symbols, options in MS Word for editing and proofreading
- 6. Scientific Research Methodology

3.10. Impact of Quality Assurance

Quality Enhancement Cell is responsible to prepare the assessment reports at the end of the semester, and to achieve this target, QEC got filled the evaluation forms by relevant students/employer/faculty/alumni, to prepare all reports including course evaluation, teachers evaluation, faculty survey, survey of graduate students and employer survey. The results of the assessment report has increased the quality of education, students' satisfaction and improved the 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 steps taken towards standardization have created seriousness at teaching and teachers are using innovative and ICT based approaches for making learning more effective.
3. Offering courses on hybrid/blended learning mode ensured better learning and also helped offering courses online during the COVID-19 to continue academic activities and students learning without any inconvenience.
4. The process of assessing strengths, weaknesses and potential of the different programs introduced is taking route at the institutional level.
5. Efforts regarding the observance of minimum criteria for admissions and research have resulted positive outcomes at departmental level.
6. An analytical and comparative tendency to learn from the top institutions (HEIs) in the country and outside the country has started and will yield positive results.
7. Efforts to finding high place in the University rankings within and outside the country have been undertaken.
8. Putting the different processes in proper order has been prioritized at University level.
9. Monitoring and Evaluation has become an integral component of each ongoing project.

3.10.1. Impact towards the Higher Education

- Institutionalization of quality assurance
- Information systems for HEC (Ranking, Faculty Evaluation etc.)
- Internationalization (Linkages, Ph.D. scholarships, Post-docs, Student Exchange, Conferences, Professional advanced Trainings, Plagiarism checking etc.)
- Awareness and capacity building of faculty members through various professional development programs

3.10.2. Impact towards Institutional Administration

- Institutionalization of quality assurance mechanisms

- Development of teaching and learning framework
- Promotion of outcome based teaching (classroom management, teaching methodology, peer reviews etc.)
- Management of academic staff (area of interest, expertise, workload and other responsibilities/duties assigned from time to time)
- Administrative and financial management of research projects.
- Participation/membership of external stakeholders in Board of Studies, Academic Council, Selection Board, Syndicate etc.
- Formulating Standard Operating Procedures (SOPs) for policy implementation, e.g. Faculty Evaluation, Turnitin, Purchase and Procurement etc.

3.10.3. Teaching Practices

- Preparation of Course Files
- Defining expected learning outcomes, scheme of study, division and completion of credit hours
- Information on student progress
- Assessment of learning both formative and summative through the entire semester and program
- Teaching strategies, methodologies, micro teaching etc.
- Hybrid/Blended Course using Google Classroom and Moodle
- Training of teachers for Teaching Online Courses

3.11. Chairperson NAEAC and Managing Director QAA HEC Visited MNSUAM

A two-member delegation comprising the Chairperson National Agriculture Education Accreditation Council, Prof. Dr. Ishtiaq Ahmad Rajwana along with Dr. Nadia Tahir (Managing Director Quality Assurance Agency, Higher Education Commission) visited MNSUAM to review the progress of various departments including Agronomy, Entomology, Soil Science, and Biotechnology for accreditation. During the visit, the HEC team met with the Chairpersons of the respective departments and examined faculty profiles, research work, construction process and work at the University farms. The team also visited Hydroponic unit, Greenhouse and state of the art modern laboratories at the University and expressed their satisfaction on varsity's progress. At this occasion, Prof. Dr. Ishtiaq A. Rajwana said that we live in an agriculture country and most of its population is related to this profession. Therefore, the country's development is directly linked to the progress in agriculture sector. He further stated that HEC has already been supporting the varsity and will continue its unconditional support in future. It is worth noted that Prof. Dr. Ishtiaq A. Rajwana is also Head of the Department of Horticulture at MNSUAM. As Chairperson NAEAC, he has taken exemplary steps and concrete measures for betterment of the accreditation process of academic programs at universities and registration of agri graduates, which are truly appreciable. Under his supervision, E-Newsletter has also been launched to make the stakeholders aware of NAEAC activities.

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CHAPTER - 04 FACULTY DEVELOPMENT



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CHAPTER - 04 FACULTY DEVELOPMENT



FACULTY DEVELOPMENT

The University has a policy for capacity building of its all employees with special emphasis on faculty development. The University organizes 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 university rules & regulations.

4.1. Objectives

- Promote human resource development as an integral part of the MNS-UAM 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.	Name	Purpose to Proceed	University
01.	Mr. Asif Mahmood Arif	Ph.D.	University of Agriculture, Faisalabad
02.	Mr. Babar Farid	Ph.D.	Huazhong Agricultural University, Wuhan, China
03.	Mr. Furqan Ahmad	Ph.D.	Zhejiang University, Hangzhou, China
04.	Engr. Shahzad Ahmad	Ph.D.	Southern University of Science & Technology, China.
05.	Mr. Muhammad Arif	Ph.D.	University of Science & Technology, China
06.	Dr. Habib ur Rehman	Post-Doctoral Fellowship	University of Bonn, Germany
07.	Dr. Fahim Nawaz	Post-Doctoral Fellowship	University of Hohenheim, Germany

o Returned Scholars

1. Dr. Mirza Abid Mehmood, Lecturer, Institute of Plant Protection

o Present Scholars

1. Mr. Muhammad Arif, Lecturer, Department of Soil & Environmental Sciences
2. Dr. Fahim Nawaz, Assistant Professor, Department of Agronomy
3. Dr. Habib ur Rehman, Lecturer, Department of Agronomy

4. Mr. Asif Mahmood Arif, Lecturer, Institute of Plant Protection
5. Engr. Shahzad Ahmad, Lecturer, Department of Agricultural Engineering
6. Ms. Hafsa Umar, Lecturer, Department of Food Science & Technology
7. Mr. Furqan Ahmad, Lecturer, Institute of Plant Breeding & Biotechnology
8. Mr. Babar Farid, Lecturer, Institute of Plant Breeding & Biotechnology

4.3. Professional Development Programs

Sr.No.	Employees	Training	Duration		Organization/ Venue
			From	To	
01	Dr. Muhammad Asif Raza	Rural Development through Creating Agricultural Value Chain (Value Addition to Livestock Products)	11.06.2019	08.08.2019	Ministry of Finance, Revenue and Economic Affairs, Islamabad
02	Mr. Muhammad Zakir Khan Ms. Somiya Ambreen,	Human Resource Management in Projects	05.08.2019	08.08.2019	Islamabad
03	Mr. Muhammad Azeem Afzaal,	Preparation of PC-I	28.08.2019	30.08.2019	MPDD, Islamabad
04	Engr. Farrukh Ehsan	UNESCO/ISED co-sponsored Fellowship Programme 2019	30.09.2019	25.10.2019	Moscow
05	Engr. Muhammad Kashif	UNESCO/ISED co-sponsored Fellowship Programme 2019	30.09.2019	25.10.2019	Moscow
06	Maher Iftikhar Ahmed	Project Audit and Procurement	24.09.2019	27.09.2019	Islamabad
07	Dr. Abu Bakar Saddique	Workshop on Application of Smart Organic Agriculture Models and Traceability Systems for Agricultural Products	07.10.2019	11.10.2019	Hanoi, Vietnam
08	Dr. Ambreen Naz	Four Days Training of Trainers (TOT)	08.10.2019	11.10.2019	Lahore
09	Dr. Sami Ullah	Four Days Training of Trainers (TOT)	08.10.2019	11.10.2019	Lahore
10	Dr. Afshan Shafi	Four Days Training of Trainers (TOT)	08.10.2019	11.10.2019	Lahore
11	Mr. Muhammad Ali Imran)Four Days Training of Trainers (TOT)	08.10.2019	11.10.2019	Lahore
12	Ms. Somiya Ambreen	Workshop on PEEDA ACT, 2006 for Officers	14.10.2019	16.10.2019	MPDD, Lahore
13	Mr. Ghulam Haider Saeedi	Short Course on Financial Management Skills for Officers	21.10.2019	25.10.2019	MPDD, Lahore
14	Mr. Nabeel Ahmad Ikram	Workshop on Smart Farming Models	04.11.2019	08.11.2019	Bangkok
15	Ms. Aisha Bibi	Workshop on Emotional Intelligence for Officers	09.12.2019	11.12.2019	MPDD, Lahore
16	Mr. Zulfiqar Ali Tabassum	Workshop on PEEDA ACT, 2006 for Officers	16.12.2019	18.12.2019	MPDD, Lahore

Sr.No.	Name of Employees	Title/Topic of Training	Duration		Organization/ Country
			From	To	
17	Dr. Ghulam Haider	One-Day Workshop/Information Session on European Union (EU) scholarship program ERASMUS+	03.10.2019	03.10.2019	University of Central Punjab, Lahore
18	Dr. Sami Ullah	One-Day Workshop/Information Session on European Union (EU) scholarship program ERASMUS+	03.10.2019	03.10.2019	University of Central Punjab, Lahore
19	Dr. Kashif Razzaq	One-Day Workshop/Information Session on European Union (EU) scholarship program ERASMUS+	03.10.2019	03.10.2019	University of Central Punjab, Lahore
20	Dr. Muhammad Abu Bakar Saddique	International Workshop Entitled "Workshop on Application of Smart Organic Agriculture Models and Traceability Systems for Agriculture Products"	05.10.2019	13.10.2019	Vietnam
21	Dr. Naheed Bano	International Workshop Entitled "Fish Culture Development"	04.10.2019	15.12.2019	Egypt
22	Prof. Dr. Zulfiqar Ali	Hybrid Wheat for Food Security	08.10.2019	19.10.2019	DFID Project, Australia
23	Dr. Abdul Razzaq	Result Based Management for Downstream Implementing Partners and Govt. Stakeholders"	30.09.2019	01.10.2019	MNSUAM
24	Dr. Naheed Bano	Result Based Management for Downstream Implementing Partners and Govt. Stakeholders"	30.09.2019	01.10.2019	MNSUAM
25	Dr. Muhammad Amir Bakhtawar	Result Based Management for Downstream Implementing Partners and Govt. Stakeholders"	30.09.2019	01.10.2019	MNSUAM
26	Mr. Shakil Ahmad	Seminar-Cum-Workshop on "The Public Finance Management Act 2019"	26.10.2019	26.10.2019	Government College University, Kutchery Road, Lahore
27	Mr. Muhammad Farhan	Seminar-Cum-Workshop on "The Public Finance Management Act 2019"	26.10.2019	26.10.2019	Government College University, Kutchery Road, Lahore
28	Dr. Hafiz Nazar Faried	Two Days Training Course on Global GAP (Goods Agricultural Practices) Organic Certification	29.11.2019	30.11.2019	SMIS-CQC Office, 169-B Muhafiz Town, Phase-2 near DHA Rahbar, Main Defence Road Lahore
29	Dr. Muhammad Amir Bakhtawar	Two Days Training Course on Global GAP (Goods Agricultural Practices) Organic Certification	29.11.2019	30.11.2019	SMIS-CQC Office, 169-B Muhafiz Town, Phase-2 near DHA Rahbar, Main Defence Road Lahore

Sr.No.	Name of Employees	Title/Topic of Training	Duration		Organization/ Country
			From	To	
30	Dr. Mudassar Ali	Two Days Training Course on Global GAP (Goods Agricultural Practices) Organic Certification	29.11.2019	30.11.2019	SMIS-CQC Office, 169-B Muhafiz Town, Phase-2 near DHA Rahbar, Main Defence Road Lahore
31	Mr. Shoaib Nasir	Two Days Training Course on Global GAP (Goods Agricultural Practices) Organic Certification	29.11.2019	30.11.2019	SMIS-CQC Office, 169-B Muhafiz Town, Phase-2 near DHA Rahbar, Main Defence Road Lahore
32	Ms. Nighat Raza	Two Days Training Course on Global GAP (Goods Agricultural Practices) Organic Certification	29.11.2019	30.11.2019	SMIS-CQC Office, 169-B Muhafiz Town, Phase-2 near DHA Rahbar, Main Defence Road Lahore
33	Dr. Muhammad Asif Raza, Associate Professor/Chairman, Veterinary & Animal Sciences	Multi-Country Training Programme on "Sustainable Agricultural Cooperatives 2020"	19.03.2020	04.04.2020	Korea International Cooperation Agency (KOICA), Korea
34	Dr. Umar Farooq, Additional Director ORIC	Role of Start-ups in Research Commercialization	21.02.2020	21.02.2020	PHEC, Lahore
35	Mr. Muhammad Asif Nawaz	Tax Matters in Public Procurement	12.03.2020	12.03.2020	Institute of Tender Management
36	Mr. Muhammad Farhan	Tax Matters in Public Procurement	12.03.2020	12.03.2020	Institute of Tender Management
37	Maher Iftikhar Ahmad	Contract Management	14.03.2020	14.03.2020	Institute of Tender Management
38	Dr. Muhammad Asif Raza	Rural Development through Creating Agricultural Value Chain (Value Addition to Livestock Products)	09.06.2020	07.08.2020	Korea International Cooperation Agency (KOICA), Korea
39	Prof. Dr. Irfan Ahmad Baig	APO – International Course "Conference on Emerging Disruptive Technologies For Economic	23.06.2020	25.06.2020	HEC & APO, Kuala Lumpur, Malaysia

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**CHAPTER - 05
ACCESS**

**MNS University of Agriculture, Multan
www.mnsuam.edu.pk**

ACCESS

5.1. Basic Enrollment during Year 2019-20

Program Offered	Male	Female	Total
F.Sc. (Pre Agriculture)	55	03	58
B.Sc. (Hons.) Agriculture	406	115	521
B.Sc. Human Nutrition and Dietetics	03	32	35
B.Sc. (Hons.) Poultry Sciences	44	05	49
B.Sc. (Hons.) Fisheries & Aquaculture	11	09	20
B.Sc. (Hons.) AIET	31	02	33
BS CS	87	13	100
BS IT	85	19	104
BBA Agribusiness	54	10	64
M.Sc. (Hons.)/MS	166	82	248
Ph.D	06	03	09
Grand Total	948	293	1241

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

5.2.1. M.Sc. (Hons.)/ MS Enrollment during 2019-20

Sr. No.	Program Offered	Eligible Candidates	Admitted (Male)	Admitted (Female)	Total Admissions
1	Agronomy	14	7	0	7
2	Agri. Economics	12	8	0	8
3	Biotechnology	51	4	19	23
4	Computer Science	79	31	19	50
5	Climate Change	3	12	2	14
6	Entomology	31	24	4	28
7	Food Science and Technology	68	16	16	32
8	Horticulture	3	17	3	20
9	Plant Pathology	32	19	5	24
10	Plant Breeding and Genetics	82	12	7	19
11	Seed Science	35	8	0	8
12	Soil Science	23	8	7	15
	Total	369	166	82	248

5.2.2. Ph.D Enrollment During 2019-20

Sr. No.	Program Offered	Eligible Candidates	Admitted (Male)	Admitted (Female)	Total Admissions
1	Agronomy	-	-	-	0
2	Biotechnology	3		1	1
3	Entomology	2		-	0
4	Food Science and Technology	-	-		0
5	Horticulture	1	1	-	1
6	Plant Pathology	1	-		0
7	Plant Breeding and Genetics	4		2	2
8	Seed Science and Technology	2	2	-	2
9	Soil Science	4	3	-	3
	Total	17	6	3	9

5.3. Number of Students Passed Out During 2019-20

Sr. No.	Degree program	Total Enrolled	Male	Female	Pass Out
1	F.Sc. Pre Agriculture	35	35	0	31
2	BS Computer Science	86	78	8	84
3	BS Information Technology	54	48	6	54
4	BBAA	34	29	5	33
5	B.Sc. (Hons.) Agriculture				
6	Agri. Economics	9	9	0	7
	Agronomy	22	22	0	20
	Biotechnology	17	10	7	17
	Entomology	22	19	3	22
	Food Science	22	12	10	19
	Horticulture	14	13	1	14
	Plant Breeding	16	12	4	15
	Plant Pathology	21	21	0	21
	Seed Science	6	5	1	5
	Soil Science	16	8	8	16
	B.Sc.(Hons.) Agriculture Total	165	131	34	156

Sr. No.	Degree program	Male	Female	Pass Out
6	M.Sc. (Hons.)			
	Agronomy	20	2	22
	Entomology	20	3	23
	Food Science	6	6	12
	Horticulture	10	2	12
	Plant Breeding	3	2	5
	Soil Science	10	11	21
	M.Sc.(Hons.) Agriculture Total	69	26	95

5.4. Full-time Faculty Members

Sr. No.	Designation	Male	Female	Total
1	Professor	7	-	7
2	Associate Professor	6	-	6
3	Assistant Professor	44	5	49
4	Lecturer	28	8	36
5	Total	85	13	98
6	PhD Faculty	63	07	70

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CHAPTER - 06 UNIVERSITIES BUILDING ECONOMIES

ACIAR PULSES PROJECT - 041 CHICKPEA - PEANUT FEST. 2020

Linking Growers to High End Markets

Feb. 10-11, 2020 | Centaurus Mall Atrium 2



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CHAPTER - 06 UNIVERSITIES BUILDING ECONOMIES



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CHAPTER - 06 UNIVERSITIES BUILDING ECONOMIES



UNIVERSITIES BUILDING ECONOMIES

6.1. University-Industry Linkages

MNS-UAM 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 methods. MNS-UAM is actively looking forward for foreign collaborations and funding for its faculty development program and research projects. MNS-UAM has a regular liaison with various industries and corporates sector since its establishment in 2012.

6.2. Farmer Advisory Services

MNS-UAM in pursuit of its moral obligation and national commitment to serve farming community has launched farmer advisory services that comprise of daily crop and weather specific tips and 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 farming community to have a demand-driven agenda for research 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 of stake holders from public and private sector 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 MNS-UAM, public sector sister research organizations, and private sector to strengthen overall agriculture sector. The South Punjab Agriculture Forum has now been established where all the agriculture-related departments are working in collaboration to boost the agro-based economy of the country.

6.4. MNSUAM Participation in Agri Expo 2019 at Lahore

MNSUAM team actively participated in the Agri Expo 2019 held at Lahore. The expo was by Minister for Agriculture Punjab, Malik Nauman Ahmad Langrial and Vice Chancellor, MNSUAM, Prof. Dr. Asif Ali also joined. The students of MNSUAM exhibited entrepreneurial ideas and products at the expo, including organic honey prepared at the University, fresh dry solar system, hydroponically grown cucumber and kitchen gardening. Objective of this projection was to promote the entrepreneurship in students of the university and appreciate their products at relevant forum and to bring confidence in them. The delegates from Indonesia, Africa, China and UAE visited the stall and appreciated the products on display and showed interest in sharing the ideas. All the guests cherished the varsity's stall and appreciated the efforts made by the students.

6.5. Mango Festival 2019

The fourth International Mango Festival 2019 organized by MNS University of Agriculture, Multan in collaboration with Mango Research Institute, Multan and Pakistan Human Development Foundation was inaugurated by Provincial Minister for Agriculture Punjab Malik Nauman Ahmad Langriyal. Prof. Dr. Asif Ali Vice Chancellor, MNSUAM, High Commissioner Federal Republic of Nigeria, Mr. Ashimiyu Adebaya Olaniyi, and High Commissioner of Indonesia, Mr. Iwan Suyudhie Amri accompanied the minister in inaugural ceremony.

Addressing to the audience at Mango Festival inaugural ceremony the Minister Nauman Langriyal showed his pleasure to join the this festival. The festival has contributed well for increasing the export of mango. He highlighted that mango is grown on 412 thousand and 5 hundred acres of land in Pakistan with an annual production of 1.735 million tons. Whereas 70% mango production is contributed by Punjab Province. About 200 varieties of mango are cultivated in Pakistan including Dusehri, Sidhari, Langra, Ratool, Chaunsa, etc. Mango is the second largest fruit produce of Pakistan after citrus. Almost every district of Punjab grow mango. Our mango is popular in Pakistan as well as global markets particularly Middle East, Britain and Europe due to its taste and aroma. Now our mango is the cheapest in international markets as compared to other countries. The Minister praised the efforts of MNSUAM for improving the production and export quality of regional mango and linking the producers with international markets. He emphasized that the participation of ambassadors from different countries and stakeholders from public and private sector will contribute in increasing the export of the region. The Minister informed that the government has started working on new plans for the improvement of agricultural production and profitably with higher exports which will contribute in poverty alleviation.

The Vice Chancellor MNS University of Engineering and Technology Multan, Prof. Dr. Amir Ijaz Malik said that the government is completely aware of the trade situation and searching new international markets for export of mango. He said the taste of Pakistani mangoes is unique in the world. We are in a transformation stage from traditional to technological approaches for improving production practices, postharvest measures and increased export of good quality fruit. Further, he upraised the efforts of MNSUAM for mango.

The Vice Chancellor MNSUAM, Prof. Dr. Asif Ali said that mango is the king of fruits and according to an estimate it has about 4000 years old history in subcontinent. These days about 149 kalmi varieties and 1000 desi varieties are cultivated in the world. Almost 25 million tons mango is produced in the world where Pakistan, India, Brazil, China, Nigeria, Mexico, and Thailand are among top 10 mango producing countries. The University is establishing new footings for mango production and introduced High Density Mango Plantation (Small Tree System) in the region. About 1300 plants per acre can be cultivated in Small Tree System with export quality harvest. The University has planted a model farm of mango for farmers. Adoption of this technology will substantially increase the mango production. The Vice Chancellor further said that festival is not only the gathering of mango growers, experts and exporters; it is also a source of information and entertainment for local community. Different entertainment programs have been arranged to create festivity for local community in very warm Multan.

At the occasion many dignitaries like Member National Assembly Mr. Muhammad Khan Daha, Member Provincial Assembly Haji Atta Ur Rehman, Member Provincial Assembly Ms. Shahida Ahmed, Chairman Multan Development Authority Rana Abdul Jabbar, Pro-Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, Director General Pest Warning Sayed Zafar Yab Haider, Director Mango Research Institute Multan Dr. Hameed Ullah, Senior Member Multan Chamber of Commerce and Industry Khawaja Farooq and many other were present. More than 70 stalls were arranged by mango growers, mango processing industry and exporters for the visitors and general public. Moreover, fun land for children, Food Street and entertainment programs were arranged for three days of the festival.

Overall, this event provided a valuable opportunity for awareness, branding and networking in mango production, supply and value chains. The stakeholders of mango industry were brought together across the country and discussions were made to overcome prevailing challenges, identify crucial gaps and explore options to improve the value and net income of the supply chain partners. More than 100

indigenous and exotic mango cultivars being grown in Southern Punjab region were displayed at the festival. About 70 stakeholders including growers, exporters, processors, nursery owners, fertilizer companies/dealers, pesticide companies, banks and several other organizations/firms etc. displayed their products on stalls. Approximately, more than 20,000 people visited the 3-day festival.

6.6. Mango Festival at the Centaurus Mall Islamabad

A three-day Mango Festival was organized by MNS University of Agriculture, Multan and Sardar Group of Companies in collaboration with Pir Meher Ali Shah Arid Agriculture University Rawalpindi and Mango Research Institute Multan at the Centaurus Mall Islamabad from 26 to 28 July, 2019, where stalls of different varieties of mangoes were displayed including first ever seedless mangoes in Pakistan. A number of foreign dignitaries, senior politicians, notables of the society, President PGCL (Pak Gulf Construction Co (Pvt.) Ltd) Sardar Tanveer Ilyas Khan, Senior Vice President PGCL Sardar Yasir Ilyas Khan and Vice Chancellor MNS Agriculture University Multan Prof. Dr. Asif Ali were present at the Inauguration ceremony. The Ambassador of United Arab Emirates, His Excellency Mr. Hamad Obaid Ibrahim Salim Al-Zaabi and Honorable Minister for Agriculture Punjab, Mr. Malik Nauman Ahmad Langrial inaugurated the festival. The Ambassador of Uzbekistan, His Excellency Mr. Furqat Sidikov also attended the inauguration. The festival was attended by agricultural experts, mango growers and representatives of concerned organizations from all over the country. The Chairman Punjab Board of Investment Sardar Tanveer Ilyas Khan played a pivotal role in planning, organizing and executing the festival. The basic aim of organizing this exhibition at the most visited Mall of Islamabad was not only to highlight the importance of Pakistani Mangoes but also to increase and enhance its exports.

Speaking to the audience, Sardar Tanveer Ilyas Khan re-iterated his vision of making this country rich in the field of agriculture. Moreover, he also said that a great investment is being generated in Punjab which will also have a positive impact on the agricultural field and enhance our yield. Addressing to gathering, the Minister Malik Nauman Ahmad Langriyal showed his pleasure to join the 2nd annual Mango-Festival at Islamabad. The festival has contributed well for increasing the export of mango. Mango is the second largest fruit produce of Pakistan after citrus. Almost every district of Southern Punjab grows mango, whereas 70% mango production is contributed by the Punjab Province. Our mango is popular in Pakistan as well as global markets particularly Middle East, Britain and Europe, due to its taste and aroma. Further, our mango is the cheapest in international markets as compared to other countries, he laminated. At the occasion, many dignitaries like Vice Chancellor, Pir Mehar Ali Shah Arid Agricultural University, Prof Dr. Qamar uz Zaman, Ex. Vice Chancellor UAF, Prof. Dr. Iqrar Ahmad Khan, Pro Vice Chancellor Prof. Dr. Ishtiaq Ahmad Rajwana, Director General Agricultural Research Dr. Abid Mehmood, Director Mango Research Institute Multan Dr. Hameed Ullah were also present.

6.7. Fish & Shrimps Stocking at Jalalpur Pirwala

Shrimps play an important in the food chain and are an important food source for larger animals ranging from fish to whales. The muscular tails of many shrimp are edible to humans, and they are widely caught and farmed for human consumption. Shrimp may have a variety of health benefits. It is high in several vitamins and minerals, and is a rich source of protein. Eating shrimp may also promote heart and brain health due to its content of omega-3 fatty acids and the antioxidant astaxanthin. Another antioxidant, called astaxanthin, which provides the primary color pigment in shrimp, has been shown to help reduce inflammation, a known trigger of aging and disease.

Aquaculture in general is considered a high-risk industry, so obtaining at least a 15% profit margin is considered a good margin. farmers producing a “21/25” count shrimp will obtain at least 14% profit margin

in the \$14-\$18/lb price range with a high survival of 80% (or 20% mortality). For commercialization, shrimps are graded and marketed in different categories. From complete shrimp (known as "head-on, shell-on" or HOSO) to peeled and deveined (P&D), any presentation is available in stores. The animals are graded by their size uniformity and then also by their count per weight unit, with larger shrimp attaining higher prices.

Although shrimp farming has disrupted social structures, it is possible for both commercial industries and independent farmers to succeed. Closed system shrimp aquaculture for instance, is becoming widely used in the US and is making its way to Southeast Asia. This system takes place indoors in moderate sized pools which efficiently circulates the water. In some cases filter feeders such as shellfish and other fish are introduced in the system, feeding off nutrients in the water that would otherwise be cycled out. This option is more environmentally safe than large scale intensive farming practices. Unfortunately, this system is capital intensive and would be difficult for small scale, independent shrimp farmers to acquire. However, this would be an excellent alternative for larger shrimp industries.

Another alternative would be to revert to traditional shrimp farming practices, without overstocking and the use of harmful chemicals. This would be an ideal option for small scale shrimp farmers supplying for their own community as well as creating an independent food source.

Fish and Shrimps stocking was inaugurated at MNS University of Agriculture's experimental farm at Jalalpur Pirwala. The University has developed four concrete and two mud fish ponds to promote fish farming in the region and fish stocking was released in both ponds for comparative experiments and research. Fish meat contains proteins which are necessary for human body. Most of our population is suffering from protein deficiency and the only solution to this problem is alternate sources of protein, such as fish. The purpose of fish stocking at Jalalpur Pirwala farms is to promote the business of fish farming among the people of this area, which is also good for human health. Dr. Naheed Bano, Assistant Professor, Fisheries and Aquaculture, said that the purpose of releasing fish stocking in salt water is to introduce fish farming to the local community, which is not only beneficial for health but also a profitable business. Fish is one of the most liked foods all over the world and people of all age-groups, including women and children, are fond of eating fish. At this occasion, Registrar MNSUAM, Mr. Imran Mahmood, Regional Manager PMO Multan, Najam ul Saqib, Deputy Project Manager, PMO Lahore, Mr. Ali Raza, Assistant Director Fisheries Lahore, Mr. Tayyab, Assistant Director Fisheries Muzaffar Garh Mr. Aashir Azeem, Lecturer Mr. Nabeel Ahmad Ikram, Farm Manager Mr. Abid Raza and Engr. Iqbal were also present.

6.8. MNSUAM Graduates Interviewed by H2 Consultants Karachi

A two-member delegation, comprising Mr. Misbah Hassan and Ms. Sonya Hassan of H2 Consultants (Pvt.) Ltd. Karachi, visited MNSUAM to select agri. graduates of the varsity for their project. The delegation interviewed and selected 12 students to work for them. They also conducted training for students on android based surveys, selection of survey areas, data collection, and entry in the software. The delegation also met with the MNSUAM Vice Chancellor, Prof. Dr. Asif Ali and applauded the students' efficiency and abilities. The Vice Chancellor said that the varsity's faculty is mostly young, with lots of enthusiasm and dedication. It is only due to their hard work that the University is progressing by leaps and bounds. He also appreciated H2 Consultants for providing opportunity to University's graduates to work in the industry.

6.9. Third Episode of Mango Festival 2019 - Packages Mall Lahore

The MNS University of Agriculture, Multan, and Mango Research Institute, Multan organized the third of this season, and first ever Mango Festival at Packages Mall Lahore from August 1-4, 2019. People of Lahore were invited to savour the flavour of mango diversity. The basic aim of setting up of this festival at the most

visited Mall of Lahore was not only to highlight the importance of Pakistani Mangoes, but also to improve access of mango growers to high end markets. This festival was organized to promote mango export, enhance market share and develop vital linkages with importers and retailers to attain volume and bulk quantity export orders. Mango growers, officials from mango pulp industry, packaging, supply and value chain were the major stakeholders of this event. Stalls of promising mango farms, mango related industries, research institutes and agro-based industries were also there to disseminate knowledge about mango production and its marketing. The festival was open to general public with special arrangements for families and kids. Mango growers from across the country set up their stalls and hundreds of indigenous and exotic mouthwatering mango varieties were displayed. The activity boasted mango treats and delights unlike any the audiences had witnessed before, from beverages to desserts, the festival had it all. Yellow colour filled the event space at Packages Mall, capturing the joy and delight of the people as they continued to indulge themselves in one flavorsome dish after another. From children to elderly; everyone was busy investing their time satiating their desires for mangoes. The success of the event once again validated the claim of Mango as the 'King of Fruits'.

6.10. USAID Team Visited MNSUAM

The representatives of USAID, Mr. Kevin Sharp, Punjab Head, and Mr. John Pollock, Head of CRA Project, visited the University. The purpose of their visit was to observe various projects of the students and their entrepreneurial activities. They witnessed different business stalls of the students, discussed about their activities and have valuable suggestions. The Vice Chancellor, Prof. Dr. Asif Ali welcomed the two-member team and briefed them about the development, educational and research activities at the University. He said that the varsity is using all its resources to inculcate the sense ownership and self-sufficiency in students, so that they not only help themselves but also be useful member of the community. Mr. Kevin Sharp and Mr. John Pollock appreciated the efforts made by the University and applauded the students' participation in extracurricular activities. Afterwards, both members planted trees at the University ground near Admin Block. A large number of University teachers and students were present at the occasion.

6.11. Third Sino-Pak International Conferences on Innovations in Cotton Breeding and Biotechnology

Biotechnology Research Institute, CAAS, China, organized 3rd SINO-PAK International conference on Innovations in Cotton Breeding and Biotechnology from 04-06 Sep, 2019 at Changji, China. A delegate of seven scientists from Pakistan participated in this conference. Two scientists from MNSAUM (Prof. Dr. Shafqat Saeed, Dean, FAES; Dr. Zulqurnain Khan, Assistant Professor, IPB²), two scientists from Cotton research Institute, , Multan (Dr. Saghir Ahmed, Director; Dr. Zia Ullah Zia, ARO), one scientist from AARI, Faisalabad (Dr. Abid Mehmood, Director General, Agric. Res.), one scientist from UAF, Faisalabad (Dr. Masooma Naseer Cheema, Associate Professor, Department of Plant Breeding and Genetics) and one scientist from Center of Excellence in Molecular Biology, Lahore (Dr. Tayyab Hussain, Director) participated in the conference.

A meeting was held to discuss the current cotton situation and future prospects. It was decided to formulate a collaborative project under "One Road One Belt" for funding. All the organizers such as Prof. Zhang Rui, Dr. Liang, Dr. Meng, Dr. Way, Dr. Ali, Mr. Umar etc participated in the discussion. Dr. Abid Mahmood, Dr. Saghir Ahmed, Prof. Shaqat Saeed, Dr. Zia Ullah Zia and Dr. Zulqurnain Khan took the initiative to write the initial draft of the project. Following areas were identified for collaboration (i) germplasm exchange (ii) technology transfer (iii) mechanical picking (iv) pest and weed management and (v) training of scientists. Project was written with Zhang Rui's group (BRI, CAAS, China). Discussion on future collaborations was made successfully with Tianzhen Zhang group (Zhijiang University, Wuhan,

China). MOU and MTA Agreements were signed with Prof. Zhongxu Lin (Huanzhong Agriculture University, China). Cotton germplasm was taken from Prof. Zhongxu Lin for further studies in Pakistan. Meeting was conducted with Prof. Xin-Hui Nie, Director/Secretary of the Department of Agriculture, Shihezi University for research collaborations and cooperation. More emphasis was given to “One Road One Belt” program for writing projects to hunt grants.

Dr. Abid Mehmood, Director General, Agriculture Research, Punjab, presented a comprehensive outlook of the cotton crop in Pakistan. He informed that his institute has developed 59 cotton varieties with an economic contribution of Rs. 1400 billion to the national economy since 1980. Dr. Saghir Ahmad Director Cotton Research Institute Multan gave a talk on “Introgression of Cotton Leaf Curl Virus (CLCuD) resistant genes from *Gossypium arboreum* to *G. hirsutum*”. He added that few CLCuD resistant lines through hybridization between *G. arboreum* and *G. hirsutum* followed by successive backcrossing have been developed by the team at Cotton Research Institute Multan. MNH-1050 is the first promising line/product obtained through introgression of the two species *G. arboreum* and *G. hirsutum*. This line possesses harmonious combination of seed cotton yield and fiber traits. Prof. Dr. Shafqat Saeed greatly appreciated the Chinese scientists for their collaboration and helping the world particularly Pakistan in combating challenges encountered by the cotton crop. He underlined the need to find sustainable solutions for problems incurred by changing climate scenario. The development of resistance against heat, sucking insects pests especially whitefly, pink bollworm and begomoviruses induced Cotton leaf curl disease should be achieved by coordinated research activities beyond borders. He also shared the success story of the management of Pink bollworm at the MNSUAM. Dr. Tayyab Hussain presented his work entitled “‘Exotic’ genes expression in Cotton for fiber quality improvement”. Expression of bacterial cellulose genes (*acsA* and *acsB*) in a local cotton variety under fiber specific promoter (*GhSCFP*) resulted in increased in fiber length (upto 17.52%), increased fiber strength (upto 26.45%) and decreased fiber micronaire value (upto 22.41%) in the transgenic lines as compared to the control non-transgenic cotton plant lines. Dr. Masooma Naseer Cheema presented her work entitled “Consequences of poor stewardship of Bt cotton in Pakistan”. She laminated that this technology has revolutionized the cotton production in the developed countries, but its adoption in the developing countries didn't perform up to the mark. Comparing the situation in both scenarios showed non-stewardship of this technology in the developing countries, where the system was not supervised and regularized as it was in the developed world; ranging from seed marketing to the policy matters. Dr. Zulqurnain Khan talked on “Comparative study of TALEs/TALENs and Cas9/dCas9 for virus resistance in cotton”. Dr. Khan said that cotton leaf curl disease (CLCuD) is one of the major factors for low yield of cotton in Pakistan. He urged that engineering resistance in cotton cultivars against CLCuD through RNA-directed Cas9 is a powerful tool to tackle the viral disease in cotton. Pakistani participants also visited the Xinjiang Agriculture Expo, Changji, Xingjiang followed by farmer field visit. The success stories of 1st and 2nd SINO-PAK Conferences was presented in the closing session of the conference by Dr. Zulqurnain Khan. Prof. Zhang Rui said that SINO-PAK cooperation is need of the hour to solve common problems for progress and development in both the countries; China and Pakistan. She said that she is ambitious for future collaboration with MNSUAM to do joint projects.

6.12. FAO Country Head Visited MNSUAM

Ms. Mina Dowlatchahi, country head, Food and Agriculture Organization along with her team visited MNSUAM. The purpose of this visit was to join hands with the varsity on different research projects to be initiated for prosperity of small farmers. Prof. Dr. Asif Ali, Vice Chancellor briefed the delegation about the university's contribution to the cause of helping farmers and growers of this area. He said that the

University is progressing leaps and bounds in terms of establishment of modern labs, increase in student enrollment, winning national and international projects, and successfully collaborating with the farmers and the agricultural industry. He informed the guests that the varsity is already working on a project for small farmers named 'Model Village' at Jahanian where farmers are being trained to use modern technology and advanced machinery for farming to obtain better and more yield. He announced that in near future we are going to develop the second model village at Basti Jalil. Ms. Mina Dowlatchahi appreciated the initiatives taken by the university and its development works. She vowed that their organization would like to be part of the agenda of the university to work for betterment and prosperity of farmers and the community of this area. MNSUAM and FAO are also partner in the upcoming conference on Climate Smart Agriculture.

6.13. Care New Holland and MNSUAM Collaborate for Advancement in Agri-Engineering

The country head of Care New Holland, Mr. Mansoor Rizvi and Chief Executive, Shah Sons Multan, Mr. Naeem Akhtar visited MNSUAM to extend collaboration with the varsity on different research projects pertaining to agri-engineering and usage of modern machinery in agriculture. The Chairperson, Department of Agri. Engineering, MNSUAM, Dr. Alamgir Akhtar Khan briefed that the students of the varsity are not only gaining knowledge of inventions in this sector but also getting hands-on practical experience of using the agri-machinery in the fields. He further stated that we are leaving no stone unturned to improve the standards of harvesting through use of modern equipment and technology. The University has progressed in a very short span of time. The establishment of modern labs, visible increase in students' enrolment, national and international grants and projects, collaboration with farmers and the industry are evidences of its rapid growth. Both guests appreciated the development of the varsity in various aspects and said that their organizations would like to work with this fast growing institution and collaborate for further advancement in the field of agri. engineering and training of students and farmers. Mr. Mansoor Rizvi announced provision of a tractor by Care New Holland for agri-engineering lab. At the end of the visit, the guests were awarded with honorary shields. They also participated in plant-for-life campaign and planted trees at the varsity.

6.14. World Cotton Day Observed at MNSUAM

Like other parts of the world, World Cotton Day was observed at the Varsity on October 07, 2019. In this regard, a ceremony was held aiming at raising awareness among farmers and scientific community regarding problems related to cotton crop and their possible solutions. Moreover, excessive use of polyester and decline in cotton usage was also highlighted. Prof. Dr. Asif Ali, Vice Chancellor, MNSUAM presided over the ceremony, while Ms. Rabia Sultan, a progressive cotton grower from Kot Addu was the Chief Guest. The Vice Chancellor welcomed all participants including guest speakers, farmers, representatives of agriculture departments, teachers and students. He briefed that the University has conducted a survey at model village 109/10-R in Jahanian and found that some farmers were getting 3-4 times more yield than the others, in the same village. According to the authentic survey reports, farmers could get better produce due to following four reasons. Firstly, advisory service could provide timely information about weather forecasts to farmers. Secondly, quality Inputs could give farmers better extension services, quality seeds, fertilizer and pesticides. Thirdly, availability of credit could financially support farmers to buy quality seeds, fertilizer and pesticides for the crop. Lastly, marketing could make it possible that the farmers get maximum rate of their produce following its timely sale with profit margins. Progressive cotton grower, Ms. Rabia Sultan said that cotton is an important crop of the country and a sudden decline in its produce has been observed in recent times. We must introduce new and better

varieties of cotton for its sustainability and profitability. She deplored that production of cotton is dwindling with each passing day and both small landholders and big landlords are disturbed with losses being incurred owing to climatic changes. Climate change is a real threat for which the growers, the agriculture institutions and the government should brainstorm and devise a common strategy for better results. She urged that public-private partnership can bring desirable change in a short span of time. Dr. Saghir Ahmad, Director, Cotton Research Institute briefed the house about the climate smart cotton breeding undertaken at his research institute and success achieved so far. Chairman Pakistan Crop Protection Association (PCPA), Mr. Asif Majeed talked about pest management in cotton, Mr. Imran Junaid from Fatima Fertilizer Company talked about cotton challenges and role of nutrition, and Dr. Muhammad Arshad Shakeel discussed the success stories of pink bollworm (PB) ropes in integrated pest management of white fly and pink boll worm in cotton grown at Multan and Jalalpur Pirwala Research Farms of MNS-UAM. The participants urged that cotton is the future of the country's economy. A large number of cotton growers, students and faculty members attended the seminar.

6.15. DICE-AFS Innovation Event 2019 held at MNS University of Agriculture Multan

The two-day Distinguished, Innovation, Collaboration and Entrepreneurship (DICE) Innovation Event 2019 was successfully organized by the MNS University of Agriculture, Multan with joint collaboration of the varsity and DICE America. Hundreds of students from 34 universities of Pakistan participated and over 170 business models were presented in the event. The idea behind the event was to motivate academia, industry, government, entrepreneurs and expatriates to join a common platform to showcase innovations and technologies, share knowledge and further collaborate with each other for the rapid development of innovative products, necessary for the economic development of the country. The main objectives of the competitions were to foster a culture of innovation and entrepreneurship in the country and make it part of Nation's DNA, and to create a positive and favorable image of Pakistan's agriculture and food based industry in the eyes of international community.

Provincial Energy Minister Dr. Akhtar Malik, and Provincial Minister of Punjab for Management and Professional Development Syed Hussain Jahania Gardezi inaugurated the event. Members of Provincial Assembly Mr. Wasif Mazhar Raan, Mr. Saleem Akhter Labar, Mr. Qasim Abbas Langah, Ms. Sabeen Gul, Officials from DICE USA Mr. Khawar Qureshi and Dr. Khurshed Ahmed, Vice chancellor Karachi University Dr. Wajihuddin and famous urdu writer and poetess Ms. Haseena Moen were also present at this occasion. Presiding over the session, the Vice Chancellor MNS-UAM Prof. Dr. Asif Ali said that the objective of organizing this event was to promote entrepreneurship among the students. The competition is being held among the 170 business models under four categories including Engineering and ICT, Animal Husbandry DVM, Agriculture and Human Nutrition, Food Sciences and Dietetics, which showed the diversity of ideas in the minds of young students, he added.

In the event, competition of pulses' dishes under the auspices of ACIAR funded pulses project (Increasing productivity and profitability of pulse production in cereal based cropping systems in Pakistan) was also held. The aim of pulses dishes competition was to highlight the importance of pulses, their value added products and their dietary benefits for a healthy lifestyle. Eating pulses is better than eating junk food because pulses are free of chemicals, the Vice Chancellor remarked. There were two categories of pulses' dishes including professional and non-professional. Under the professional competition category, first position was bagged by Ramada hotel, second position by Awari Express and COTHM; while, the third position was scored by China Town Restaurant. In the non-professional competition, University of Sargodha team got first position, MNS-UAM team scored second position and Rise College for girls' team

stood third. Cash prizes of 15,000 rupees were given to first position holders, 10,000 rupees to second position holders and 5000 rupees to third position holders both in professional and non-professional categories. Volka Foods Chairman, Chauhdry Zulfiqar Ali Anjum while addressing the students said that use of pulses in our daily diet is being diminished because we prefer to eat junk food that causes negative effect on health. He said that pulses are rich in iron, calcium, potassium, zinc, magnesium, dietary fibre and good for lowering cholesterol. Moreover, pulses are also good for the digestive system and regulate the energy level in our body, he added.

Under the industrial expo, latest agricultural equipment and machinery were also displayed and the growers were apprised of using technological methods of cropping so that they would be able to increase their productivity with minimum resources and time. Over 30 stalls were set up in the industrial expo wherein the students displayed agricultural machinery. Women University Multan's Vice Chancellor, Prof. Dr Uzma Qureshi said that such events should be organized on regular basis. She remarked that Pakistani students are second to none and they have come up with very unique and innovative ideas in the event. Such events help in showcasing the talent of young generation for the larger benefit of society.

The closing ceremony of the DICE competitions was held on 10th October, 2019. Sardar Tanveer Ilyas Khan, Chairman, Punjab Board of Investment and Trade (PBIT) and Mr. Ahmad Hussain Dehar, MPA were the Chief Guests of the event. Other notables included Dr. Uzma Qureshi, Vice Chancellor Women University Multan, Dr. Iftikhar Ali Director Nuclear Institute for Agriculture and Biology, Syed Ibne Hussain Retired IG Railway Police, Mr. Javaid Akhter Ansari Member Provincial Assembly, Khalid Mehmood Khokhar, President Pakistan Kissan ittehad. At this occasion, Sardar Tanveer Ilyas Khan said that our youth are guarantee for better future of this country, if they continue to bring in innovative business and entrepreneurship ideas such as those he has seen at this great event organized by the MNS-UAM. He pronounced that the doors of PBIT are always open for university students and young business enthusiasts who want to make a difference in the market with their innovative projects. The Chairman, PBIT appreciated Prof. Dr. Asif Ali and his team for organizing yet another successful event and remarked that he has high hopes for the university to play an important role in the development of this dynamic region. Mr. Ahmad Hussain Dehar also spoke to the audience and said that entrepreneurship is the future and competitions like this would help our students enhance their confidence level and entrepreneurial skills. After graduating, not every student may be able to get a job in the midst of issues like ever increasing population and lack of resources. Therefore, doing their own business would help them not only earn for themselves and support their families but also create jobs for others. He further said that the business models presented at the event are proof of the fact that our students are very talented and our future is in safe hands. Prof. Dr. Asif Ali, Vice Chancellor, said that the purpose of these competitions was to promote the culture of entrepreneurship and the varsity would continue to organize such events in future.

A total of 170 business models were presented in the event by the students belonging to 34 universities of the country including Air University, UVAS Lahore, BUIITEMS Quetta, University of Karachi, Isra University Karachi, Jinnah University of Women Karachi, University of Sargodha, University of Agriculture Faisalabad, BZU Multan, Women University Multan, Education University Multan, MNS-UAM, MNS-UET etc. First position along with the prize of Rs.100,000/- was grabbed by the Karachi University, BUIITEMS Quetta got second position with prize money of Rs.50,000/- and COMSATS Vehari stood third with a reward of Rs. 25,000/-. All Participant teams were awarded certificates of appreciation. Industry participants (those who set their stalls at expo) were also given DICE- Agriculture and Food Sciences 2019 shields. After the closing ceremony, a musical and cultural night was also held in the varsity, wherein students presented

various cultural dances and performances.

6.16. Mango Supply Chain Improvement and Marketing

A one-day workshop on "Mango marketing and Market Development Strategies" was jointly organized by MNSUAM and Mango Research Institute, Multan. The basic purpose of the workshop was to build capacity of the mango-growers and traders on basic principles and procedures of successful marketing of mango. While addressing to the audience, Dr. Mubashir Mehdi from University of Agriculture, Faisalabad said that this region is widely recognized for its flavorsome, mouthwatering, sweet mangoes. An effective marketing strategy can significantly improve the export of mango and thereby increase foreign exchange earnings. If mango could timely reach the markets and necessary steps are taken for its preservation, it could benefit to a great extent. He further said that UAF and MNSUAM are working on improving the quality and yield of mango. The MNSUAM has started ultra-high density production of mango, which could increase per acre yield by three to four times. Prof. Dr. Asif Ali, Vice Chancellor delivered opening remarks on the subject and appreciated the contributions of the keynote speaker Dr. Mehdi for Mango Supply Chain Improvement. He further appreciated that the seminar has been organized on the demand of the mango growers, particularly Mr. Muzaffar Khakwani. He gratefully acknowledged the efforts of Dr. Hameed Ullah, Dr. Amin and Mr. Asif Tipu for coordinating and making excellent arrangements for the seminar.

6.17. Interactive Session on Farms-in-Arms

An interactive seminar regarding Farms-in-Arms Project was held at MNSUAM wherein the farmers and growers belonging to Model Village Farm, Chak 109/10-R Jahanian – a joint project of MNSUAM and PCPA – participated and shared their experiences. The Vice Chancellor commented that MNSUAM and PCPA have jointly started the model village project to capacitate the farmers to improve their production with better management practices and use of modern technologies through mutual cooperation. He also articulated that the University's doors are always open for farmers and growers and its scientists are always ready to go extra mile to help solve their problems. The CEO Evyol Group, Ch. Asif Majeed said that farm productivity has declined due small land holdings with the division of land. Therefore, with the help of the University, private sector is introducing new methods and technologies to the farmers to get more produce out of small fields. The model village farmers also expressed their views in the session. Mr. Sajjad Rasool urged to develop more such villages where farmers would be encouraged to adopt methods of advanced farming skills instead of traditional ways of crops cultivation. Mr. Javed Iqbal told that MNSUAM and PCPA have worked hard on the model village farm. We must grow crops according to soil and environment of the area. Mr. Saeed mentioned that such varieties of crops be cultivated that give more produce. Mr. Shakeel said that agriculture is backbone of Pakistan's economy and cotton is the most important crop in the country. Malik Nazar revealed that the old methods of cultivation have become obsolete now and we must use modern ways and harness the benefits of new technology. Ch. Irshad said that seeds must be kept changing while sowing every time in order to get better produce. All the stakeholders unanimously agreed on continuation of the model village farm project.

6.18. Training Workshop for One-Year Internship Program for Agri. Graduates

The 12-day training workshop under the newly funded ADP funded project "Enhancing Productivity in 10 Low Producing Tehsils through Deployment of Fresh Agri. Scientists at Farm Level (Pilot Project)" commenced at the University from November 7, 2019. The training workshop is part of the two years development project of the Punjab Government in which 274 agri. graduates from all over the province will be inducted as internees in two years. During current year, 130 agri. graduates were given hands-on training for modern agriculture practices, so that they can use their updated knowledge and skills for

solving the problems of the farming community. In this regard, a ceremony was also held at the Varsity. Mr. Ali Arshad, Additional Secretary Task Force for Agriculture was the chief guest of the event. While addressing to the participants on the inaugural session of the workshop, the Vice Chancellor, Prof. Dr. Asif Ali said that we are aware of the importance of agriculture, therefore, the Punjab Government in collaboration with the MNSUAM has taken this initiative. After 12 days of training workshop, the agri. graduates would embark on for one year's internship program @ stipend Rs. 30,000- per month plus a modest incentive based upon their performance. These agri. graduates would be placed in 10 low producing tehsils of Punjab province where they will work for guidance of local farmers. While talking about important factors of the internship program, Prof. Dr. Irfan Ahmad Baig, Dean FSS&H, said that 274 graduates would be appointed in ten tehsils of Punjab with low agricultural productivity so that they could play their roles for improvement of agriculture in these areas. Selected candidates will work with the registered farmers for the provision of extension and technical services. He further told that the agri. graduates would be observed through a modern monitoring and evaluation system and will be provided incentive as well based upon performance.

6.19. Field Training on Mango Small Tree System, Egypt

A field training on Mango Small Tree System was conducted in Egypt from November 11-16, 2019. The training was organized by MNS-University of Agriculture Multan in collaboration with Pakistan Mango Growers Group (PMGG) and Mango Research Institute, Multan. This on farm training was aimed to witness the small tree system of mango orchards and assess the success of planting geometry, production dynamics, plant protection measures and nursery establishment so that same can be adopted at large scale in Pakistan. This grower to grower experiential learning activity boosted the confidence of local mango growers for possibility of successful mango production under small tree system. Moreover, the participants also got the opportunity to interact with Egyptian mango growers of Nimos and Sadat Farms. The organizing team including Dr. Muhammad Amin, Mr. Asif Hayat Tipu, Dr. Kashif Razzaq, Dr. Abid Hussain, Mr. Tariq Malik, Engr. Maqbool Ahmad lead the tour with 46 mango growers from Punjab and Sindh. This was the first ever activity in the history of Pakistan which would lead towards transformation in mango production systems from conventional to precision based high density mango plantations. Certainly, these kinds of initiatives will pave the way to bring the prosperity in mango far communities by increasing farm income through high yield and supreme quality.

6.20. MoU Between MNSUAM and Pakistan Bait-ul-Maal

A Memorandum of Understanding for mutual collaboration between MNSUAM and Pakistan Bait-ul-Maal was signed on November 11, 2019 at the Varsity. Prof. Dr. Asif Ali, Vice Chancellor and Mr. Aun Abbas Bappi, Managing Director Pakistan Bait-ul-Maal signed the MoU. According to the memorandum, Pakistan Bait-ul-Maal will offer scholarships to the deserving students of the University to continue their education. Scholarships will be offered after complete verification of the student's credentials. As per agreement, Pakistan Bait-ul-Maal will bear the educational expenses of 50 students of MNSUAM for a period of two years enabling the deserving students to carry on their studies. Both institutions desire that poor students should be given the rights and facilities equivalent to rich students in order to make them confident and express their hidden talents.

6.21. International Conference on Climate Smart Agriculture

The Department of Agronomy, MNSUAM organized an international conference on "Climate Smart Agriculture: The Way Towards Sustainability" on November 26-27, 2019. The conference was organized in collaboration with Hochschule Geisenheim University, Germany under the framework of DAAD funded

project to mitigate climate change for food security with technical cooperation of Food and Agriculture Organization of United Nations. The conference was jointly inaugurated by Ms. Sumaira Samad (Additional Chief Secretary Agriculture, Punjab), Ms. Mina Dowlatchahi (FAO Representative in Pakistan), Dr. Muhammad Azeem Khan (Chairman, Pakistan agricultural Research Council), Syed Ibne Hussain (Former IG, Railway Police / Member PPSC) and Prof. Dr. Asif Ali, VC, MNSUAM. About 350 participants (scientists, academia, researchers, students, policy makers, agriculture experts, progressive farmers and other stakeholders) across the world had an opportunity to meet and share knowledge and develop community partnerships about climate smart agriculture for a sustainable and secure future.

Prof. Dr. Asif Ali gave a comprehensive overview of the conference and thanked all the organizers and sponsors of this conference. He said that research work on climate change is our top priority area and MNSUAM is well aware of the current situation. This conference is an attempt to create awareness about this issue. He highlighted the research work and outreach being undertaken at MNSUAM in this regard. He added that conference had brought together renowned experts on climate change from USA, Italy, Australia, Denmark, Germany, Netherlands and Pakistan. Dr. Azeem Khan said that agriculture in Pakistan is facing multiple issues; water scarcity and climate change being the two biggest challenges. The losses caused by these two reasons are huge, he added. Ms. Mina Dowlatchahi said that events like the climate change conference would help the scientists and farmers chalk out their line of action to cope with challenges posed to agriculture by the environmental changes. Ms. Sumaira Samad hoped that the conference would also pave way for making a better agriculture policy. Risks due to unprecedented climatic changes and weather extremes may increase many folds due to lack of awareness to cope with situations or early warning system to avoid major losses, she laminated. Research collaboration, sharing of ideas, knowledge transfer and brain-storming sessions would be beneficial in this regard, she proposed. Prof. Dr. David J. Mulla (University of Minnesota, USA) advocated climate Smart agricultural strategies for adapting crop production. Dr. Robina Wahaj (Land and Water Office, FAO Italy) talked about transforming Indus Basin through climate smart agriculture: FAO's approach. Water-Energy-Food nexus in the changing climate, risks and impact on food production was presented by Mr. Jippe Hoogeveen (Senior Land and Water Officer, FAO Netherland). Dr. Gabriela Alandia (University of Copenhagen, Denmark) presented results of four years research to diversify North-European food systems with protein crops. Prof. Dr. Shahzad Maqsood Ahmad Basra (Department of Agronomy, University of Agriculture, Faisalabad) presented his research work regarding potentials and perspectives of future smart food crops in Pakistan. Ms. Genevieve Hussain (Policy Officer, FAO, Australia) discussed socioeconomic perspectives on climate smart agriculture in Sindh province. Dr. Abdul Ghaffar (Chairman, Department of Agronomy, MNSUAM) offered vote of thanks.

In addition to inaugural and plenary sessions, 9 technical sessions under the thematic areas of (i) climate smart agricultural (CSA) innovations, (ii) climate Smart management of surface and ground water, (iii) climate smart soil and fertilizer management (iv) global warming impacts and mitigation, (v) climate smart farming systems (vi) modeling for climate change, (vii) food diversification for future food security, (viii) socio-economic perspectives and policy innovations for CSA (ix) modified Integrated pest and disease management for CSA were also held wherein about 60 scientists presented their work. The event provided a platform to discuss practical innovative solutions for adoption of climate smart agriculture system in Pakistan. It helped discover smart strategies including ICT, support farmers through technology, soil fertility management, water saving techniques, mechanization, precision farming and cropping system diversification to improve productivity of agricultural systems.

The concluding ceremony of the conference was graced by Ms. Zartaj Gul (Minster of State for Climate Change) as chief guest. Other notables included Dr. Muhammad Tufail (VC, Ghazi University, Dera Ghazi Khan), Dr. Abid Mehmood (DG, Agriculture Research, Punjab), Dr. Muhammad Zaffar Iqbal (Agricultural Biotechnology Research Institute, Faisalabad), Mr. Zafar yab Haider (DG, Pest Warning & Quality Control of Pesticides). Ms. Gul applauded the efforts of MNSUAM to boost agricultural development in this dynamic region. She announced that the government would work with academia to find out ways to tackle the problem. She promised unconditional support of all the resources at her disposal to the MNSUAM and urged the students to become climate, clean and green ambassadors to support government's efforts in this connection. She said a campaign has been launched to create awareness among people regarding the effects of polythene bags. Prof. Dr. David J. Mulla and Dr. Gabriela Alandia presented the recommendations of the conference. It was decided that findings of the conference will also be shared to the farming community in local languages under the umbrella of a seminar entitled "Science for Farmers" as farmers are the main stakeholder. It is believed that this conference provided opportunities for better future planning and adaptation of climate smart agricultural systems.

6.22. Groundwater Management Options for Climate Smart Agriculture

Department of Agribusiness and Applied conducted a technical session on "Groundwater Management Options for Climate Smart Agriculture". It was carried out under the ACIAR funded project "Improving Groundwater Management to Enhance Agriculture and Farming Livelihood in Pakistan" on the eve of second international conference on "Climate Smart Agriculture: The Way towards Sustainability" on November 26, 2019. Session was attended by Prof. Dr. Muhammad Ashfaq, University of Agriculture, Faisalabad, Dr. Bashir Ahmed, Director Climate, Energy and Water Research Institute, Pakistan Agricultural Research Council, Dr. Asghar Ali, Assistant Professor, UAF, Mr. Muhammad Ameen, UAAR, Mr. Tahir Mehmood, PhD scholar, UAAR, Dr. Awais Tahir, Director PERI, Punjab, and Dean FoSS&H Prof. Dr. Irfan Ahmed Baig. Dr. Richard J. Culas, Senior Lecturer, CSU, Australia and Dr. JF Punthakey, Director GW&E, Australia participated in this session via video link.

Prof. Dr. Muhammad Ashfaq said that increase in night temperature is quite alarming for agricultural productivity and Pakistan is ranked 8th on the climate risk index. Dr. Richard J. Culas elaborated his research work on water resources and stressed on the importance of improvement in government policies and farming practices to enhance water use efficiency. Dr. JF Punthakey said that groundwater is decreasing at a rate of one meter per year in some areas of Pakistan which require holistic approach to tackle the severity of this issue. Dr. Asghar Ali, said that decrease in groundwater leads to increase in poverty and society faces socio-economic hurdles. Overall, all the participants focused on the need of national level policy for the efficient and controlled use of groundwater for sustainable agricultural productivity and profitability.

6.23. Training Workshop for One-Year Internship Program for Agri Graduates

The second session of 12-day training workshop for agriculture graduates under the ADP funded project "Enhancing Productivity in 10 Low Producing Tehsils through Deployment of Fresh Agri. Scientists at Farm Level (Pilot Project)" commenced at MNSUAM on December 3, 2019. The training workshop is part of the two years development project of the Punjab Government in which 274 agri. graduates from all over the province will be inducted as internees in two years. During current year, 130 agri. graduates will be given hands-on training for modern agriculture practices, so that they can use their knowledge and skills for solving the problems of the growers and farmers. In this regard, a ceremony was also held at the varsity. Prof. Dr. Asif Ali, Vice Chancellor was the chief guest of the event. While addressing to the participants on the inaugural session of the workshop, the Vice Chancellor said that we are aware of the importance of

agriculture, therefore, the Punjab Government in collaboration with MNSUAM has taken this initiative. After 12 days of training workshop, the agri. graduates would embark on for one year's internship program @ stipend Rs. 30,000- per month plus a modest incentive based upon their performance. These agri. graduates would be placed in 10 low producing tehsils of Punjab province where they will work for guidance of local farmers. These agri. graduates would be placed in 10 low producing tehsils of Punjab province where they will work for guidance of local farmers. While talking about important factors of the internship program, Prof. Dr. Irfan Ahmad Baig, Dean FoSS&H, said that 274 graduates would be appointed in less-cultivated Tehsils of Punjab so that they could play their roles for improvement of agriculture in these areas. He further told that the agri graduate would be observed through a modern monitoring system.

6.24. Interactive Session on Paradoxical Agriculture

The MNSUAM arranged an interactive session on "Paradoxical Agriculture" in the Seminar Hall of the university. Mr. Muhammad Asif Sharif, specialized in project development in agriculture was the guest speaker. The objective of the seminar was to raise awareness regarding implementation strategy of paradoxical agriculture for high yield crops production through better use of soil and without pesticides and synthetic fertilizers. The seminar was attended by a large number of farmers, growers, faculty and students. While addressing to the participants, the Vice Chancellor said that there is a lot to do for proliferation of Agriculture; new policies should be formulated and modern practices of harvesting be introduced. The University is working on various research projects for better crop production and prosperity of the farming community. Mr. Asif Sharif delivered a detailed lecture and shared his ideas for new technology of change in existing production system for enhanced yields on sustainable basis with minimum inputs and cost of production. He said Pakistan is an agricultural country but for the past few years the agriculture sector is under crises and farmers are not getting much profit and leaving this profession. Country's agriculture is not profitable, competitive, sustainable and inclusive. Moreover, pesticides contaminated food is affecting human health to a great extent. He mentioned that farmers ought to use advanced technology and modern tools for better crop production. Plowing in field destroys microbes and organic matter in soil as they are exposed to irradiance and burnt. Moreover, tractor tires create hard pan due to soil compaction. Improvisation without regard to soil system is fatal and modernization has taken the same to next level. He regarded Moldboard plow as weapon of mass destruction that has imbalanced the ecosystem. Industrial agriculture is against nature and is not self-sustaining, he laminated. He advocated the no-Till, raised bed cropping, no inundation of soil, input optimization and maintaining organic soil coverage for enhancing agricultural profitability and sustainability. Mulching conserves soil moisture and moderates soil temperature as well. Horizontal water movement and soil biota is favored. He urged that these practices should be opted as part of agriculture inspired from nature. Paradoxical agriculture is the production system based on natural processes of soil and vegetation-two integral and infinitely self-renewing processes. He shared his success stories regarding cotton, rice, potato, maize, sugarcane, foddors and orchards. He shared his Facebook page "Pedaver" and profile of technological service provider company "Farmall Technologies". Another speaker, Dr. Mahmood Ahmad from Centre for Water Informatics, LUMS presented policy brief regarding shift from conventional to paradoxical agriculture. This presentation followed an interactive and meaningful question answer session. At the end of the event, Prof. Dr. Shafqat Saeed, Dean FoA&ES thanked all the participants of the interactive session.

6.25. PSDF Short Courses under Prime Minister Kamyab Jawan Program

Admissions are being offered on limited seats by the Department of Continuing Education, MNSUAM for 6-month short courses in Agriculture Farm Manager, Agri Business and Integrated Pest Management in collaboration with Punjab Skills Development Funds (PSDF) under Prime Minister Kamyab Jawan Program. The short courses are completely free of cost, along with free books, copies and recognized certificates would be given to successful students. The candidates aged 18 years or above, holding valid CNIC and having Matric qualification are eligible to get admission in these short courses. Desirous students can obtain further information from the following phone number of the Department of Continuing Education, MNSUAM: 061-9201679.

6.26. Dr. Neil Forester, An Australian Cotton Expert Visited MNSUAM

Australian Entomologist Dr. Neil Forester who visited MNS University of Agriculture Multan on February 01, 2020 along with Ex Secretary Agriculture (Punjab) Capt. Retd. Arif Nadeem and Dr. Ahsan Rana, Associate Professor at LUMS. Dr. Neil Forrester is one of the world's leading entomologists and an international business strategist based in Australia. He was in Pakistan to develop a broad outline for policy reforms in cotton production in Pakistan. In MNSUAM, he talked to faculty, students and other stakeholders of cotton about the cotton crop scenario in Pakistan. In his presentation, Dr. Forrester explained that the biggest threat to Pakistan's indigenous cotton was the cotton leaf curl virus, and pests were of least concern. Today not only bollworms have developed resistance against Bt cotton, but farmers are also spraying twice as much pesticides as they did before the advent of Bt. He said that Pakistan is facing decline in cotton industry on account of availability of quality seeds and increasing resistance in pink bollworm and white fly. He highlighted that India's cotton production had almost double and stressed that quality seed were vital to get bumper yield. He had meetings with cotton growers, representatives of seed companies and representatives of Pakistan Cotton Ginners Association (PCGA) to discuss the issues of growers, seed and ginning and discuss the possible alternatives to cope with these issues. After detailed discussions with various stakeholders in Multan, Lahore, Faisalabad and Rahim Yar Khan to develop policy guideline for enhancing cotton production.

6.27. MNSUAM and NASCAP Join Hand to Transform Agriculture Sector

The National Assembly Special Committee on Agricultural Products (NASCAP) signed MoUs with six agricultural universities of Pakistan in a bid to facilitate sustained collaboration for agricultural transformation. Under a collaborative mechanism and shared commitment, the agriculture universities will provide technical support to Speaker's led Special Committee on Agricultural Products. The universities, under the MoU, will develop customized and demand-based position papers, briefing papers, backgrounds, fact sheets and policy reviews on agricultural issues for the Committee's deliberations. The universities will facilitate public hearings, policy dialogues and stakeholders' consultation as per the needs of the Committee. In a meeting with vice chancellors/representatives of agricultural universities and heads of agriculture research institutions, Speaker National Assembly Mr. Asad Qaiser emphatically stressed the need for policy shift to make agriculture more competitive, profitable, and sustainable. Speaker National Assembly said that agricultural development is indispensable to Pakistan's enduring quest for sustained and inclusive economic growth. He stated that agriculture universities as repository of agricultural knowledge, research and intellectual capital may play a key role in guiding the National Assembly's pathways for agricultural development.

Prof. Dr. Shafqat Saeed, Dean, FA&ES and Director ORIC Prof. Dr. Zulfiqar Ali represented MNSUAM and agreed to jointly work with NASCAP for successful transformation of agriculture sector, and to enhance productivity and improve living standards of farming community. Meanwhile, the Sub-Committee of the

Special Committee on Agricultural Products also met with vice chancellors to discuss the universities' suggestions for agricultural development. The meeting presided by the Convener Syed Fakhar comprehensively examined the National Action Plan for Anti-Locust operations. In this regard, the Committee formed a task-force headed by Chairman PARC comprising representatives of agriculture universities. The Committee urged the universities to examine the issues of agricultural credit, agriculture technology transfer, value addition, horticulture development, regulation of the pesticides, fertilizers and seeds sector, and agriculture research development. The Sub-Committee also sought practical proposals on developing collaborative linkages between research departments, universities, extension departments and farmers.

6.28. MNSUAM is Leading Locust Research

The MNSUA Vice Chancellor Prof Dr Asif Ali said that the University had sent special teams to the South Punjab districts to find out locust swarms. The teams of agriculture scientists had found locust attacks in irrigated and non-irrigated areas, including Rahimyar Khan, Bahawalpur, Bahawalnagar, Vehari, Sahiwal, Bhakkar and Rajanpur districts, he told. The University teams headed by Dean FAES Prof. Dr. Shafqat Saeed collected samples of locusts from Sadiqabad and adjacent areas and deeply observed locusts' destruction, including crops, weeds and desert plants besides locusts' life cycle and color of the pest. The university faculty and postgraduate students doing various experiments to handle the menace of locusts in desert and cropped areas.

Moreover, scientists of MNSUAM will visit locust-hit cultivated areas of Balochistan province and conduct experiments on elimination of the Locust. According to Prof. Dr. Shafqat Saeed, a delegation of MNSUAM scientists in collaboration with officials of FAO would visit locust affected areas. He informed that the delegation was invited by Agriculture Department of Government of Balochistan. To a query about purpose of visit, he informed that MNSUA recently prepared bio-pesticide for elimination of locust and result of lab testing were encouraging. Now, we would test the biopesticide under field conditions with collaboration of other departments of agriculture after some biosafety tests.

6.29. Pulses Exhibition at Centaurus Mall Islamabad

The MNS University of Agriculture, Multan organized Pulse Exhibition, 2020 at Centaurus Mall, Islamabad on Feb 10-11, 2020 to mark the International Pulses Day in collaboration with national and international partners. The objective of this Chickpea and Peanut Fest 2020 was to promote pulses in Pakistan with the support of Australian Centre for International Agriculture Research (ACIAR) commissioned project "Increasing Productivity and Profitability for Pulse Production in Cereal based Cropping System in Pakistan". The exhibition was inaugurated jointly by Prof. Dr. Asif Ali, Vice Chancellor and Sardar Yasir Ilyas Kahn, younger brother of Sardar Tanveer Ilyas Khan, Chairman Punjab Investment Board. The inauguration ceremony was also attended by a number of diplomats and renowned political and social personalities of Islamabad. The main objective of the exhibition was to promote agricultural entrepreneurship aligned with the vision of Prime Minister of Pakistan and introduce our regional products to international markets. The growers showcased peanut oil and pesticide/fertilizer free chickpea that encouraged stakeholders including growers, nutritionist, traders, exporters, input suppliers and service providers in seeking opportunities for pulses value addition. The event also provided opportunities for awareness, branding and networking in pulse production, value chains as well as other enterprises and businesses besides linking growers to high end markets.

6.30. International Conference on Smart Potassium Nutrition Management in Crops

The Department of Soil and Environmental Sciences, MNS University of Agriculture Multan in collaboration with Engro Fertilizer Ltd and Arab Potash Company Jordon organized a one day International Conference

on “Smart Potassium Nutrition Management for Crops under Changing Climate” on March 3, 2020. The eminent speakers from Jordan and Pakistan presented valuable talks to highlight the use of Potash fertilizer in crops. The Additional Chief Secretary, Mr. Arif Anwar Baloch, Additional Chief Secretary Agriculture & Rural Economy, Govt. of Punjab was the Chief Guest of the event. The International Conference was one of the key initiatives of MNSUAM, to formulate a strategy to improve potassium use and management through innovative ideas and to create awareness among farming community.

The conference presenters shed light on use of Potassium in Crops as it is one of the three key ingredients for plant growth, which in turn is vital to meet growing food requirements. Its main functions include the production of sugar and starches, and the regulation of water conditions within the plant cells. It is also intimately linked with Nitrogen use. Potassium activates over 60 enzymes which are involved in many important plant physiological processes. It promotes photosynthesis, and intensifies the storage of assimilates; this is the reason why it is of particular importance for root and tuber crops such as Potatoes. It also improves the quality and flavor of the vegetables and fruits. In brief, potassium raises yields and food value, builds disease resistance and improves shipping, handling and storage qualities.

The key speakers included Prof. Dr. Munir J. Muhammad Rasan from Jordan, Prof. Dr. Asif Ali, VC MNSUAM, Mr. Asif Ali, Head R&D Engro Fertilizers, Prof. Dr. Muhammad Yaseen, Dr. Munawar Mahdi, Director SFRI Punjab and others. A large number of farmers and growers along with faculty and students attended the Conference.

6.31. CEO, Pakistan International Airlines Offers Reduced Freight Charges for Mango Export

The Chief Executive Officer, Pakistan International Airlines, Air Marshall Arshad Mahmood Malik has offered reduced freight charges for mango export. He was talking to a group of Mango Growers/Exporters during the online webinar organized by MNSUAM. The Vice Chancellor started the proceedings of the webinar with recitation of few verses from Holy Quran and explained that the main focus of the webinar is to discuss the bottlenecks faced by mango exporters in the air lifting of the product from Pakistan with the top management of the Pakistan's national flag carrier airline. He also informed the house that from Friday June 19, 2020, the promotion of mango as a brand 'Uni-Fresh mango' will be initiated at Centaurus Islamabad and for this purpose a group of about 50 mango growers has been registered as mango vendors. The Vice-Chancellor also unveiled the purpose of the series of mango webinars in the last couple of explained to provide a platform to resolve the various issues faced by the mango industry stakeholders under the prevailing conditions of COVID-19 pandemic covering mango production, postharvest handling, labor safety protocols and mango export issues. Mango growers, processors, exporters, researchers, extension workers and academia from Punjab and Sindh participated in the webinar.

Major Tariq Khan., Chief Executive, Mango Growers Association, Multan briefed the participants about the current situation of mango export through sea, land and air routes. He further added that currently Qatar Airways and Emirates Airways are exporting the Pakistani mango on about 3-4 times higher rates than the last year rates which is making Pakistani mango non-competitive in the international markets. PIA as national carrier should play its role to rationalize the air freight rates by offering no profit no loss rates for this year to the mango exporters. He expressed his fear of losing the international markets if this issue is not handled swiftly and efficiently.

Dr. Waqar Ahmad, Director Agriculture Technology, USAID lauded that threat of pandemic can be converted into an opportunity if right strategies at the right time be adopted. He appreciated the efforts of present PIA's CEO expressed high hopes that he will make a way through this crisis by facilitating the export of horticultural commodities.

Syed Mahmood Shah Nawaz, Vice President, Sindh Abadgar Board assured PIA CEO that on behalf of

Sindh mango growers he commits to provide sizeable volume of mangoes for export load during the current season.

Air Vice Marshall Muhammad Arshad Malik, CEO PIA, assured that he and his team is committed for the national cause and will facilitate the mango export on at maximum especially in terms of freight rates. He further added that PIA will share the flight schedule of one week with mango growers for so that they can plan their shipments accordingly. He further revealed that as Hub of PIA's air cargo flights will be either from Islamabad or Lahore so exporters should arrange their cargo accordingly. He offered the mango growers for export of mango on full cargo-load on no profit-no loss basis, and informed that PIA has already arranged all clearances for air freight through Boeing 777 carrier for mango export but he needs commitment and support from the mango growers. He also pointed out some problems need to be addressed related to packaging and pelleting of mango fruit during export. He disclosed that a core group consisting of GM Cargo PIA and Air commodore Mr Jabran will be available on 24/7 basis for coordination with Mango exporters and he himself will ensure that these issues would solve within next week.

Madam Rabia Sultan, Mango Grower from Muzaffar Garh briefed the participants that time is essence for the mango export as we need to take decision on war footing. As mango is our ambassador, access to the international market may be lost which has been earned after the work of decades. She suggested to make a core group for deliberations on the cause of mango export with Govt. officials from the forum of Mango stakeholders also.

Mr. Asif Hayat Teepu also highlighted the importance of exporting a sizeable quantity to higher markets in stabilizing price of the mango in domestic market.

Prof. Dr. Asif Ali thanked all the participants especially the head of PIA and expressed his satisfaction on the proceedings of the webinar / meeting. He lauded the efforts of whole team and stakeholders for their efforts in confronting difficult situation under COVID-19 pandemic but exerting their efforts for a national cause.

Key decisions of the meeting are as under:

1. Core group from PIA side will comprise of General Manager Cargo, Mr. Tariq Khan and Air Cmdr Mr. Jabran while from Exporters / Growers, Madam Rabia Sultan, Major Tariq Khan and Syed Mahmood Nawaz Shah will coordinate with PIA. Mr. Asif Hayat will facilitate the coordination among various stakeholders.
2. PIA team will share the schedule of PIA flights on weekly basis with the exporters for facilitation of cargo planning.
3. Exporters will verify the cargo load from Islamabad and Lahore to PIA so that it can work out the cost in no profit no loss basis. Major Tariq Khan and Syed Mahmood Nawaz Shah will take the responsibility in this regard while Madam Rabia Sultan will be the point of contact.
4. Maximum growers will register themselves for Mango sale point at Centaurus, Islamabad under the brand of Uni Fresh. Mr. Asif Hayat will finalize the arrangements.

6.32. Mango Stalls at Centaurus Mall, Islamabad

MNSUAM has been successfully organizing Mango Festival at Centaurus Mall Islamabad for last couple of years. Due to COVID-10 pandemic, this year a mango stall is being formed at the mall for a month commencing from 30th June. High quality mangos of registered farms of Punjab and Sindh will be available at the stall for the people of Islamabad and Rawalpindi at reasonable cost. In addition, the facility of online booking and home delivery will also be available for the residents of the twin cities.

The Vice Chancellor, MNSUAM thanked the Chairman, Punjab Board of Investment, Sardar Tanveer Ilyas Khan, for allowing mango stall at the Centaurus Mall and said that he is taking good initiatives for promotion of Agriculture, particularly Mango, which are producing favorable results. He is facilitating farmers and

mango growers to access new and bigger markets, which is bringing significant improvement in their lives. His initiative of letting the mango stall organized at the capital city during the time of pandemic is highly admirable.

6.33. Online Meeting on Mango 2020 under Covid-19 Pandemic

MNSUAM started conducting a series of online meetings on Mango to highlight the problems related to mango industry with clarity at every forum and mango agenda to be extended through the policy notes to a Mango Vision/Mission. The purpose of the meetings was to provide a platform to resolve the various issues faced by the mango industry stakeholders under the prevailing conditions of COVID-19 pandemic related to mango production and postharvest handling. These include developing SOPs for mango labour involved in picking to packing and logistics, export and domestic marketing, postharvest processing and value addition. Mango growers, processors, exporters, researchers, extension workers and academia from Punjab and Sindh participated in the webinar.

In this regard, an online meeting was held on 31st May, 2020 wherein a number of mango experts, scientists and growers participated. The first agenda point discussed in the meeting was about the latest locust attack update, Ch. Shahzad Sabir, Director, Agri. Extension, Multan updated the participants about the damage caused by locust in Multan division and joint locust combat campaign of Agriculture department, PDMA and NDMA. He briefed that the latest migration of locust swarm was noted on May 17, 2020 via the route of Muzaffar Garh, Layyah and Bhakkar to Kabirwala in Khanewal district, the swarm length was about 20-25 Km and it affected field crops and fruit orchards including cotton, fodder crops, maize and mango orchards. He further elaborated that Agriculture department is actively involved to take possible control measures including aerial sprays to combat locust attack. He further added that only combined efforts of farmers and Govt. officials can effectively control the locust attack, the farmer should follow department advisory and locust migration forecast.

Prof. Dr. Shafqat Saeed, Dean, Faculty of Agriculture and Environmental Sciences, MNS-UAM presented a comprehensive strategy to control locust adults and nymphs through insecticides and microbial agents. He shared the results of 6 types of insecticidal screening study and found that 'Chlorfenapyr' at 125 ml to 700 ml per 100 liters of water gave the best control both for locust nymphs and adults within 24 hours. Further, he revealed that insect growth regulator (IGR) do not kill the locust instantly, however after 72- and 168-hour of application, IGR 'Pyriproxifen' gave the promising control of nymphs of locust. He further discussed the research finding of locust microbial control study and observed 100% mortality of locust nymphs with microbial treatment of various bacterial strains. He disclosed that an international webinar on locust invasion will be organized on June 1, 2020 at 4 pm & requested the participants to participate in the webinar.

Ali Khuzaima Khan, mango exporter shared some tips to boost mango export under COVID19 pandemic. He briefed the participants that under COVID 19 pandemic, this year the mango export will decline; however, this can be compensated through mango export through road & sea to Iran and Afghanistan. The Chinese market can be targeted for mango export; however, Syed Mehmood Shah, mango exporter from Sindh pointed that in Chinese market we will face competitions from Taiwan's mango and rates of mango can vary depending on the cosmetic quality of produce. Further, we should also target our local markets as well through online marketing. Rana Asif Hayat Tipu, mango consultant reviewed the online mango marketing system. He was of the view that for online marketing we should brand mango as 'Uni-Fresh Mango' for mango sale leverage. Further, he suggested to go for mango value addition options as mango pulp and dry mango. At the end, Ms. Rabia Sultan suggested to make a working paper consisting of high-end mango export markets, variety wise lucrative markets for mango and market wise SPS measure.

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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 establishment/strengthen 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. 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 thin funding in FY 2018-19, the time/cost overrun. Consequently, the scheme was got 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.

An amount of Rs. 1333.438 million was allocated for the construction of physical infrastructure i.e. Academic Block, Administration Block, Boy's Hostel, Girl's 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, 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 & ICT Equipments up to FY 2019-20 from which Rs. 189.202 million has consumed and 760 equipments 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 & fixture have been procured and established the class rooms, offices, hostels, and guest house.

An amount of Rs. 49.304 million has been provided under Farm Development & others component. The university leveled the 500 Acres of barren land at Jalal Pur Pirwala and constructed 4816 meter long Water Course for irrigation purpose. The university converts this barren land in to the research/ experimental stations and it is very useful for research students and faculty members to perform research activities.

7.2. Construction of Central Library at MNS-University of Agriculture, Multan

Honorable Minister (Care Taker) 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 Sft. The construction work of library has been completed and an amount of Rs. 29.986 million is disbursed for the Central Library Building up to date.

Library is 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. Student 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	Total Number of Books
1	2016-2017	2976
2	2017-2018	4436
3	2018-2019	5009
4	2019-2020	5350

Other achievements pertaining library are as under;

- Inauguration and working of library automation system that has improved research & learning for the University Community.
- Complete cataloging & classification of library material and organizing of books in shelves according to the classification scheme.
- Starting and functioning of different sections of library e.g. Urdu section, thesis section, newspaper section & reference section.
- Subscription of HEC recommended journals to facilitate borrowers in their respective field of research
- Transformation of closed shelving system to open shelving system which is more users friendly.
- Improvements in library infrastructure to procure library furniture.
- Facilitation to University Community by providing them remote access of electronic resources during COVID-19.

7.3. Provision of Fresh Irrigation Water and Other Basic Infrastructure Facilities at Jalalpur Pirwala Farm of MNS-UAM

Another ADP Project of Rs. 170.00 million for fresh irrigation water & other basic infrastructure facilities at JPPW Farm of MNS-UAM was approved with the execution period of 24 months (2019-20 to 2020-21). The work was allotted to contractor after calling competitive tender. More than 50% of the project activities out of which HDPE Pipeline up to 9 km for fresh water irrigation supply has been laid down, boring, pumping chamber room and installation of 02 turbines (1.5 cusec) have been completed. Whereas remaining construction work and allied activities are in progress.

An amount of Rs. 90.00 million was released up to FY 2019-20 and out of which Rs. 89.999 million has been consumed and remaining work is in progress at full swing.

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 post-graduate 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 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.

7.4. University Farms

MNS University of Agriculture, Multan has two research farms at Chak 84-M, Jalalpur Pirwala and Mouza Rangeel Pur, Multan, the first comprises 500 acres and the later has 170 acres of land. These farms provide the students 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:

7.4.1. Agricultural Farm, Jalalpur Pirwala

- After the bulldozer work on 500 acres land of University Farm Jalalpur Pirwala, and after laser levelling the major challenge was to cultivate this saline sodic soil with brackish underground water. However, challenge has been accepted and about 350 acres of land have been leveled. The rest will be cultivable after laser land leveling which is also in progress.
- 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 meet water requirements in winter and as per need in summer, two tractors operated water turbines / Tubewell have also been installed to fetch the groundwater. Furthermore, in order to fetch sweet / fit for irrigation water from 6 km away, a project has been approved and work is under progress.
- About 265 acres of land are now under cultivation, where various crops and tree plants are being planted. During Rabi season, major crops were wheat, barley, raya and quinoa, whereas during Kharif season, major crops grown are cotton, millet, Guar and sorghum. Further, sesbania has also been sown for green manuring, to add the organic matter into the soil.
- About 35,000 plants of various tree species like gum Arabic, lbbeck, Indian lilac, Indian beech tree, moringa, pomegranate, guava, Jujube, fig and flasa 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.
- Fish farming and shrimp farming has also been started, especially experience of Shrimp Farming has been good.
- Four residences have also been completed at University Farm Jalalpur Pirwala, one for Farm Manager and other three are for supporting staff.
- Electricity has been provided at the Farm with installation of 200 kva transformer.
- An ADP project of sweet water is near completion which will convert the whole area of the farm under cultivation and production will be increased.

7.4.2. Agricultural Farm, Rangeel Pur, Multan

In Mouza Rangeel Pur, Multan 180 acres of land was allotted to the University, out of which 70 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. In C-block, 45 acres land has been laser leveled and is under proper layout. During Rabi 2019-20, major crops were wheat, chickpea, lentil, berseem etc., whereas during Kharif season, more than 30 acres were under cotton crop and rest was under fodder and other various crops. High-Tech structures like hydroponic system, green house/s, containment/quarantine facility and tunnels have been constructed in C-block area. Small tree mango system and Kitchen gardening have also been established. During the year 2019-20, an income of 12.50 million was achieved and amount was deposited in University account.



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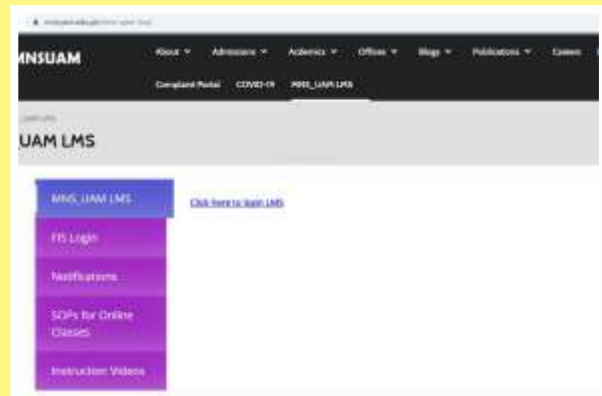
CHAPTER - 08 STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE



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CHAPTER - 08

STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE



STRENGTHENING OF TECHNOLOGICAL INFRASTRUCTURE

Directorate of IT, MNSUAM played a pivotal role in realizing the vision and mission of the MNS University of Agriculture, Multan by strengthening the ICT Infrastructure and facilities. Following 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, Cisco Wireless LAN Controller 3504 was deployed. This centralized WLC provides secure, high performance Wi-Fi internet experience.



8.1.3. Cisco SG350 Series Switching Setup

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 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 in the University. Benefits include 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 integration of the network to the new generation of security.



8.1.5. 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.



8.1.6. Dahua IP Security System Setup

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



8.1.7. Computer Labs

Three new computer labs have been established in new Faculty building. Latest software are installed which facilitate 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.

8.1.8. Fiber Optic Backbone Links

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

8.1.9. New Video Conference Rooms Setup

There are three video conference room facilities for staff and students. These rooms are equipped by, Multimedia, LED TV, Sound System & internet facilities.

8.1.10. Multimedia Equipped Classrooms

University has arranged multimedia in every classroom to provide excellent facilitation to students. Multimedia Projectors are providing facility of diversified teaching and learning more diversified and interactive in classrooms. These Projector key features are picture execution, determination, long light life, item versatility, brilliance, PC associations and calm activity. Moreover, 50 projectors installed to give more ease to the students in learning.

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

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 the COVID-19, this really helped the University in conducting online classes and meetings.

8.2.2. Microsoft Dynamics365 Implementation

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

8.2.3. PERN Update

University upgraded the PERN services contract from P1 to P2 package that enhanced the internet bandwidth from 45 Mbps to 150 Mbps, and faculty & student licenses including MS Office 365 and MS Windows OS.

8.2.4. Website Update

Directorate of IT is managing the official website as well as launched project related websites for faculty and students. University official website was updated from WordPress to Joomla, a free and open-source content management system



(CMS) for publishing web content.

8.2.5. LMS System Update

During the COVID-19 pandemic, Directorate of IT with support of Department of CS deployed Moodle LMS System & Google Classroom hosted on local servers and conducted online classes and online entry tests for the first time. This facility highly added value to the automation of the University and provided uninterrupted education facilities to students and faculty.

8.2.6. Google G-Suite Services

All staff and students have facility of Google Corporate G Suite services. These services consist of Email, Word, Excel, PowerPoint & unlimited Google drive. Especially, all students were provided G Suite accounts this year, that highly enhanced the productivity of students and collaboration. These services are being managed by Directorate of IT.



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CHAPTER - 09 UNIVERSITIES BUILDING COMMUNITIES



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UNIVERSITIES BUILDING COMMUNITIES**9.1. Jang / The News Education Expo 2019**

The faculty members and students of MNSUAM participated in the News Education Expo-2019 held at Multan. The Vice Chancellor Prof. Dr. Asif Ali inaugurated the event in the presence of Allama Iqbal Open University Regional Director, Ghulam Hussein Khosa and Ex-registrar, Bahauddin Zakariya University, Dr. Omer. The participants considered the event as an effective platform for connectivity and objectivity for education institutions, education consultants and students.

Education counselors and volunteers of MNS-UAM were equipped with the answer of every possible question regarding admissions, programs offered and the scholarships. The visitors took advantage of direct interaction with the representatives of MNSUAM who provided on the spot free-of-cost information to them. Representatives of the MNSUAM appreciated the timings of the expo. "This is admission season and students' minds are full of queries at this time. It is great that they can have all this information under one roof," they acknowledged. "The turnover is much more than our expectations. All our officials are busy round the clock in dealing with the students," said Prof. Dr. Asif Ali during his visit to the Expo. MNSUAM stall displayed and provided informative brochures, and handouts besides registering the visitors for future collaboration. The Vice Chancellor appreciated the initiative of the Jang Group for managing such a successful event in Multan, saying the group had proved its keen interest in providing guidance to students and promoting education in the country. Dozens of educational institutions established their stalls and briefed the students on their career. The MNSUAM stall managers helped students imparting knowledge of modern agriculture and it served guests with mango 'Lassi', a traditional drink and cookies made by Department of Food Science and Technology of the Varsity. Free tree saplings were also distributed among masses by MNSUAM for "Clean and Green Pakistan". Two new degree programs viz. Human Nutrition and Dietetics, and Agro-Industrial Engineering and Technology were also highlighted among the visitors. The visitors admired the efforts of the MNSUAM in collaboration with Nishtar Medical University for launching a needful program to uplift the nutritional status of the community in South Punjab. The stall managers said they had received more queries than 2018 Education Expo. The event not only helped aspiring students gain an understanding of admission policies but also provided them with an opportunity to learn about various degree programs being offered at region's first full fledged agricultural University. The Commissioner Multan Mr. Imran Sikandar Baloch also visited MNSUAM stall and admired the efforts of University management. He gave souvenir of appreciation to Mr. Muhammad Ali Raza PRO, MNSUAM.

9.2. Challenges and Potentials for Rural-Urban Transformation

Prof. Dr. Andreas Buerkert, and Dr. Barbara Buerkert, from Organic Plant Production and Agroecosystems Research in the Tropics and Subtropics (OPATS), University of Kassel, Germany, visited MNSUAM from July 19-20, 2019 to explore future possibilities for collaborative research. Prof. Dr. Andreas Buerkert is world renowned scientist and Director, International Center for Development and Decent Work (ICDD). His research focuses on carbon and plant nutrient cycling in agroecosystems to analyze management effects on system sustainability, the role of organic amendments and mineral fertilizers on plant nutrient availability and product quality, and on nutrient acquisition by plants in marginal and intensive environments. Prof. Dr. Andreas Buerkert delivered a seminar on "Challenges and potentials for rural-urban transformation: an agro-ecological perspective" on July 19 at Seminar Hall. His lecture was well-versed and there was interactive discussion and question-answer session.

9.3. Role of Youth as Positive Catalyst for Society's Development

MNS University of Agriculture and National Accountability Bureau, Multan jointly organized an awareness seminar under social action project on the title of “The Role of Youth as Positive Catalyst for Society's Development” in seminar hall of the varsity. The Seminar was presided over by the Vice Chancellor, Prof. Dr. Asif Ali, whereas Director NAB Multan, Mr. Abdul Hafeez Khan was the Chief Guests. The Seminar started with recitation from Holy Quran followed by Naat-e-Rasool. Addressing to the Seminar, the Vice Chancellor, MNSUAM said that we always try to engage our students in such seminars and activities, which on one hand educate them about society's obligations towards them and on the other inculcate the sense of being responsible citizens. He further stated that it is our national duty to eradicate the cancer of corruption from our country and we should all work together for this righteous cause. Director NAB, Mr. Abdul Hafeez Khan said that not only taking money as bribe but not fulfilling your responsibilities is also corruption. The NAB is organizing a series of seminars and workshops to raise awareness among people, particularly our youth, to work for a peaceful and corruption-free Pakistan. We should all educate others to cooperate with NAB for creating awareness of adverse effects of corruption and bring a positive change in the society. At the end, the Director NAB answered to questions asked by the students. A large number of faculty members and students participated in the seminar.

9.4. Kashmir Solidarity Day

Kashmir Solidarity Day was observed at MNSUAM on 7th August, 2019 to express whole-hearted support of the Pakistani nation to struggle of Kashmiri people for their inalienable right to self-determination under the UN resolutions. The Vice Chancellor, Prof. Dr. Asif Ali urged the international community, the United Nations, and human rights organizations to take notice of the grave human rights violations in Indian Occupied Kashmir. Addressing the gathering on discussion on 'Kashmir Matters' he said Kashmir is an unsettled issue of partition and Indian leaders had promised in the United Nations that Kashmiris would be given a chance of referendum under UN supervision so that they could decide their fate according to their own wishes. That promise has not yet been fulfilled as Indian leadership fears that Kashmiris will prefer to go with Pakistan. Therefore, India is trying to suppress the freedom movement of Kashmiris through oppressive use of force and state terrorism. Recently, the revoking of article 370 and 35A is another condemnable Indian act to subjugate the rights of Kashmiri people. The participants strongly condemned Indian atrocities on innocent Kashmiris struggling for their right to freedom and demanded of the United Nations to live up with its promise and resolve the dispute as per aspirations of the people of Kashmir.

9.5. Independence Day Celebrations & Kashmir Solidarity Day: Plantation of Mulburi at Muburi Courts

Pakistan's 72nd Independence Day Celebrations ceremony along with Kashmir Solidarity Day was held on 14th August, 2019 at the main campus of the University. The Vice Chancellor, Prof. Dr. Asif Ali, inaugurated the event with hoisting the flag of Pakistan following the national anthem. The students and officials from nearby mosque and SOS Village were especially invited to attend the ceremony. The participants recited Holy Quran and prayed for prosperity of our motherland and liberation of Kashmir. Later on, tree plantation campaign was held near the Mulberry Courts (Boys Hostel) of the varsity. A large number of faculty members and students from MNS-UAM and nearby mosque participated in this campaign and planted numerous mulberry trees. Prof. Dr. Asif Ali said that tree plantation and green belts are our priority in Multan and we will strive hard to turn Multan green. He added that trees are an essential component of existence of life on earth. We are well aware of the significance of trees, and are fulfilling our moral obligation by planting

as many trees as we can. He urged all teachers, staff and students of the University to plant trees as a fulfillment of their national duty.

The event formally commenced with recitation from Holy Quran followed by Naat. Afterwards, the Dramatic Club of MNS-UAM performed various national songs, skits and dramas on themes related to Independence of Pakistan and atrocities committed to Kashmir and its people. The memorable performances of the students were lauded by participants in the ceremony. Prof. Dr. Asif Ali, Vice Chancellor, in his address, stressed upon spreading pluralistic values in the society based on mutual respect and contributing positively towards the country's progress. By following agenda of faith, discipline, unity suggested by great Quaid-e-Azam, we can develop our nation to embrace any challenge. He said that self-belief and proper planning is the key to achieve any task. It is the responsibility of youth of this country to come forward and lead its way to prosperity and success. He urged the need for community engagement and said that today's event is exemplary in the sense that a large number of students from religious schools are attending the event. We will continue to engage them in near future also, he further added.

While talking about the current situation of Kashmir, the Vice Chancellor said that we must raise voice against the brutality of Indian troops in Kashmir. India has started genocide of innocent Kashmiris while revoking Article 370 and 35A, which is being condemned by the entire world. Kashmir is heaven on Earth, and it will never be granted to any non-muslim. InshAllah Kashmir will become part of Pakistan. The Dean, FA&ES, Prof. Dr. Shafqat Saeed, renowned religious scholar Maulana Abdul Wajid Watto and Hakeem Aamir Razzaq Obhaya also addressed to the participants and shared their thoughts on independence and Kashmir issue. The Vice Chancellor appreciated the faculty and administrative staff for organizing such a wonderful event and cherished all activities. The faculty members and administrative staff also brought their families and children in the ceremony, as well as a large number of students attended the event.

9.6. Symposium on Smart Nutrition in Human Health: Launching of 2 + 2 HND Degree Program

The international symposium on "Importance of Nutrition in Human Health under the theme of "Smart Nutrition: Key to Healthy Life" was organized by Department of Food Science and Technology in collaboration with Nishtar Medical University on 8th August 2019 at Assembly hall of Nishtar Medical University. The symposium was chaired by Vice chancellor, MNS-UAM Prof. Dr. Asif Ali and Vice chancellor, NMU, Prof. Dr. Mustafa Kamal Pasha. The Vice chancellor, NMU Prof. Dr. Mustafa Kamal Pasha in his welcome note acknowledged that both universities are launching a new degree program (B.Sc. Human Nutrition and Dietetics) with mutual student admissions and curriculum sharing. Mr. Aslam Shaheen (Chief Nutritionist in Planning Commission/ SUN focal person) explained the current nutritional status in all age groups, later Dr. Munawar Hussain (National Program Manager-Food Fortification Program) discussed the role food fortification to overcome micronutrients deficiencies. Dr. Muhammad Shafique (Nutrition Officer, UNICEF) and Dr. Irshad Danish (Co-ordinator SUNAR, Pak Nutrition International) gave detailed description of role of NGOs in addressing malnutrition in Pakistan, and how they are performing their roles in alleviating malnutrition. Dr. Muhammad Nasir (Manager Regulatory Affairs, Engro Foods and Dr. Saeed Akhtar (Director, Institute of Food Science and Nutrition BZU) gave their remarks about nutrition and human health, and how human health is affected by the food consumption patterns. In the successive session, Prof. Dr. Asif Ali put forward the vote of thanks to all the dignities and guests. Mr. Javaid Akhtar Ansari and Mr. Jahanzaib Waran (MPAs) addressed the sessions and appreciated the efforts of NMU, and Department of Food Science and Technology, MNS-UAM for initiating new degree program to improve the nutritional status

of people of south Punjab

During the technical session, different scientists revealed the eating habits and their consequences on human health, like staple foods, wheat, rice and maize, are rich in carbohydrates; therefore, food diversification is of prime importance, the nutritional requirements of children and pregnant women were explained by Prof. Dr. Waqar Rabbani (Registrar, NMU) and Dr. Huma Quddos (NMU), respectively. Prof. Dr. Khalid Gill (NMU) explained the role of nutrition in arthritis. The session was ended by the vote of thanks from Dr. Umar Farooq (Chairman, Department of Food Science and Technology).

9.7. Every Person – Two Trees Campaign

During the monsoon afforestation to be carried out under the umbrella of 10 billion Tree Tsunami (10BTT) project, another campaign 'Har Bashar Do Shajar' (Every Person – Two Trees), was carried out at Multan Campus and Experimental Farm, Jalalpur Pirwala. Prof. Dr. Asif Ali said that trees are an essential component of existence of life on earth and human beings cannot survive without trees. We are well aware of the significance of trees especially in the backdrop of climate change, and are fulfilling our moral obligation by planting as many trees as we can. He added that it is mainly a behavioural change movement to plant more trees and keep the environment clean with mass public ownership of the initiative. Our last three years have been a remarkable success in this regard. He urged all teachers, staff and students of the University to plant trees as a fulfillment of their national duty. To mark the event, 1300 plants of Gum Arabic, Mulberry and Black Plum were planted. Overall, the Varsity has planted 10, 000 trees in this monsoon season with 8000 tree saplings planted at Jalalpur Pir Wala and 2000 at Multan Campus. The main trees are Mango, Black Plum, Mulberry, Gum Arabic, Moringa, Indian Lilac, Popular and Arjun Tree etc.

9.8. Kashmir Solidarity Hour

On the call of the honorable Prime minister, MNSUAM administration, faculty, staff and students take part in Kashmir Solidarity Hour on Friday (August 30, 2019) by coming out on roads to give a message to the world that the Pakistani nation stands by the Kashmiris who have been facing unprecedented human rights violations in India-occupied Kashmir (IOK) amid curfew which has entered the 24th day. The Kashmir Hour was observed between 12:00 to 12:30 throughout the country on Friday to express solidarity with the Kashmiris of Indian Occupied Kashmir (IoK) over unprecedented atrocities and aggression being committed by Indian armed forces against them. National anthem of Pakistan, and Azad Jammu and Kashmir (AJK) was played. Addressing on the occasion, the MNSUAM VC, Prof. Dr. Asif Ali said that the Kashmir issue has been a bone of contention between the two countries and we need to try more seriously towards its solution. The people of Kashmir want freedom, which is their basic right. Peaceful and economically sound Pakistan is mandatory for the Kashmir cause. He added that the purpose of 'Kashmir Hour' was to send a message from Pakistan that until Kashmiris get their freedom we [Pakistanis] would continue to stand with them. At MNSUAM, hundreds of people, including teachers, employees, students and local community participated in a massive rally to express solidarity with the people of Kashmir and condemned Indian atrocities. After addressing the gathering, the VC led the rally from Block-A to Chungi No. 21. The head to tail distance of the crowded and charged rally on main road was more than 1.5 km. Flags, badges and other items depicting Kashmir solidarity were distributed among the participants. The participants were holding placards and banners inscribed with the slogans of freedom of Indian-Held Kashmir, demanding international community to take notice of human rights violations in the Valley.

9.9. Rooftop Farming to Promote Kitchen Gardening

MNSUAM has initiated a community oriented project entitled "Capacity Building of Urban Community Regarding Rooftop Farming". The Principal Investigator of this Project, Mr. Arqam Iqbal said that rooftop farming is solution to increased food demand of a burgeoning population and can result in a sustainable and livable city. Fresh and safe food can be ensured through roof gardens. Such projects would create awareness among people regarding kitchen gardening in general and rooftop farming in particular and they would avoid vegetables cultivated with dirty water. He highlighted the hazardous effects of vegetables produced with sewage water and stressed upon the need to promote kitchen gardening for a healthy and balanced diet. In this connection, MNSUAM has also launched a project funded by AIP (Agriculture Innovation Program) and USAID that is providing quality vegetable seedlings for both normal and off-season planting, and for kitchen gardening. The overall objectives of this project are to promote kitchen gardening by establishing a system for provision of certified healthy nursery for the general public. The project is also addressing other issues like capacity building for economical and clean (pesticide free) vegetable production, household savings. A team of volunteers from MNSUAM is available for public service at their doorsteps for this purpose.

9.10. FAO Curriculum Review and Development Workshop

Food and Agriculture Organization of the United Nations (FAO) is providing technical assistance to the UK/DFID-funded "Building Disaster Resilience in Pakistan" (BDRP) Programme. The goal of the BDRP is to help increase Pakistan's capability to reduce disaster risk, through better planning, preparedness, response, and resource allocation at the governmental and community levels. Keeping in view the set targets, FAO organized a 3 days (August 27-29, 2019) curriculum review and development workshop and Master Trainers courses for Women Open School (WOS) and Livestock Field School Facilitators (LFFS) and Master Trainers at MNSUAM. The overall purpose of this workshop was to build the capacities and skills of farmer field school (FFS) approach facilitators and master trainers of FAO and its partners and govt. agriculture extension workers under the BDRP program. The 3 days' workshop facilitated the review of existing curriculum, update and develop curriculum for WOS and LFS (Livestock Farmer School) approach each being implemented on different crops, commodities and farming systems including;

1. Homestead Gardening

- i. Vegetables, fruits and trees
- ii. Backyard poultry

2. Livestock Management

- i. Livestock (large and small animals, poultry birds) management and husbandry
- ii. Multi-fodder
- iii. Border-Fodder (Hedgerows), agro-forestry
- iv. Feed production

The purpose of the curriculum review and development was to design a comprehensive final document based on complete year-round cropping systems for organizing a successful Master Trainers course, which will further build the capacity of facilitators across the country in selected districts. Identification of best-recommended practices against the existing practices as per cropping systems and calendars was the prime activity during the workshop. Mr. Nabeel Ahmad Ikram (Lecturer, MNSUAM) gave presentations on Data collection for Agro-Ecosystem Analysis, and Backyard Vegetables and Fruit Production. Dr. Nasir Nadeem (Associate Professor, MNSUAM) acted as focal person for smooth conduct of this workshop.

9.11. Syed Fakhar Imam, Chairperson Kashmir Committee Appreciates Model Village, Jahanian

The Chairperson Kashmir Committee, Syed Fakhar Imam appreciated the concept and working of cooperative system of Model Village Jahanian, a joint project of MNSUAM and PCPA. The honorable Chairperson Syed Fakhar Imam, Vice Chancellor Prof. Dr. Asif Ali, Prof. Dr. Muhammad Iqbal Bandesha, Dr. Asif Majeed, Mr. Khalid Khokhar, and General Secretary PCPA Rao Shahid along with a number of farmers inspected the cotton crop at Model Village Farm, Chak 109/10-R Jahanian. Syed Fakhar Imam applauded this unique project initiated by the varsity and commented that the project would help build capacity of the farmers about getting higher production with use of modern technology in their fields. He stated that further projects of this kind would prosper the agriculture industry in the long run. Prof. Dr. Asif Ali, while inspecting the cotton, articulated that the university would develop more such villages where farmers would be encouraged to adopt methods of advanced farming instead of traditional ways of harvesting. He further said that the university's doors are open for farmers and growers, and its scientists are always ready to go extra mile to help solve their problems and increase their per acre yield.

9.12. Defense Day Celebrations

The Defense day of Pakistan (6th September) was celebrated with traditional fervor and solemnity at the University. The day is a special memorial to the military forces of the country that were at the very center of the battlefield in the war against India in 1965. The Directorate of Students Affairs, Senior Tutor Office, Dramatics Club and Scouts Wings of MNSUAM organized a memorable ceremony, wherein various national songs, dramas and skits based on real-life events were presented by the students. Prof. Dr. Asif Ali, Vice Chancellor, MNSUAM was the Chief Guest of the ceremony. A large number of students from MNSUAM and other institutions like University of Education, Multan, Postgraduate College of Commerce, City College of Science and Commerce, representative of Multan Arts Council and faculty members participated in the event. The students paid special tribute to the martyrs of 1965 war who defended geographical borders of the motherland boldly and courageously defeated the enemy squarely on the ground, in air and on the sea. The students, through their performances, sent a message that we need to keep reminding the new generations about how the armed forces of Pakistan, solidly backed by the entire nation, had defeated the Indian invaders. Prof. Dr. Asif Ali, while addressing the audience, said that we celebrate this day not as a memorial of war but as a commemoration of the resilience of our armed forces and the people who sacrificed their lives for their motherland. We need to be as strong and united as we were during those days, in order to face the threatening challenges Pakistan is currently facing.

9.13. Workshop on Intellectual Property Rights

The Office of Research, Innovation and Commercialization, MNSUAM, organized a one-day training workshop on Protection and Registration for Intellectual Property Rights. The Vice Chancellor, Prof. Dr. Asif Ali presided over the workshop, whereas Mr. Muhammad Ismail, Director IPO Pakistan was the Resource Person of the event. Participants from Bahauddin Zakariya University, Multan and Women University, Multan also joined the workshop. The training aimed at educating the participants about Intellectual Property (IP) management framework which provides guidelines for regulating the ownership and use of IP rights to the different stakeholders in a university (professors, researchers, students etc.) and commercialization partners (farmers, industrial sponsors, consultants, non-profit organizations, SMEs, or governments). In this context, an IP policy is a prerequisite for successful collaboration between academia and commercialization partners. While talking to the participants, the Vice Chancellor said that IP management in modern research is need of the hour, which would benefit not only the end users but brings improvement

in the research as well. He further said that the ownership rights of new inventions should be protected through copyrights, trademark, trade subscription and new plant varieties in order to grant all rights of their use to the legitimate owner. The Director IPO Pakistan, Mr. Muhammad Ismail informed the participants about different procedures of obtaining copyrights and registration protection. He gave a detailed presentation on Intellectual Property Rights to the researchers and scientist belonging to various institutions and showed them how to claim property rights and file an application to IPO Pakistan. At the end of the workshop, certificates were distributed among the participants.

9.14. Roof-Top Farming Training Session at SOS Institute of Technology

A one-day training workshop on Roof-top farming under the umbrella of a joint project of HEC and MNSUAM entitled "Capacity Building of Urban Community regarding Roof-top Farming" was organized at SOS Institute of Technology Multan. The main objective of this workshop was to raise awareness among people through educating the college students regarding farming of organic, healthy and pollution-free vegetables on empty roof-top of their houses. The resource persons of the workshop, Mr. Arqam Iqbal and Mr. Nabeel Ikram, informed the students about hazardous effects of vegetables grown through use of polluted sewage water. They further stated that we can get rid of many diseases if we plant vegetables for our use at our homes. Moreover, kitchen gardening and roof-top farming are healthy activities which not only provide with green and scenic environment but also bear positive psychological effects. At this occasion, the Principal, Vice Principal and a large number of college teachers were also present.

9.15. Workshop on "Data Analysis and Visualization using Python"

To provide opportunity of learning data representation techniques using world's popular tool, Department of Computer Science organized a one day workshop on "Data Analysis and Visualization using Python" on 24.09.2019 at Computer Lab-2 of MNSUAM. The workshop was organized by Engr. Adnan Altaf and Mr. Hannan. Mr. Israr Hussain (Lecturer, CS Department) was resource person. The expected workshop outcomes were to enable the participants to (a) analyze data using Pandas Library (b) develop and utilize data presentation skills (c) create data visualizations using 'Matplotlib Library' and (d) get familiar with python environment. The workshop started in time at 10.30 am and 18 participants attended the workshop including faculty members and students. At first python with its libraries were introduced to the participants. After introduction, data analysis portion started and workshop proceeded with participant's hands-on practice of data import, data slicing, cleaning, sorting, grouping and aggregation. There was a short lunch break of about 25 minutes from 1:00 pm to 1.25 pm. After break, workshop proceeded towards plotting and line plot, bar chart, pie chart, area chart, histogram and subplots were discussed and practiced. At the end a case study was given to participants for evaluation which was conducted by Dr. Abdul Razzaq and Dr. Ayesha Hakim. After result compilation prizes were distributed among top three position holders. Each participant practiced each function/method of python by hand. This has surely improved their data analysis and visualizations skills and also enabled them to explore python further for data science and machine learning.

9.16. Kashmir Mobilization Campaign at MNSUAM

In compliance to the instruction of the Government and to show solidarity with Kashmiri people held captive in their homes under brutal curfew imposed by Indian forces, Kashmir Mobilization Campaign was held at the Varsity. In this connection, a walk was held wherein a number of students, faculty members and administrative staff participated. Besides, human chain was also formed. The participants of the walk were carrying banners and placards inscribed the slogans expressing solidarity with Indian occupied Kashmir

(IOK). Addressing at the occasion, the Vice Chancellor, Prof. Dr. Asif Ali said that IOK is an integral part of Pakistan. He said Pakistani nation would stand by Kashmiri brethren until the realization of their rights to self-determination. Kashmiris cannot be deprived of their right through brutalities of Indian army. He said we salute the struggle of independence of Kashmiri brothers and sisters and Pakistani nation would continue their moral and diplomatic support.

9.17. Inauguration of Central Library at MNSUAM

Provincial Caretaker Minister for Agriculture Mr. Sardar Tanveer Ilyas Khan had laid the foundation stone of a library at MNSUAM back in July 2018. For this purpose, the provincial minister also donated 20 million PKR for the library from his personal resources. On October 11, 2019, he inaugurated this newly built library at MNS-UAM which has been built in his name. While talking to the media, he said that libraries play vital role in promotion of the latest knowledge. Sardar Tanveer Ilyas Khan, currently the Chairman of Punjab Board of Investment and Trade said that books are still considered significant even in this era of electronic revolution and computer. He added this this library is a humble effort on my behalf for this institution and its students and my support for this Varsity has no limits. Prof Dr. Asif Ali Vice Chancellor applauded the efforts of Sardar Tanveer, and announced that library has been named Sardar Tanveer Ilyas Khan library in recognition of his moral and financial support. Afterwards, the Sardar tanveer Ilyas planted tree sapling at the campus.

9.18. World Food Day 2019

World Food Day 2019 was organized by the Department of Food Science and Technology. Prof. Dr. Asif Ali, Vice Chancellor, presided over the ceremony and MNA Malik Ahmad Hussain Dehar graced the seminar as Chief Guests. Vice Chancellor Nishter Medical University Prof. Dr. Mustafa Kamal Pasha was the Keynote Speaker and MPA Ms. Shahida Ahmad and Vice Chancellor MNSUET Prof. Dr. Amir Ejaz were guests of honour. The World Food Day was observed world-wide and 2019 theme was "Our Actions Are Our Future - Healthy Diet for Zero Hunger". The purpose of observing the day was to increase awareness of the need to alleviate hunger from the world.

While addressing to the participants, Prof. Dr. Asif Ali said that we have fallen prey to different diseases because of unhealthy and imbalanced diet. We should consume a variety of food instead of monotonous diet. Natural food is always a source of physically strong body and many diseases had emerged due to unnatural and imbalanced diets. He further mentioned that we have left our traditional diets like gram, corn-flour bread, millet etc. which were full of energy and healthy nutrients. He urged that we must revive our traditional foods and avoid processed food to remain healthy and active.

Dr. Mustafa Kamal Pasha educated the participants on the importance of balanced nutrition and presented a case study of a hopeless poor child in a surgery ward of Nishter Hospital, who was recovered by improving the diet. He also informed the audience about importance of different ingredients of food, their nutritive value and effects on human body. He added that he would like to have a dietitian in every ward of the hospital for treating different ailments with balanced and complete diet. He further said that we are professionally and morally bound to avoid wastage of food and it is our duty to preserve additional and left-over food technically and to supply it to poor and deserving people. Ms. Shahida Ahmad MPA, Malik Muhammad Mumtaz, District Food Controller and Dr. Iffat Umar Bucha from Population Welfare Department also addressed to the participants and informed them about the importance of healthy and balanced diet. A large number of students and faculty members were also present at the event.

The Chief Guest, Malik Ahmad Hussain Dehar appreciated the efforts of the two varsities to start a degree program in Human Nutrition and Dietetics. He emphasized that people must avoid junk food; particularly

children should be encouraged to eat more vegetables and fruits instead of artificially processed edibles.

9.19. "Country's Development Linked with Girls' Education"; Shahid Afridi Addressed to MNSUAM Students

Renowned Cricket Mr. Shahid Khan Afridi visited MNSUAM on 20th October, 2019 to inaugurate fund-raising for Shahid Afridi Foundation's program "Lala 10 Nation" in South Punjab. At this occasion, he said that the country's development hinged on providing ample opportunities for girls to get religious as well as modern education. He commented that if society wanted the younger generation to be successful and have manners befitting our values, then girls should have ample opportunities for modern education too in addition to religious education. He further mentioned that the foundation, after having completed water supply, education and health initiatives in four provinces, was now targeting to bring over 20 million out-of-school kids to educational institutions. He disclosed that 24 educational institutions would start functioning by December 2020 under this foundation. Speaking his heart out, Afridi said people need to think what they had contributed for their country. Living for self is not important but living for others is what makes people stand out. He said he was out on the fund raising campaign for the people of his country and appealed the people to join hand to make it a big success. He stressed on unity among all to provide education to over 20 million out-of-school kids.

The Vice Chancellor, Prof. Dr. Asif Ali greeted Shahid Afridi while saying that he is our national hero. He lauded Afridi for taking on the important cause of girls' education while leaving aside the lucrative profession of cricket commentary and coaching. The Vice Chancellor asserted that the varsity would his initiative of promoting girls education. He himself filled the first form of the campaign of Shahid Afridi Foundation in South Punjab. He also presented a shield to him, while he gifted his signed bat to the Vice Chancellor. At this occasion, a large gathering of Afridi's fans including teachers and students of the University felt heart whelmed at the presence of their star amongst them.

9.20. Seminar on Road Safety

A seminar for awareness on 'Road Safety' was organized by Transport Officer Mr. Mahar Riaz in collaboration with Students Affairs and National Highway Police. Ch. Nadeem Ashraf Waraich, Superintendent Police/Sector Command N5 Central II, Multan was the Chief Guest of the event. The seminar aimed at enlightening the students on importance of safe driving by following traffic rules and basic principles of road safety. Addressing the participants, Mr. Waraich said that we must always follow the instructions given on road-signs and fasten our seat belts while driving a vehicle. Motorbike is a two-person vehicle; it should not be ridden by three people. Females should also wear helmets while riding a bike. Don't over speed and if someone troubles you while traveling, dial NHA helpline 130 immediately. Turn your headlights dim during night time. The NHA Police regularly imposes fines on those who don't follow traffic rules in order to teach them a lesson. Rana Ismail, DSP NHA said that human life is very precious; therefore, we must take acute care while driving on road. He informed the audience that there was a Fatwa issued in Saudi Arabia that not following the road signs is against Islamic teachings. Inspector NHA, Mr. Asghar gave a detailed presentation on road safety measures and emphasized on not using cell phones while driving. He remarked that most of the accidents now-a-days have occurred due to use of cell phones while driving. Prof. Dr. Asif Ali, Vice Chancellor added that our students' safety is our first priority and this seminar is specially organized for their education on road safety. He mentioned that taking small precautions while travelling can avoid big incidents.

9.21. BAYER Safe Use Ambassador Workshop Held at MNSUAM

Bayer Safe Use Ambassador Workshop was organized by Bayer Pakistan. The workshop was presided over by Prof. Dr. Asif Ali, Vice Chancellor. The students of MNSUAM, BZ University, Multan and Ghazi University, D.G. Khan participated in this workshop. The purpose of this workshop was to motivate the students to participate in Bayer Safe Use Ambassador program. Bayer Crop Science has started this program worldwide to engage youth for promoting the safe and effective use of agricultural pesticides. Mr. Athar Hussain Abbasi, Country Development Head, Mr. Taufeeq, Product Development Manager and Mr. Habib ur Rehman Siddiqui, Regional Technical Manager addressed to the participants. They presented five golden principles of safety. Prof. Dr. Shafqat Saeed, Dean FA&ES and Prof. Dr. Asif Ali, Vice Chancellor also spoke and reiterated the role of the Varsity for spreading information about safety of precious human lives.

9.22. Pink Ribbon Campaign

An awareness session on breast cancer under "Pink Ribbon Campaign" was organized by MNSUAM in Collaboration with Chughtai Lab, Lahore on 30.10.2019. Major (Retd.) Dr. Saleha Batool Wirck (Consultant Gynecologist at Chughtai Lab, Multan) was the guest speaker. Dr. Saleha briefed about this rapidly spreading type of cancer among females of Pakistan. She discussed different aspects of breast cancer including an elaborate dialogue on its causes, symptoms from stage 1- 4 of this disease, treatment options, self-examination and preventive measures. She dismantled all myths and overcame taboos concerning breast cancer and gave students the entire spectrum of the topic on basis of factual accuracy. She urged that females should not only get their regular medical checkups but also should be aware of how to diagnose a disease. She further said that women above 40 years of age should have mammography test once a year to avoid problems. She encouraged the participants to pass on this important and valuable information to their female peers and family members. Brochures on understanding breast cancer were also distributed amongst the audience.

9.23. Honorable Member Syndicate Appreciates the Roof Top Farming Project of MNSUAM

The honorable member of the Syndicate, MPA Mr. Tariq Abdullah visited MNSUAM to see the organic vegetables of winter season set up at the roof-top of the academic building of the varsity. MNSUAM in collaboration with Higher Education Commission has started a project titled "Capacity Building of Urban Community regarding Roof-top Farming" for enabling the people living in urban areas to grow pesticide-free vegetables on their roof-tops. The main objective of this activity was to aware people regarding farming of organic, healthy and clean vegetables on empty roof-top of their houses. The Principal Investigator of the project, Mr. Arqam Iqbal informed the honorable member of the university syndicate that we can avoid many ailments if we start consuming home grown vegetables avoiding hazards sewage water and pesticides. Moreover, kitchen gardening and roof-top farming are healthy activities which not only provide people with green and aesthetic environment but also bear positive psychological effects along with cutting the daily expenditures made on purchase of vegetables. The honorable member, Mian Tariq Abdullah appreciated the initiatives taken by the University for making people healthy and fit.

9.24. Seminar to Raise Awareness on the Issue of Violence against Women

Violence against women is one of the most widespread and devastating human rights violations in our world today. It largely remains unreported due to the impunity, silence, stigma, and shame surrounding it. To address these problems, United Nations has declared November 25, 2019 as an International day for the elimination of violence against women. To address the issues and facts that - everyone should know - and the potential solutions, Dr. Ayesha Hakim (Assistant Professor and Harassment Monitoring Officer) and Mr.

Israr Hussain (Lecturer) from Department of Computer Science, organised a seminar on the topic. The honorable guest speakers included Ms. Seerat Fatima (Former President, Women Chamber of Commerce and Industry, Multan) and Ms. Aneela Ashraf (Senior Journalist, Writer, Women Rights Activist). The Vice Chancellor Prof. Dr. Asif Ali, Dean (FSS&H) Prof. Dr. Irfan Ahmad Baig, faculty members, and a large number of students attended the event. Ms. Aneela Ashraf presented the miserable cases of violence against women that she has reported in the South Punjab Region in the last decade. Ms. Seerat Fatima came up with potential solutions including women empowerment by entrepreneurship and Islamic education.

The Vice Chancellor and Dean (FSS&H) presented souvenirs to the honourable guests. The session was concluded by an informal (female-only) discussion between faculty members, students, and the invited guests. In this discussion, the general problems that women are facing in the society and the specific ones in the universities were discussed with potential solutions.

9.25. Agriculture Sciences Journal Launched

The first issue of Agriculture Sciences Journal (ASJ) has been published. The ASJ is an official journal of MNS-University of Agriculture, Multan and it publishes peer reviewed research articles related to agricultural research and innovations. The journal website (<http://asj.mnsuam.net/>) has also been launched. The MNSUAM Vice Chancellor, Prof. Dr. Asif Ali congratulated the editorial team on successful launch of the Journal and said that it would be a great step to promote research and study in agricultural and allied sciences.

9.26. MNSUAM Ranked 4th Most Sustainable University of Pakistan in UI Greenmetric Rankings

MNSUAM has been ranked 4th in Pakistan while 311th globally as the Most Sustainable University in UI GreenMetric World University Ranking. The said University Rankings is an initiative of Universitas Indonesia which was launched in 2010. The aim of this ranking is to provide result of online survey regarding current condition and policies related to Green Campus and Sustainability in the Universities all over the world. The rankings are useful to university leadership in their efforts to put in place eco-friendly policies and manage behavioral change among the academic community at their respective institutions. The MNSUAM in pursuit of its vision of developing a world class university in agricultural and allied sciences by providing effective systems and leadership for professional learning, research, entrepreneurship and community service is striving to combat global climate change and marching towards sustainability. The data pertaining Setting and Infrastructure, Energy and Climate Change, Waste Management, Water Resource Management, Transportation, Education and Research at the varsity were submitted online. The MNSUAM participated in the event for the second time and this year scored 4th position all over Pakistan out of 40 national universities, and 311th position globally as World's Most Sustainable University. Last year, the University had scored 5th and 361st positions respectively. A total of 719 universities from all over the world participated in this event. The Vice Chancellor appreciated the untiring efforts of Estate Care and Management of MNSUAM and congratulated the whole team for their dedicated efforts that translated into this marvelous achievement. He stated that MNSUAM faculty and students are part of the Prime Minister's Green and Clean Pakistan and their contribution towards the said movement is evident from University's position in UI Green Metric ranking. He asserted that our aim is to obtain the first position in Pakistan in the said ranking during the next year 2020. Prof. Dr. Zulfiqar Ali, Director ORIC mentioned that China is an economic power but its people feel proud to use bicycles in their daily routine life. He said that we need to reduce our carbon footprints and promote riding bicycles within campus and its surroundings in order to make our environment clean for future generations. He also appreciated the efforts of Dr. Muqarrab Ali, Assistant Professor and Mr. Muhammad

Zeeshan of ORIC for compiling the UI GreenMetric report.

9.27. Say No To Drugs –Anti-Drug Awareness Seminar

A seminar on anti-drug awareness was held at MNSUAM on December 13, 2019. The main objective of the event was to edify the control of drug use in society especially in the youth. The seminar was presided over by the Vice Chancellor, Prof. Dr. Asif Ali, while the Federal Secretary, Ministry of Narcotics Control, Mr. Amjad Javed Saleemi was the Chief Guest. While addressing to the participants of the seminar, the Federal Secretary informed that the Ministry of Narcotics Control is performing its responsibility to control drugs in the country. He said that drug is the second largest illegal business in the world after illegal selling of firearms. He remarked that our mission is to free Pakistan from this menace and we are taking every possible step in this regard. To have a drug-free society, the Ministry of Narcotics Control has introduced austere laws which are implemented in true letter and spirit to punish the culprits involved in proliferation of drugs in Land of Pure. According to a report recently presented in the Senate, approximately 07 million people in Pakistan are drug-addicted, and these are the numbers of people who have been reported; those un-reported are not included in this list. Depression, loneliness, lack of education and immoral social activities are some major reasons of drug-abuse. We must avoid creating such environment as enforce people in the society to get addicted to drugs. Instead, we must help the drug-addicts through rehabilitation. Prof. Dr. Asif Ali addressed to the audience and said that Pakistan is facing challenges to eradicate drug-abuse from its soil and Anti-Narcotics Force is doing a commendable job in this regard. He said humans are best creation of Almighty and youth must keep this aspect in mind to refrain from this abuse. He further said that smoking cigarette is the first step that often leads to depression and use of drugs. Islam also prohibits its followers from this curse and as the citizen of Islamic Republic of Pakistan we expect from our youth to exhibit the true character and practices of our religion. At the end of the seminar, honorary shields were distributed among the guests. Later on, the Federal Secretary, Ministry of Narcotics Control visited the development works at the varsity, hydroponic unit, nursery unit and also planted a tree at university's Administration Block. At this occasion, CPO Muhammad Zubair Dhareshak, SSP Muhammad Kashif Aslam, Mr. Iftikhar ul Hassan and a large number of faculty members and students were also present.

9.28. APS Martyr's Day Observed at MNSUAM

To pay tribute to the martyrs of Army Public School (APS), the students and faculty of MNSUAM observed 16th December as APS Martyr's Day with a pledge to root out terrorism from every corner of the country. Prayers, lighting up of lamps, candles, display of pictures of martyrs and 2-minute silence was observed to honor those who lost their lives in the cowardice attack. While talking to the participants, the representatives of the Department of Public Relations of the varsity said that 5 years ago on this very day, the enemy had attacked on the future of our country. We honour and recognize great sacrifices of our martyrs and wounded on this day and are determined not to allow such thing happen again. The best tribute to APS martyrs on this day is to continue untiring efforts against terrorism and promote education in the country. We must also ensure safety of our surroundings and immediately inform the concerned authorities if we see any suspicious activities around us. At this occasion, Mr. Usman Jamshed, Senior Tutor, Dr. Amar Matloob, Assistant Professor and a number of students were also present.

9.29. Awareness session on EHSAAAS Programme

An awareness session was organized at MNSUAM for "EHSAAAS PROGRAMME". Vice Chancellor Prof Dr. Asif Ali presided the session while Mr. Ahmed Hussain Deharr (MNA; NA-154) was the guest speaker. Mr.

Ahmed Hussain emphasized on the need of skill development among Pakistani youth. He informed the audience about Ehsaas Undergraduate Scholarship Program and urged them to register on online portal available at HEC official website. The scholarship is for students from low-income families and lagging districts to ensure that all qualified students have access to undergraduate education regardless of income, gender, or location. This policy will be applicable to public sector and participating non-profit private sector colleges and universities. He applauded the MNSUAM for rendering marvelous services especially in the area of skill development. Prof. Dr. Asif Ali added that the strategy is to create opportunities for a sizeable segment of youth by bringing them under the net of higher education and create equal education opportunities for all. Our varsity will take all possible measures to achieve the goals of this program for its successful implementation, he further added. The session was attended by students, chairpersons of all the department's and administrative heads.

9.30. Seminar on Utilizing the Internet for Benefit of Students and Society

A seminar on utilizing the internet for benefit of students and society was held at MNSUAM on December 31, 2019. The Vice Chancellor, Prof. Dr. Asif Ali presided over the seminar, while Mr. Rizwan Asif of Alto University Finland was the key speaker of the event. Mr. Rizwan Asif said that students' education cannot be completed without using the internet. We can explore a large body of knowledge through internet for our research benefit. The world is moving towards digitization and we must follow the same practices to progress. People around the world are using the internet for different businesses. Likewise our youth can utilize the internet for entrepreneurship instead of wasting time on social media. He gave a detailed presentation to the students on the use of internet. The Vice Chancellor said that our University is particularly focusing on developing entrepreneurship skills in students enabling them to start their own businesses after graduating from the varsity in case they couldn't find appropriate jobs. The University is also conducting various shorts courses for honing IT skills of the students. He further said that students must not study only to get jobs after completing their degrees, instead they must find alternate sources for earning income through establishing their own businesses. Our country doesn't have enough resources that every graduate could get opportunity of government job. If our students could comprehend this point, they would not only prosper themselves but also create job opportunities for others. Prof. Dr. Irfan Ahmad Baig, Dean, Faculty of Social Sciences and Humanities, Dr. Salman Nazeer, University College of Southeast Norway and Dr. Abdul Razzaq, Assistant Professor, Computer Science, MNSUAM also addressed on this occasion. The guests were given honorary shields at the end of the event. A large number of faculty members and students attended the seminar.

9.31. Healthy Mother, Healthy Child, Healthy Society

The health of mother and child is vital for a healthy society. This was the bottom line of addresses by the speakers to an awareness seminar organized by the Department of Food Science and Technology, MNSUAM. Prof. Dr. Mansoor Akbar Kundi, Vice Chancellor BZU was the Chief Guest of this event. The students of the Department of Food and Nutrition, the Physio College, Multan and the Department of Food Nutrition and Dietetics, Nishtar Medical University, Multan attended the seminar. The objective of organizing this seminar was to raise awareness among the students about the importance of Child and Mother health for a healthy society. Addressing to the seminar, Prof. Dr. Asif Ali said that young girls of our society are physically weak as they consume lots of fast food, which lacks most of the nutrients and essential vitamins. He stated that eating healthy food is essential for lactating mothers. They must intake meat, pulses, vegetables and milk as much as possible to make sure that they and their children remain healthy. He

remarked that family planning is important to control the increase in population. Healthy mothers and healthy children make healthy societies and giving them good health is our responsibility. Prof. Dr. Mansoor Akbar Kundi sensitized the participants that according to a survey report, the country's youth is eating 70% junk food, whereas human body can use only 5% of it. The excessive consumption of junk food weakens the bones and makes the body prone to different diseases. He further stated that such awareness seminars are necessary to educate young girls and future mothers how to take care of their health to ascertain that the society remains healthy. Dr. Waseem ul Hassan Ramzi, Director Health Multan Division, Dr. Riffat Umar, Deputy Director Welfare Multan, Mr. Mazhar Iqbal, District Population Welfare Officer Multan, Ms. Maryam Razzaq, Clinical Psychologist Nishtar Hospital Multan, Mr. Riaz Ahmad Khan, CEO Education, Multan, Dr. Saeed Akhtar, Director Food Science and Technology, BZU Multan, Rana Akhlaq Haider, Additional Deputy Commissioner HQ Multan also spoke on the occasion.

9.32. Plant Centric Meal Competition Held at MNSUAM

Plant centric meal competition under the theme of Pulses Value Addition was held to promote importance of usage of pulses was held at Seminar Hall of the MNSUAM wherein 40 teams of various educational institutions and restaurants contested. The competition was arranged under a joint venture of MNSUAM and Australian Center for International Agriculture Research entitled Pak-Australian Joint Program of Pulses Production and Value addition. Different universities, colleges and cooking institutes set up 50 stalls displaying their products in the competition, including BZU Multan, Women University Multan, MNSUET Multan, COTHM College, Barbecue Tonight etc. First position was jointly won by MNSUAM and Women University, second position was clinched by Food Science Department of MNSUAM, while third position went to COTHM College. Consultation prize was also won by a student of COTHM College.

Foreign delegates from Australia, Dr. Chris Blanchard, Dr. Gavin Ramsay, Miss Penelope Jane, Mr. John Minouge, Mr. John Bennet and Mr. Andrew Earle especially attended the event. Speaking on the occasion, known industrialist and CEO of Shama Ghee Mills, Mr. Sheikh Ahsan Rasheed said that people are diverting towards pulses as a cheap source of better quality protein. He informed that our country is predominantly an agricultural economy and has a lot of potential for enhancing pulse production. He disclosed that several countries were making new products from pulses which would be prepared in Pakistan soon. The Vice Chancellor MNSUAM, Prof. Dr. Asif Ali said that the present government is working to enhance pulses production. He stated that balanced usage of pulses is a great source of energy and the main purpose of organizing such competitions is to raise awareness about importance of pulses and their usage. A large number of students and faculty members attended the competition. Three Australian farmers also interacted with Thal farmers, faculty and students from the varsity during the exhibition and shared their experience. Afterwards, Australian delegation led by Prof. Dr. Chris Blanchard from Charles Sturt University inaugurated Pulses Research lab at MNSUAM.

9.33. Managing Director Water and Sanitation Agency (WASA), Multan Visited MNSUAM

Engr. Naseem Khalid Chandia, Managing Director, WASA, Multan Development Authority accompanied by Engr. Nadeem Ahmed, Director Planning and Development Wing, WASA and Mr. Sheikh Rasheed, SDO, WASA visited MNSUAM on February 13, 2020. The officers observed the progress of water saving and other related research experiments at the University and showed interest for future collaborative work. Rainwater harvesting plan of MNSUAM was briefed to Engr. Naseem and his team by Dr. Sarfraz Hashim, who explained that a central treatment system of wastewater in order to differentiate the black, blue, grey and green wastewater with specific order is being developed to make the efficient use of wastewater from

different resources such as sewerage, flush, rainwater and any other source. The WASA team also visited wastewater treatment site at the Varsity. Dr. Sarfraz explained the design and operational procedure. The Managing Director WASA appreciated the progress of the University and expressed his keen interest in Rainwater Harvesting and Wastewater Treatment through phytoremediation projects. He also agreed to deliver a lecture to B.Sc. Agro-Industrial Engineering Technology student on Recycling of Wastewater from Agro Industries.

9.34. Ali Khan Tareen Visited MNSUAM for Promotion of PSL Multan Sultan Team

Mr. Ali Khan Tareen, owner of the Multan Sultan team, visited MNSUAM for promotion of his team participating in the 5th season of Pakistan Super League (PSL), Twenty20 cricket tournament organized by Pakistan Cricket Board. At this occasion, a quiz competition was held and T-Shirts of Multan Sultan and match tickets were distributed among the winners. Speaking to the participants, Mr. Ali Khan Tareen said that the students and faculty members of MNSUAM have shown great enthusiasm to support Multan Sultan team. He further announced to give free passes to the students for the matches scheduled to be played in Multan Cricket Stadium.

9.35. Monitoring of Wheat Crop Situation in Southern Punjab

MNS University of Agriculture, Multan providing diagnostic services related to different diseases and insect pest problems encountered by the farming community of Southern Punjab along with recommendations since its inception. During Rabi season, a team of faculty members and experts visited different districts, notably Muzaffar Garh, D. G. Khan, Rajan Pur, Lodhran, and Khanewal etc. on weekly basis to monitor the wheat crop situation including the incidence of diseases, insect pest, and weather conditions. The experts found that the overall condition of the wheat crop in the visited areas was good. The attack of yellow rust of wheat caused by *Puccinia striiformis* was evident in most of the fields at different wheat growth stages while leaf rust (*Puccinia recondita*) was found in a few fields. Generally, the heavy infestation of rust was observed in the fields cultivated with the same variety (Galaxy-2013) over a large area as well as in the fields with mixed cultivations. It was also observed that wheat varieties sown in October were heavily infested with yellow rust of wheat. The long spell of cloudy weather with low temperature and high moisture conditions favoured the development and spread of rust disease. The experts not only created awareness among the farming community about rust diseases but also recommended approved varieties, agronomic practices, and fungicides to manage rust diseases.

9.36. COVID-19 INITIATIVES

9.36.1. Awareness Seminar on COVID-19 Pandemic

The Directorate of Students Affairs organized an awareness seminar on Corona Virus on 13th March, 2020 at Seminar Hall of the University. Dr. Atta-ur-Rehman, Director Epidemic Control Punjab was the guest speaker of the event. He apprised the participants about ongoing scenario of viral disease, its severity, precautionary measures and government's steps for prevention from it. He said that the COVID-19 pandemic has blanketed the whole world adding that the disease has reached 127 countries so far. At Multan International Airport around 54,000 people belonging to 70 countries have been screened. He added that all 20 suspected cases of the virus admitted at the Nishtar Hospital were tested negative. Dr. Atta advised the audience to wash their hands frequently with antibacterial soap for at least 20 seconds, drink more water, stop touching your face with your hands, cover your mouth with cloth while sneezing and coughing, eat healthy food to increase your immunity, and avoid going to crowded places to refrain from the disease. Prof. Dr. Asif Ali, Vice Chancellor, urged upon the Health Department to hold awareness seminars in maximum educational institutions. He

said Islam had laid stress on cleanliness 1440 years ago, adding that it conditioned half of the faith of a Muslim. He further advised the participants to keep social distancing, wear the mask, refrain from shaking hands and hugging, and follow all precautionary measures communicated by the Government and health advisors. Later on, a question answer session was also held.

9.36.2. Academic Activities Continued Despite COVID-19 Pandemic

Due to prevailing situation of Corona Virus Pandemic and subsequent directions by the Higher Education Commission of Pakistan, Federal and Punjab Governments, the University Administration announced closure of the university w.e.f. 16th March, 2020. However, as per HEC policy, classes are being conducted online in order to save students' precious time and involve them in academic activities. Despite the COVID-19 pandemic, learning process was not stopped even for a single day as varsity is already on track to confront the same via effective online learning platforms and creation of hybrid/ blended courses.

9.36.3. Online Learning Management System Launched at the University

In the wake of Higher Education Commission's policy guidelines dated 28.3.2020, the University has started online classes using Google classroom, whatsapp, facebook, zoom or any other online means suitable for the faculty and students. The Chairpersons have been asked to take the responsibility for monitoring of classes, conduct online meetings with their faculty on daily basis, discuss the classes' progress, get feedback of students and share daily report/minutes of meeting with the Vice Chancellor and Director QEC. The IT Department and QEC would help solve issues faced by faculty members in online teaching system, share useful information and resources and provide training. The University also announced use of computer labs facility at the campus to the students / faculty having internet connectivity problems, with appropriate arrangements of isolation and sanitization for usage of facility. Video lectures recording facility for Faculty was also made available by the IT Department at the University. University has also launched its learning management system which can be accessed by visiting <https://lms.mnsuam.net/login/index.php>. The tutorials for both teachers and students are also available in this regard.

At this occasion, Prof. Dr. Asif Ali, Vice Chancellor MNSUAM stated that this is an emergency situation which requires taking proactive and prudent measures to ensure health and safety of everyone. Further, as an academic and research based institutions, it is our responsibility to take it as an opportunity and find alternate ways to minimize the disruption of teaching and research schedule and reduce the risk of damage. We must act smartly as this extraordinary situation demands.

9.36.4. Free Masks, Hand Sanitizers Distributed by Rover Scouts Unit

Pakistan is facing history's worst lockdown due to COVID 19 pandemic and the same is the case with the international community. So in this time of sheer instability, MNSUAM Rover Scouts stood with the local community by caring and sharing with each other. The Rover Scouts Unit, MNSUAM conducted "on Road demonstration sessions" of physical distancing and distributed hand sanitizers and masks among local community from a fund generated through self-help, to general public en-route from University main gate, Double Phattak to Aziz Hotel Multan, and gave awareness to people regarding prevention of Covid-19. They advised people to stay at their homes during the lockdown and not to use excess water since the underground water sources are decreasing more rapidly. The Rover Scouts Unit included University students namely Mr. Ehtisham Ali, Mr. Abdul Haseeb, Mr. Junaid Siddiq, Mr. Ammar Shakeel, Mr. Muhammad Zahid and Mr. Hamza Bilal. The Vice Chancellor appreciated the efforts of the Rover Scouts Unit for raising awareness regarding the COVID-19 pandemic.

9.36.5. COVID-19 Awareness Campaign for Farming Community

Awareness campaign for the safety of Farmers from COVID 19 during farming operations is also in progress. Precautionary guideline were prepared, published and distributed among farming community. A help line has been established in which experts from MNS-UAM is available to facilitate the farmers through expert opinion and consultancy.

9.36.6. Support to Deprived Local Community

MNS-UAM Alumni Association in collaboration with students, staff, and faculty is distributing ration bags among the under privilege families of local community around the campus. More than 100 families have been facilitated under this noble drive.

9.36.7. Development of Walk Through Sanitizing Tunnel

The Department of Agricultural Engineering MNSUAM developed walk through sanitizing tunnels and one of it donated to Nishter Hospital for public use.

9.36.8. Online Co-Curricular Activities

MNSUAM Students' Clubs/Societies/Forums are conducting online activities to keep the students and community motivated and positive during this physical distancing phase. Online competitions and training sessions for the capacity building of the students are conducted frequently .

9.36.9. Awareness through Print Media and University Website

There is no iota of doubt together we are facing a truly unprecedented situation. The global coronavirus pandemic is affecting all of our official assignments, families, our businesses, our communities, and our way of life. Faculty members of MNSUAM are sharing their thoughts through print media to promote wellbeing in the society. MNSUAM takes initiative to disseminate authentic information through university official website. For this purpose a dedicated tab of COVID-19 has been launched on university official website <https://mnsuam.edu.pk/covid-19/>. This tab provides information/important links about COVID-to faculty, students, staff and general public.

9.36.10. Organization / Participation Webinar

MNS-UAM is frequently organizing and participating in national and international Webinars during COVID-19 Social distancing. **Important talks and links regarding COVID-19 are as under;**

- (i) Australian, Turkish and Pakistani student's perspective of virtual learning during covid19 crises (<https://youtu.be/UrWo7tKeI1Q>)
- (ii) How to do contact tracing in COVID19 (<https://youtu.be/e7JJ6WvLxu8>)
- (iii) COVID-19 | Culture | Mental Health | Future perspectives (<https://youtu.be/5fh4f5LugkA>)
- (iv) Prevention is only cure to Covid-19 pandemic (https://youtu.be/e6_taPFJn3A)

9.37. Revitalizing Livestock Sector

Livestock is an important sector of Pakistan having share of 60.54 percent in agriculture and 11.22 percent in GDP. South Punjab is enriched with huge numbers of livestock population and majority of people are engaged in Livestock farming. The livestock sector globally is highly dynamic. In developing countries, it is evolving in response to rapidly increasing demand for livestock products. In developed countries, demand for livestock products is stagnating, while many production systems are increasing their efficiency and environmental sustainability. Historical changes in the demand for livestock products have been largely driven by human population growth, income growth and urbanization and the production response in different livestock systems has been associated with science and technology as well as increases in animal numbers. Developments in breeding, nutrition and animal health will continue to contribute to increasing

potential production and further efficiency and genetic gains. Livestock production is likely to be increasingly affected by carbon constraints and environmental and animal welfare legislation. Demand for livestock products in the future could be heavily moderated by socio-economic factors such as human health concerns and changing socio-cultural values. The degree programs in Livestock and Animal sciences will help in provision of skilled human resource to Livestock sector to address and solve problems of livestock farmers of South Punjab.

9.38. Automatic Weather Station Installed at MNS-UAM

An Automatic Weather Station (AWS) system has been installed at the varsity by the Office of Research Innovation and Commercialization (ORIC) for weather forecasting. The system was put into use to measure real-time temperature, humidity, air pressure, wind direction and speed, visibility, fog, smog and solar radiation etc. It is one of the most advanced systems that provides accurate weather forecasting after every five minutes and gives details of changes in weather parameters. Apart from providing precise and authentic weather updates to agricultural-research institutions, the AWS will facilitate the farmers with timely forecast of rainfall and weather-related information to help them plan their sowing and other management practices.

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CHAPTER - 10 SPORTS



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CHAPTER - 10 SPORTS



SPORTS

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 conducive environment that inspires participants to engage in competitive events on various levels, institutional and national. The 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 Office of Sports has been providing the sports facilities to the male and female students. The office has developed a system to encourage the students for participating in different sports activities. 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 sporting events. Teams for Cricket, Football, Volleyball, Table Tennis, Badminton, Hiking and athletics are actively participating in the supporting events in the country.

10.1. Participation in Sports Events

Sr. No.	Sports Activities	Date	Boys	Girls	Venues
1	1 st Pakistan Australian Football Super League (AFL)	01-07 July 2019	3	-	Cricket Ground, Bhorban
2	1 st Pakistan Australian Football Super League (AFL)	24-27 Aug. 2019	3	-	MCG Multan
3	Inter Departmental Badminton Event	18-21 Nov. 2019	40	24	Sports Gymnasium Multan
4	University Sports Gala 2020	15-23 Dec. 2019	200	80	MNSUAM Sports Ground
5	Women Cricket Peace League	15-23 Nov. 2019	-	18	MCG Multan
6	1 st Pakistan AFL Girls Super League	01-09 Dec. 2019	-	3	Cricket Stadium, Gujranwala
7	HEC Intervarsity Cricket Championship (Provincial Level)	22-27 Feb. 2020	16	-	Punjab University, Lahore
8	HEC Intervarsity Football Championship (Provincial Level)	23-28 Feb. 2020	15	-	UVAS, Lahore

14.2. Sports Gala 2019 Organized at MNSUAM

A six-day inter-departmental Sports Gala began with colorful events at MNSUAM on December 18, 2019. Competitions in athletics, badminton, football, cricket, chess, Kabaddi, and tug-of-war contests were the salient features of the event. The Vice Chancellor, Prof. Dr. Asif Ali inaugurated the Sports Gala, while officials from Directorate of Student Affairs, Senior Tutor Office and Sports Coordinator, Registrar and the Director Sports were also present besides other academic and supportive staff to grace the occasion. The Gala was organized in order to promote sportsman spirit and healthy activities among students. Addressing on the occasion, Prof. Dr. Asif Ali said that MNSUAM will undertake all possible measures to provide state-of-the-art sports facilities to the students. He urged the students to manifest sportsman spirit so that they can face the odds and play their effective role in the development of a healthy and prosperous society. He praised the initiatives taken to promote sports activities. He also directed officials to take all necessary steps to cultivate students' interest in sports and other extra-curricular activities. The six-day sports gala ended on 23rd December with a closing ceremony. The Special Advisor to Chief Minister, Sardar Abdul Hayee Dasti was the Chief Guest of the event. The Vice Chancellor and the Chief Guest distributed prizes among the winners and certificates among the participants. Sardar Abdul Hayee Dasti appreciated the University for organizing the event and commended the Vice Chancellor for mobilizing their faculty and students to participate in healthy sports activities.

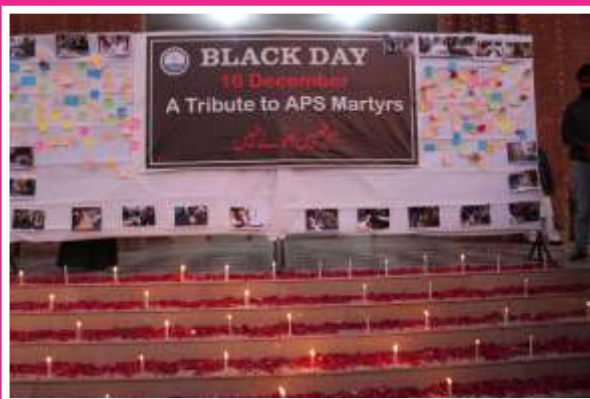
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CHAPTER - 11 UNIVERSITIES BUILDING LEADERSHIP



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CHAPTER - 11 UNIVERSITIES BUILDING LEADERSHIP



UNIVERSITIES BUILDING LEADERSHIP

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

- The MNS-UAM 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 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, Punjab Cotton Control Act 1966, pink boll worm management, Cotton Mission, monitoring and evaluation of field activities of Agriculture Extension Department etc.
- Pro-Vice Chancellor of MNSUAM is currently serving as the Chairman of National Agricultural Education Accreditation Council of HEC.
- Dr. Shafqat Saeed (Professor, Institute of Plant Protection) is a member of Cotton Technical Advisory Committee, Punjab.
- Dr. Shafqat Saeed (Professor, Institute of Plant Protection) and Dr. Muhammad Ishtiaq (Assistant Professor, Institute of Plant Protection) are the members of Cotton Protection Advisory Board, Punjab.
- Dr. Zulfiqar Ali (Professor, Institute of Plant Breeding and Biotechnology) is member of Executive Committee of Punjab Agriculture Research Board (PARB).
- Dr. Hammad Nadeem Tahir (Professor, Institute of Plant Breeding and Biotechnology) is a member of Oilseed Research and Development Board, Punjab.
- Dr. Muhammad Ishtiaq (Assistant Professor, Institute of Plant Protection) was Monitoring Officer for village level farming training program of Agriculture Extension, District Multan.
- Dr. Khuram Mubeen Assistant Professor (Agronomy) was invited by MetaMeta (<https://metameta.nl/>) and Ministry of Irrigation and Water Resources Government of Sudan. w.e.f. 22 February 2020 to 02 March 2020. The purpose of the invitation was to attend the workshop to take part in reviewing the curricula on Flood-based Livelihoods Systems (FBLS) in the countries where these systems are applied and where Universities and other educational institutions have shown interest to adopt the subjects into their curricula.
- Dr. Umar Ijaz Ahmed completed online course on "Certified Publons Academy Peer Reviewer".

11.2. Directorate of Student Affairs

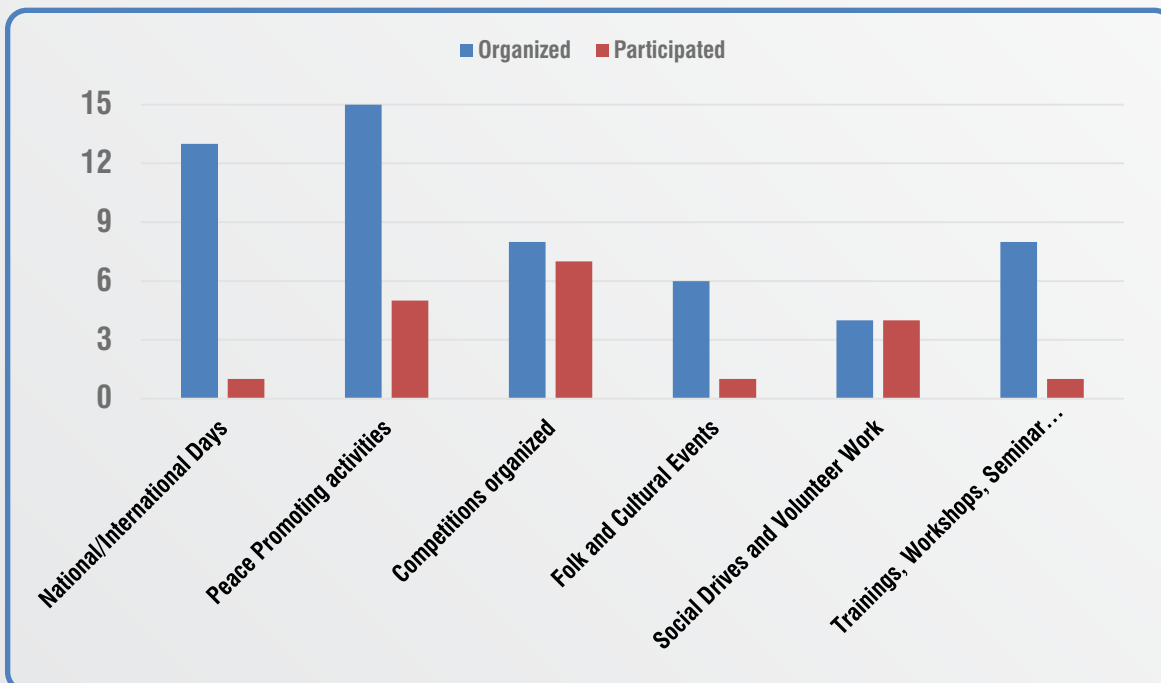
The Directorate of Students Affairs has the mandate to facilitate and maintain the services including admissions, welfare, sports, health care, guidance, scholarships, financial aid and hostel accommodation. Directorate of Student Affairs has its mission to offer a variety of services, programs and activities to support and encourage the intellectual, personal, social and cultural development of students. The Directorate has provided all necessary arrangements starting from first admission inquiry to the last day at the Campus. 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 potentialities. The purpose of all such activities is to provide students 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 of the students have been established by Office of the Senior Tutor under DSA office.

Clubs/Societies

1. Qirat and Naat Club
2. Islamic Learning and Awareness Forum
3. Literary Club
4. Debating Club
5. Music Club
6. Dramatic Club
7. Media Club
8. Young Students Peace Society
9. Young Entrepreneurs Club
10. Plant for Life Society
11. Cleanliness Volunteer Force
12. Agri-Tourism Club
13. Character Building Society
14. Women Empowerment Society
15. Blood Donation & Screening Society
16. ICT Club
17. Interfaith Harmony Club



Seminar, Trainings, Competitions, Walks and Social Action Plans conducted and participated by MNS-UAM Students

11.2.1. National/International Days

- National Defense Day (06-09-2019)
- Kashmir Cause and Current Situation (07-08-2019)
- Pakistan Independence Day Celebrations (14-08-2019)
- World Mental Health Day (10-10-2019)
- Pink Day (25-10-2019)
- World Polio Day (24-10-2019)
- Iqbal Day (09-11-2019)
- Mehfil e Naat at 12 Rabi ul Awal (21-11-2019)
- World AIDS Day (03-12-2019)
- Black Day in the Memory of APS Martyrs (17-12-2019)
- Jashan e Jinnah (27-12-2019)

11.2.2. Peace promoting activities/ Social Action Plans

- Diversity tour for promoting peace (04-12-2019)
- Hostel Administration and Security Staff-Members training on Peace Building & Conflict Management (29-02-2020)
- Literary and Debating society training on Peace Building & Conflict Management (02-03-2020)
- Media society training on Peace Building & Conflict Management (03-03-2020)
- Dramatic society training on Peace Building & Conflict Management (06-03-2020)
- Media society training on Peace Building & Conflict Management (06-03-2020)

11.2.3. Competitions Organized

- Bait Baazi Competition at Mango Festival (06-07-2019)
- Debate Competition at Mango Festival (07-07-2019)
- Quiz Competition at Mango Festival (07-07-2019)
- National Songs Competition at Independence Day (14-08-2019)
- War Song Competition at National Defense Day (6-09-2019)
- Online Bait Baazi Competition by Literary Club (09-04-2020)
- FB Live Drama Competition by Dramatic Club (30-04-2020)
- All Pakistan 10 Days Online Quranic Quiz Competition (06-05-2020)

11.2.4. Folk and Cultural Events

- Cultural Program at Mango Festival (05-07-2019)
- Aman Mushira at Mango Festival (06-07-2019)
- Cultural Program at the eve of Climate Smart Conference (26-11-2019)
- Cultural Program at the eve of International Smart Potassium Management Conference (03-03-2020)

11.2.5. Social Drives and Volunteer Work

- Students of MNSUAM conducted Admission Guidance Desk (Aug-Sept 2019).
- Blood Screening and Medical Camp for Newly Admitted Undergraduate and postgraduate Students of MNSUAM (28-10-2019)
- Distributing ration bags among the under-privilege families of local community during COVID19 Lockdown (15-04-2020)

11.2.6. Trainings, Workshops, Seminar organized

- Traffic Awareness and Road Safety Seminar (23-12-2019)
- Awareness Lecture on "Drug Abuse" by Mr. Amjad Javaid Saleemi, Federal Secretary, Ministry of Narcotics Control (23-12-2019)
- Students training on Peace Incubation under Youth Peace Incubator Program offered by Accountability Lab, Islamabad.
- Seminar on "Drug Abuse, Scenario in Pakistan" in collaboration with Anti Narcotic Force, Multan.
- Curriculum development on Social and Religious Tolerance in Collaboration with Society for the Advancement of Education (SAHE), Lahore.

11.2.7. Participations

- MNS-UAM Rover Scouts Participated at 1st Annual Summer Hiking & Trekking Course-2019 (Trek: Utror to Jandrai Village via Jahaz Banda Pass) on 17-07-2019
- MNS-UAM Rover Scouts Voluntarily Participated in Hajj Service-2019 as Khudam-ul-Hujjaj at Zikria Zaireen Complex, Multan under Hajj Directorate on 20-07-2019 to 20-08-2019
- MNS-UAM Rover Scouts Participated at Better Frame-Work Camp-2019 at NHQ, ISB (16-11-2019)
- Participated at Education Expo organized by Duniya Media Group (03-09-2019)
- Participated at Education Expo organized by Khabren Media Group (17-09-2019)

11.2.8. Distinctions

- The students of MNSUAM participated in the Microsoft Imagine Cup 2020 organized by HEC under Prime Minister's Kamyab Jawan Program and got first position in Punjab and third position all over the country. The Varsity students presented different models in the competition that included models for Smart Irrigation System, and Artificial Climate Control Smart Farming. The team MNSUAM comprised students of the Department of Computer Science, namely Atiq ur Rehman, Aziz ur Rehman, Tauseef ur Rehman, Muhammad Farooq, Zaid Sarfraz, Usama Ishtiaq and Saqib Javed.
- DICE-AFS: 2 prizes (Mr. Farooq and Mr. Attique)
- DICE-DUHS: 1 prize (M. Umair)
- UAF-PASTIC: 1 prize

11.3. Rover Scouts Unit, MNSUAM

Scouting in MNSUAM was started on December 02, 2016 under the kind supervision of Prof. Dr. Asif Ali, Vice Chancellor MNSUAM, who took oath as a Pattern in Chief/ Chief Scout of Rover Scouts Unit, MNSUAM. It is just only one movement or society of MNSUAM in which the Vice Chancellor is also a member. Dr. Umar Ijaz Ahmed (Assistant Professor of Agribusiness and Applied Economics Department) is President and Dr. Amir Bakhtavar is the Vice-President of Rover Scouts Unit MNSUAM. The Mission of Scouting is to contribute to the education of young people, through a value system based on the Scout Promise and Law, to help build a better world where people are self-fulfilled as individuals and play a constructive role in society. Scouting is a movement that aims to support young people in their physical, mental and spiritual development, that they may play constructive roles in society, with a strong focus on the outdoors and survival skills.

It is one of several worldwide youth organizations. Scouting is a great way to get your child involved. Through scouting organizations, children make friends, develop skills and become involved in their community. There is no doubt that parents value what Scouting does for their children. Parents say Scouting gives their children more confidence, responsibility, a broader set of friends, a chance to pursue things they

might not get to do otherwise, adventure and an extended family.

The Rover Scouts Unit, MNS-UAM will be a dynamic, self-reliant, educational organization providing value based, challenging and attractive program through efficient leaders and effective organizational management, making a significant contribution to the society and the country.

The Rover Scouts Unit work in supervision of an Advisory Council based on the following members;

- Senior Rover Mate (SRM)
- Dy. Senior Rover Mate (DSRM)
- Unit Secretary
- Counselor
- Quarter Master
- Sports Secretary
- Press Secretary

Scouts from unit had been participated in the following events:

- 4th All Punjab Snow Fall Hike 2017, Murree Galliyat
- Flood Relief Moak Exercise, Regional Scouts Office, Multan
- Hike to Fort Munro in collaboration with Regional Scouts Office, Multan
- 35th All Punjab Rover Moot 2017, Scouts Nasheman Ghora Ghali Murree
- National Integration Desert Hike, Derawar Fort, Cholistan Bahawalpur 2018
- 5th All Punjab Snow Fall Hike 2018, Murree Galliyat
- 36th All Punjab Rover Moot 2018, Scouts Nasheman Ghora Ghali, Murree
- Silver Jubilee National Hike for Rover Scouts-2018 / A Centenary Event of International Rover Scouting
- Better Frame-Work Camp-2019 at NHQ, ISB on 16-22 Nov. 2018
- 6th All Punjab Snow Fall Hike 2019, Murree Galliyat
- Voluntarily Participated in Hajj Service-2019 as Khudam-ul-Hujjaj at Zikria Zaireen Complex, Multan under Hajj Directorate, Multan
- 8th All Punjab Snow Fall Hike 2020, Murree Galliyat on 11-14 Feb. 2020
- Along these events Rover Scouts also organized the following events for all university students:
- Arranged a Rescue Training Course Title “Community Actions for Disaster Responses (CADRE)” in collaboration with Rescue 1122 at MNS-UAM on 25-27 April 2018
- 1st Annual Exhibition & Camp-fire-2018 on 14-15 Nov. 2018 at MNS-UAM
- 1st One Night Camping at Lal Suhanra Forest Park, Bahawalpur-2019 on 13-14 April 2019
- 1st Annual Summer Hiking & Trekking Course-2019 on 17-24 July 2019 (Trek: Utror to Jandrai Village via Jahaz Banda Pass)
- One Night Camping at Derawar Fort, Cholistan Bahawalpur-2020 on 29 Feb – 01 March 2020

11.4. Career Development Center/Placement Bureau

Career Development Center/Placement Bureau was established with the aim to provide 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 Dr. Usman Jamshaid, Lecturer, Soil and Environmental Sciences (Member). Detail of each activity performed during the year 2019-2020 is 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 at cdc@mnsuam.edu.pk or visit our online resources to get help for different kinds of issues. They could also visit our face book page: "Career Development Center, MNS University of Agriculture, Multan". The link of Facebook page is given here as <https://www.facebook.com/MNSUAM.CDC>. More than 1300 people are connected through social media which included students, faculty members and employers. It has a great effect in disseminating information among the students which included scholarship information adds, Job posts, motivational posts, information regarding seminars, trainings, important events to be held in MNS-UAM. 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. Applying for various posts at NTS, PPSC, FPSC etc.
6. Scholarships advice: Searching Foreign scholarships and applying
7. Information regarding Govt. Departments according to their subject

11.4.2. Alumni Data Collection and Maintaining 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 better way than others. Keeping in view the importance of Alumni, Group of alumni students have been maintained by CDC/PB using social media Whatsapp, Gmail and Facebook. We have received bio-data forms all graduates of all degree programs passed out during each year. This year also bio-data of all passing out students of B.Sc. (Hons.) Agriculture, BS Computer Science, and BS Information Technology session 2016-2020 and postgraduate session 2017-19 are being collected. Data base of the alumni students have been established with contact numbers and postal addresses. WhatsApp group of each session have been maintained for 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 following activities.

11.4.3.1. Internships placement for final year students

Students of professional degree programs required real life experiences through market exposure and this is only possible through internships in professional organizations. In order to equip the students with professional experiences internships played a vital role. This year we were able to find out internships for final year students of B.Sc. (Hons.) Agriculture at private sector professional organizations through an internship committee. Dr. M. Ishtiaq, Focal Person of CDC/PB was incharge of committee. One faculty member was nominated by Chairman of each department as focal person of respective department for internship placements. The main objective of the committee was to find out internships in well reputed private organization, institutes, private progressive farms and second option was to find out paid internships. Different organizations were contacted for internship offers. Many of the students were offered paid internships by Bayer Crop Science Pvt. Ltd., Syngenta Pvt. Ltd, FMC Pvt. Ltd., Biotrack Pvt. Ltd., KanzoAg (Evyol Group), Engro Pesticides, Neelum Seeds Jahanian, Pepsico, Fauji Fresh n Fareeze, Allah Din Group of

companies, Yaqub Group of companies, Fatima Fertilizer Pvt. Ltd., Qasoori Farm Kasur, Kotli Farm Kasur, Fatima Sugar Mill Kot Addu, Edge Group, Kareem Chemicals etc. We were able to place our 60% students at private farms, Agro based Industry, Banks majority of them were offered paid internships.

- Fourteen students were offered paid internship / job offers at FMC Pvt. Ltd.
- Four students were offered paid internship at Syngenta Pvt. Ltd.
- Eight students were offered paid internship, free meal and accommodation at Kasuri Farm of Ex. Foreign Minister Khurshid Kasuri at Kasur and Kotli Farms, Kasur.
- Two students were placed at Bayer Crop Science Pvt. Ltd. Multan on paid internship.
- More than ten students have been offered internship at Evyol Group Pvt. Ltd in two companies Kanzo AG and AGpharma Pvt. Ltd.
- Two students were placed at Fatima Fertilizer Pvt. Ltd on paid internship.
- Two students were offered paid internship at Engro Fertilizers Pvt. Ltd.
- Two students were offered paid internship at Hexon Group, Industrial Estate Multan.
- Mr. Kashif Islam, owner of Arain Farm offered internship to four students of MNSUAM.
- Three students were placed at Tareen Agriculture Farm, Lodhran.
- One student was offered internship RC Cola, Multan
- Eight students were placed at Punjab Food Authority.
- One student was offered paid internship at Packages Ltd.
- One student was placed at Layyah Sugar Mill Pvt. Ltd.
- One student was placed at Muzaffar Garh Sugar Mill.
- Two students were placed at International Food Limited Multan (Honey Foods).
- One student was placed at Dawn Bread and Beyond, Lahore.
- Four students were placed at Ramada Hotel, Multan.

11.4.3.2. Summer Internship

Undergraduate students are also encouraged to work during summer vacations. 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 of students for selection of suitable candidates for summer internships project based offers.

We facilitated H2 consultant to conduct interviews for student's engagement in their Android based survey positions of internees on 9th July 2019 at ORIC meeting room MNSUAM. Nine students were selected for paid internship for H2 Consultant for placement.

Two days training for android based survey was arranged at Committee room MNSUAM for selected internees.

11.4.3.3. Job Placements

Career Development Center/Placement Bureau helps University graduates to find out better job opportunities at different Companies / Organizations and Institutes etc. Our initial survey indicated that majority of our graduates wanted to continue their studies. But for those, who wanted to start their career, following efforts have been made for the placement of our graduates during this year 2019-20. Different jobs and scholarship advertisements are being posted using Alumni Network and notice board.

We helped the graduates to find out jobs at different Companies / Organizations and arranged their interviews through personal contacts, social media, mobile calls, SMS and E, mails. Agriculture graduates have been placed at different Agro-based companies / Organizations through personal contacts and arranged interviews.

Different organizations contacted us for assistance in recruitment process and our placement office

assisted in collection of CV's of graduates and encouraged graduates to apply for recruitment. Syngenta Pakistan Pvt. Ltd. contacted our placement office for assistance in their recruitment process for the posts of Sales Promotion Officers (SPO) for fresh graduates for all Pakistan. Seats were advertised by CDC/PB and graduates were encouraged to apply, almost 100 graduates from MNSUAM and other universities submit their CV's for SPO. The CV's were also sent for positions available in research and development wing of Syngenta Pvt. Ltd. on their request.

An orientation session was organized by CDC/PB for all the applicants on 14th January, 2020. Representatives from Bank of Punjab gave brief introduction of bank to participants. Representatives of Bank of Punjab conducted written test at Seminar hall of MNSUAM that was organized by CDC/PB. Fifty four graduates appeared in written test, and results were compiled by their own and CDC/PB MNSUAM facilitated the process.

JOB FAIR FOR BOP 2020



Passion Reborn

APPLICATIONS ARE INVITED FOR THE POSTS OF
"AGRI RELATIONSHIP MANAGERS"

Eligibility:
Qualification: B.Sc. (Hons) in Agriculture all major subjects or BBA Agribusiness from MNSUAM and BZU Multan only
Age: 28 Years (on 31st December 2019)
Domicile: Resident of same District
Applications: Interested candidates are advised to send their CV's to cdc@mnsuam.edu.pk till 7th January, 2020



Dr. M. Ishtiaq, Focal Person,
Career Development Center /Placement Bureau,
ORIC MNSUAM

Recruitment Test:
The test shall include Multiple Choice Questions (MCQs) on following areas:

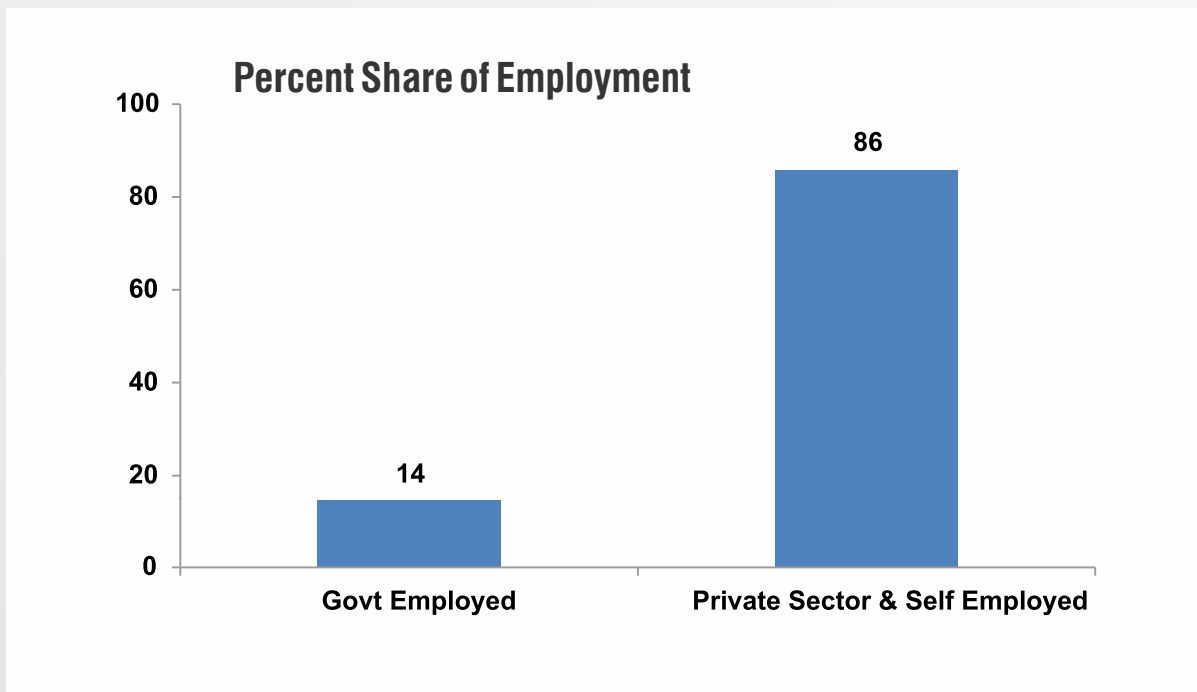
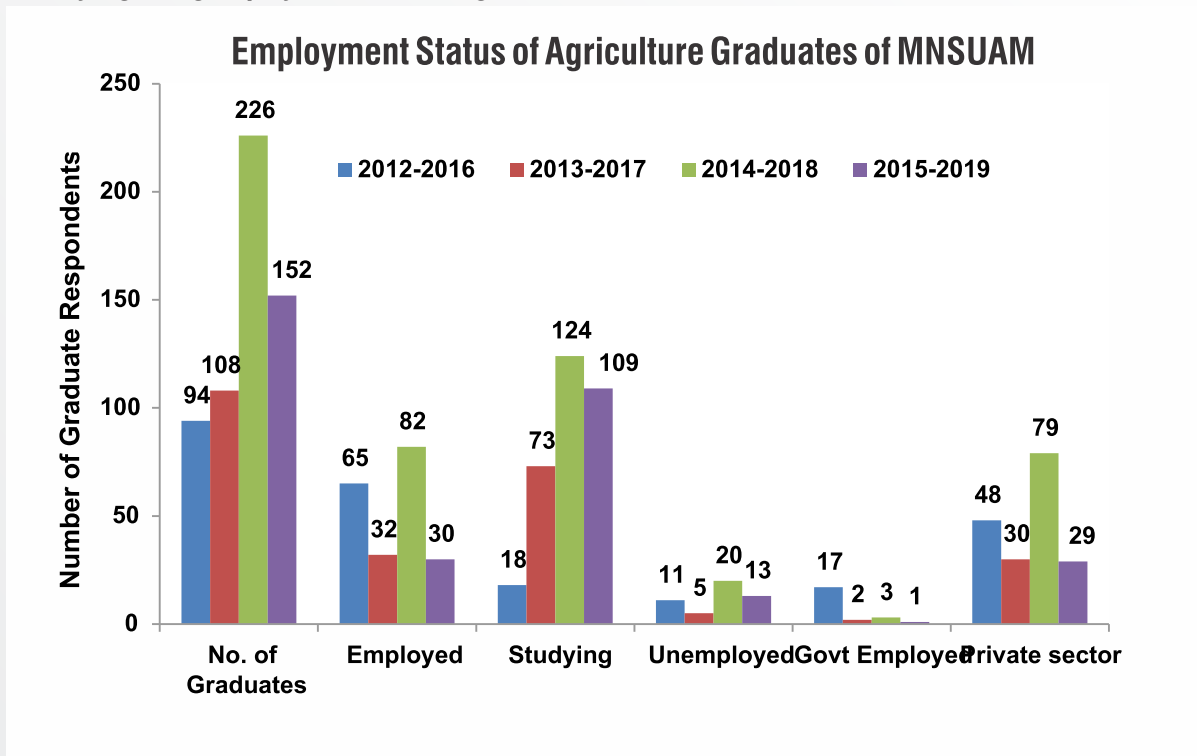
1. General Knowledge
2. Basic Mathematics
3. English
4. Agriculture

In addition to above, an English essay writing shall also be required as part of exam with minimum 200 words

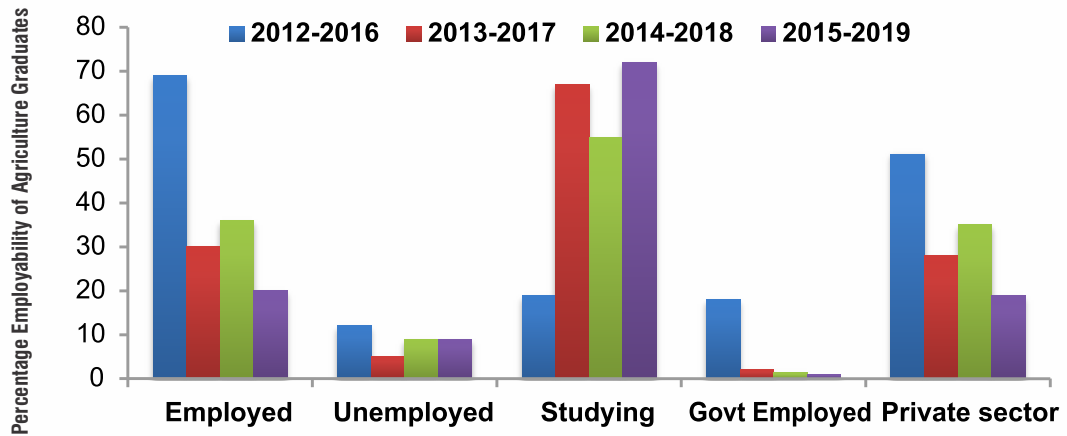
Test Date: 14th January 2020 (Tuesday) 11:00 am
Venue: Seminar Hall Block 'A' 1st Floor MNSUAM

Note: CDC/PB would only facilitate BOP in recruitment process and has no role in selection of any candidate

Survey regarding employment status of Agriculture Graduates of MNSUAM



Employment Status of Agriculture of Graduates of MNSUAM (%)



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**CHAPTER - 12
FINANCE**

**MNS University of Agriculture, Multan
www.mnsuam.edu.pk**

FINANCE

12.1. Financial Year at a Glance

PARTICULARS	APPROVED BUDGET 2019-20	REVISED BUDGET 2019-20	ACTUAL 2019-20
Millions PKR.			
RECEIPTS			
Opening Balance	4.559	15.290	15.290
Govt. Receipts	168.928	167.265	177.266
University's Own Source (Self-Generated Income)	241.620	185.563	184.866
Donation	10.000	0.000	0.000
Total Receipts	425.107	368.118	377.422
EXPENDITURES			
Salary Expenditures	259.119	223.381	222.782
Non Salary Expenditures	210.026	128.469	125.909
Total Expenditures	469.145	351.850	348.691
Surplus/Deficit	(44.038)	16.268	28.731
IN PKR			
Development Budget	757.830	692.080	692.080
Recurring Budget	469.145	351.850	348.691
Self-Generated Income	241.620	185.563	184.866
Trend of Per Student Spending (Salary Expenses Basis)	74,460	75,339	75,137
Trend of Per Student Spending	60,410	43,328	42,462

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CHAPTER - 13 UNIVERSITY GOVERNANCE



UNIVERSITY GOVERNANCE

The MNS University of Agriculture, Multan was announced by the Chief Minister, Punjab on 28-01-2012. The University was established under the Act 2013 of the Punjab Assembly with the objective to impart professional education in agriculture sciences and allied disciplines by catering the need of population, nationally & regionally. The Act XXII 2013 authorized the University to establish the following authorities to supervise the matters of the University for its smooth functioning.

13.1. Syndicate Meetings

The Syndicate is the executive body of the University and takes effective measures to raise standard of teaching, research, technological development, publication and other academic pursuits. As of June 30, 2020, a total of 25 meetings of Syndicate have been held, out of which held in 2019-2020 are given below:

Sr. No.	Meeting	Date
1.	24th	02-11-2019
2.	25th	11-01-2020



13.2. Academic Council Meetings

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 life of the University. Detail of meeting of the Academic Council held during the year 2019-2020 is tabulated below:

Sr. No.	Meeting	Date
1.	6th	20-06-2020



13.3. Finance and Planning Committee (F&PC) Meetings

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

Sr. No.	Meeting	Date
1.	7th	09-12-2019
2.	8th	16-06-2020



13.4. Board of Advanced Studies and Research (BASR)

The Board of Advanced Studies & Research advises on all matters connected to the promotion of advanced studies and research publications in the university. One meeting of the Board was held during 2019-2020:

Sr. No.	Meeting	Date
1.	7th	17.04.2020
2.	8th	15.05.2020



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CHAPTER - 14 OFFICE OF THE RESOURCE GENERATION/DEVELOPMENT



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 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 MNS University of Agriculture, Multan 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 the Southern Punjab.

14.1. Scholarship Program

Scholarships are awarded to needy and meritorious students. Award is based on merit, financial need, or a combination of both. Scholarships can come from different sources and they may vary in the awarding criteria.

University is awarding 10% merit scholarships to graduate and undergraduate students on CGPA basis in addition to received need-based scholarships. The overall scholarship data for undergraduate and post graduate students of MNS-University of Agriculture, Multan up to FY 2019-20 is as under:-

14.1.1. Scholarship Data of MNS-UAM Up To FY 2019-20

Sr. No.	Scholarship Category	No. of Awardees	Amount (Million PKR)
1.	HEC Need Based	268	21.160
2.	University Merit Scholarships	556	5.974
3.	Punjab Educational Endowment Fund (PEEF)	438	16.119
4.	Bait-UI-Mal	13	0.910
5.	Minority Scholarship	1	0.030
6.	PM Fee Re-imburement (MS & PhD)	214	6.057
7.	Neelum Seed Need Based	2	0.192
8.	Ms. Asia Sultan Need Based	2	0.096
9.	Ehsaas Undergraduate Scholarship	281	26.430
	Total	1775	76.968

14.2. Student Financial Aid Office

We believe students from all economic backgrounds should have the opportunity to attend the MNS University of Agriculture, Multan. Finances should not be a barrier to getting a world-class education. There are several options of financial aid for students and need to explore the many scholarship options available that help make paying for university affordable as possible.

Despite heavily subsidized fee structure, many deserving and bright students feel difficult to bear it. There is a need that society supplements government efforts to help and support under privileged and weaker section of the society. This will help making Pakistan a land of equal opportunities and education for all. In FY 2019-20, an amount of Rs. 34.861 million was distributed by Financial Aid Office of MNS-UAM among 606 students of Undergraduate and Postgraduate of the University for Financial Support.

14.2.1. Undergraduate Scholarships Awarded During FY 2019-20

Sr. No.	Scholarship Category	No. of Awardees	Amount (Million PKR)
1.	Merit Scholarship	152	1.67
2.	PEEF	125	4.5
3.	HEC Need Based	22	1.87
4.	Ehsaas Undergraduate Scholarship	281	26.43
Total		580	34.47

14.2.2. Postgraduate Scholarships Awarded During FY 2019-20

Sr. No.	Scholarship Category	No. of Awardees	Amount (Million PKR)
1.	Merit Scholarship	25	0.325
2.	PEEF	1	0.066
Total		26	0.391

14.3. Planning & Development Office

The P&D Office of MNS University of Agriculture, Multan is playing its role in the resource generation for the University development. During 2016-17, one project worth Rs. 1510.243 million was approved with the execution period of 48 months up to June 30, 2019 under ADP of Agriculture Department, Govt. of the Punjab and revised at a cost of Rs. 1746.258 million by also extending project execution period for one year (Up to June 30, 2020). Project activities have been completed including physical infrastructure, procurement of lab equipment, furniture & fixture, transport, generator, farm development, construction work and allied activities.

One project of Rs. 2.73 million has been approved by Higher Education Commission, Islamabad under the strengthening of labs and Libraries program of HEC.

One project has also been approved under ADP of Agriculture Department having share of MNS University of Agriculture, Multan. The detail is as under;

- i) Commissioned research for development of cotton seed (Rs. 320.363 million with MNSUAM share is Rs. 80.330 million).

Another ADP Project of Rs. 170.00 million for provision of fresh irrigation water & other basic infrastructure facilities at Jalalpur Pirwala Farm of MNSUAM has been approved with the execution period of 24 months (2019-20 to 2020-21) and work is in progress at full swing.

One project proposal of Rs. 1639.00 million has also been submitted to Higher Education Commission (HEC), Islamabad for further approval of competent forum.

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CHAPTER - 15 EXTERNAL LINKAGES



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CHAPTER - 15 EXTERNAL LINKAGES



EXTERNAL LINKAGES

The changing role of the universities mandated a greater connectivity and strong linkages with the local, national, regional and international communities. Therefore, under the initiative of HEC, the Directorate of External Linkages was established in the MNS University of Agriculture, Multan in 2016.

MNS-UAM seeks to garner expertise from a wide variety of sources from within/outside the country in order to boost its academic and research activities. This in turn helps create deeper impact on the world of Agriculture, science and technology. For the purpose, the University collaborates with leading international universities, professional/ research organizations, commercial ventures, talented professionals and scholars to pursue its academic and research goals. Our faculty, researchers and students are constantly adding value to MNS-UAM by remaining actively engaged with professional groups and individuals in the research, review of academic papers, organization of conferences and seminars. The MNS-UAM has so far developed linkages with 29 international and 40 national sister organizations.

This Office also has the responsibility to attract international students, facilitate placement of university students and faculty in high ranking universities, facilitate interaction between faculty and industry and exert a pull for financing of training, research and development activities of the university by national and international donors, alumni, civil society and agro-based industries. Directorate of External Linkages aim to facilitate the faculty/ departments/ directorates/ institutes for promoting R&D activities through external collaborations, attract and facilitate placement of international students in MNS-UAM. Developing reciprocal understanding between the International Organizations for resource and environment conservation is the mandate of Directorate for resource mobilization and to link with public policy stake holders for seeking directions and providing policy input.

15.1. VISION

- Directorate of External Linkages aim at developing strong liaison with high ranked universities and research institutes of the world.
- Joint Degree Programs with the conscious endeavors for internationalization.
- To take public, private and non-governmental organizations on board for achieving the main goals of education, research and development in various faculties in the university.

15.2. ACHIEVEMENTS

- During the fiscal year 2019-20, Directorate of External Linkages has signed 4 MoUs with International organizations and 11 MoUs are signed with national private and public sector partners from Pakistan.

Sr. no	Foreign/International Partners	Country	Date of signing	Main Activities	Focal Person
1.	University of Bonn, Germany	Germany	13-Mar-2020	Joint research collaboration in the area of digital agriculture, data assimilation procedures and integration into e-agriculture framework	Dr. Habib ur Rehman
2.	Millat Education Foundation Inc., USA	USA	10-Mar-2020	Providing scholarship opportunities to MNSUAM students for pursuing Ph.D. at Universities in USA	Prof. Dr. Shafqat Saeed
3.	Shihezi University, Xinjiang, China	China	17-Dec-19	Conduct joint research on Arid Oasis Land and Water Resource Management	Dr. Alamgir Akhtar
4.	Tonglu County Peoples's Government China	China	12-Dec-2019	Sharing of expertise, collaboration for joint research	Prof. Dr. Shafqat Saeed

15.4. National MOUs

Sr. no	National Partners	Date of signing	Main Activities	Focal Person
1.	Fatima Jinnah Women University, Rawalpindi	29-Jul-2020	Conducting Joint research Projects, using joint lab facilities for gene cloning, tissue Culturing, Next Generation Sequencing, establish exchange program for students and researchers	Dr. Zulqarnain Khan
2.	Tawakkal Fish Hatchery and Farms, Muzzaffargarh, Pakistan	08-Jul-2020	Collaboration in field of aquaculture and fisheries proliferate the use of other advance techniques,	Dr. Naheed Bano
3.	BASF Pakistan (Pvt.) LTD.	08-Jul-2020	Product testing and development for BASF Agriculture Solutions, capacity building and training of students. To collaborative in organizing seminars, workshops, exhibitions symposiums and summits	Prof. Dr. Hammad Nadeem Tahir
4.	Gurmani Foundation	03-Mar-20	Collaborate to promote horticulture through the Horticulture Center of Excellence (HCoE), sharing expertise and knowledge, conduct joint research projects	Dr. M. Ameen/ Dr. Abid Hussain
5.	ATF Mango Farms (Pvt.) Ltd. Lodhran, Pakistan	01-Feb-2020	Establish Shrimps Farms at 03 Acres on Jalalpur Pirwala University Farm for R&D and provide resources/ facilities for research activities for shrimp farming.	Mr. Nabeel Ikram
6.	Ali Tareen Farms	29-Jan-2020	Collaboration between MNSUAM and Ali Tareen Farms for Pilot Scale Production and Demonstration of Shrimps at Jalalpur Pirwala	Mr. Nabeel Ahmad Ikram
7.	Sub-Grant Agreement for Ehsaas Undergraduate Scholarship Project	01-Jan-2020	To provide the scholarship for needy students.	Prof. Dr. Asif Ali
8.	Pakistan Bait Ul Maal	10-Nov-2019	Provide IFA stipends to poor deserving but brilliant students of MNS-UAM	Dr. Kashif Razzaq
9.	IdeaGist, Pakistan	18-Sep-2019	Collaborate to initiate business incubation program, develop ideas on technology commercialization, showcasing innovations, provide access to investment and funding	Prof. Dr. Zulfiqar Ali
10.	Sustainable Development Policy Institute	01-Aug-2019	Sharing of expertise, collaboration for joint research and development projects	Mr. Muhammad Zeeshan
11.	Jaffer Agro Services Private Limited	11-Jul-2019	Sharing of expertise, collaboration for joint research and development projects, Internship opportunity to students	Dr. Muhammad Ishtiaq

15.5. First International Student Successfully Completed His Research Stay at MNSUAM

MNS University of Agriculture, Multan is a growing institution in South Punjab with its dynamic approach towards academia, industry, and farming community. This Varsity has developed strong linkages with all stakeholders within very short period of time. Among other joint mega projects with Australia, United Kingdom, USA and China, "Carbon fertilizers for reducing greenhouse gas emission and improving food security" is a DAAD (German Academic Exchange) funded project between University of Agriculture, Multan and Hochschule Geisenheim University, Germany. The project PI (Principle Investigator) Dr. Ghulam Haider, Assistant Professor, Department of Agronomy is a graduate from Justus-Liebig University Giessen Germany and executing this project in collaboration with one of his PhD supervisors (Prof. Dr. Claudia Kammann). Overall the project deal with possibilities of developing carbon based nitrogen (N) fertilizers to

minimize N losses and mitigate greenhouse gas emission from wheat-cotton cropping system of Pakistan. The project worth Euro 139000/- equivalent to PKR 23.6/- million for three years (2018-2020). The project also follow the DAAD slogan "Change with Exchange" where graduate students from Pakistan and Germany can avail opportunity to get training at partner universities in these countries. During the summer semester 2019, the PI Dr. Ghulam Haider and four postgraduate students (Muhammad Asif PhD Scholar Agronomy, Muhammad Muavia Ghauri, Muhammad Bilal Riaz and Ms. Zarneena Khan, Master students at Department of Agronomy) have visited and conduct their controlled studies at Hochschule Geisenheim University, Germany. From Germany, Mr. Felix Benz Mueller, a student at Hochschule Geisenheim University, Germany visited University of Agriculture Multan for one semester to conduct his field research for his thesis. Mr. Felix was the first ever international student of University Mr. Felix worked with spinach production by using organic manure in combination with mineral N or mineral N enriched biochar at research block of University. Mr. Felix enjoyed his stay at Multan University and successfully completed his research. During his stay he had chances of sightseeing in Multan, Faisalabad, Islamabad and Lahore. We are hopeful that University of Agriculture Multan will be leading institution in Pakistan to promote internationalization which in turn may help to strengthen Pakistan's international standing in academia and research.

15.6. Foreign Delegation Visited MNSUAM to Seek Opportunities for Collaboration

A three-member delegation from the College of Agriculture, Shihezi University, Xinjiang, China and one-member from Murray-Darling Basin Authority, Australia visited MNSUAM from December 16-18, 2019. The delegates witnessed the research facilities available in MNSUAM-laboratories and field, research work being carried out in University and neighboring/allied research institutes. Delegation visited farmer's fields and research farms of MNSUAM at Jalalpur Pir Wala as well. After witnessing the strengths and challenging areas, both sides agreed to initiate collaborative research. Prof. Dr. Fenghua Zhang, Dean, School of Agriculture, Shihezi University offered multiple options for capacity building of MNSUAM faculty. A memorandum of collaboration (MoC) was also signed between MNSUAM and Shihezi University. Prof. Dr. Asif Ali, Vice Chancellor MNSUAM and Prof. Dr. Fenghua Zhang, representative Shihezi University signed the agreement. Vice Chancellor offered special thanks to Engr. Dr. Tariq Rana, Director, Murray-Darling Basin Authority, Australia for connecting MNSUAM with Shihezi University, China.

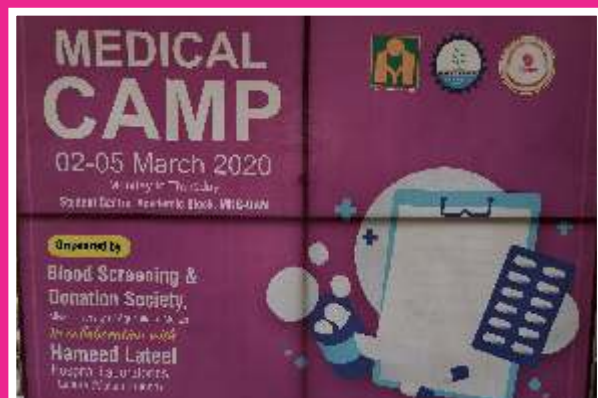
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CHAPTER - 16 MEDICAL AND HEALTH FACILITIES



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CHAPTER - 16 MEDICAL AND HEALTH FACILITIES



MEDICAL AND HEALTH FACILITIES

Currently following medical facilities are available:

- Arranging seminars and creating awareness about hot medical issues like Dengue and Covid-19
- Free ambulance service and vaccination for Covid-19 and seasonal influenza
- Emergency and routine check-up and medication to the students
- First aid to the students and employee of the University

16.1. Blood Screening and Medical Care Camp

Blood Donation and Screening Society of MNSUAM arranged Blood Screening and Medical Camp for students of MNSUAM. The camp was organized in collaboration with Chughtai Lab, Multan and Al-khidmat Foundation, Multan. The camp was inaugurated by Vic Chancellor, Prof. Dr. Asif Ali and more than 1000 students including faculty members participated for Hepatitis B & C screening and Blood sugar profiling as well. Prof. Dr. Asif Ali also got himself screened and said that everyone should avail this opportunity and appreciated the initiative undertaken. Family Physician, Dr. Rao Sharafat Ali gave beneficial advices and precautions to the students and teachers.



MNS-UNIVERSITY OF AGRICULTURE, MULTAN

 Agriculture Complex, Old Shujabad Road, Multan-Punjab-Pakistan  www.mnsuam.edu.pk  +92 61 9201541, 9201560