

SEPTEMBER 2021

NEWS BULLETIN

Volume(6), Number(09)



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Multan-Pakistan**

MNSUAM'S Prof. Dr. Zulfiqar Ali Won HEC Best Teacher Award

Principal Officer ORIC, MNS University of Agriculture Prof. Dr. Zulfiqar Ali, has been awarded HEC Best Teacher Award for 2021. The Higher education Commission (HEC) introduced this award in 2003 to acknowledge and encourage the teachers who have achieved excellence in their profession. In this competition 34 universities participated and after a rigorous evaluation process, three faculty from all over Pakistan, one each in Social Sciences, Physical Sciences and life sciences were awarded Best Teacher Award 2021. Prof. Dr. Zulfiqar Ali was recognized as the Best Teacher in life sciences. Prof. Dr. Asif Ali (T.I), Vice Chancellor MNSUAM also participated in the award ceremony. He congratulated Prof. Zulfiqar and reinforced his commitment for capacity building of the faculty and students in a way that they can achieve excellence in their career. The Honourable President of Pakistan, Dr. Arif Alvi conferred the award and addressed the ceremony. He said that access to higher education could be enhanced by through online and blended education as had been experimented during the COVID pandemic. He added that higher education could effectively be promoted in the country by widening scope of online education as well as skill learning to cope with the growing market needs. The ceremony was attended by Mr. Shafqat Mahmood, Minister for Federal Education and Professional Training; Ms. Wajiha Qamar, Parliamentary Secretary Education and Dr Shaista Sohail, Executive Director Higher Education besides vice chancellors and rectors of different universities.



The Defence 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. A seminar entitled "Role of Women in the Peace Development" was organized by Directorate of Student Affairs in collaboration with District Women Peace Forum. Ms. Sabeen Gul, Member Provincial Assembly was the chief guest of the event. She said that the role of women is always vital for country's prosperity. They not only participated effectively in the Pakistan Movement but also in the defense of the country. 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. Unprecedented sacrifices were rendered to achieve this homeland and the nation is still ready to sacrifice everything for its development and

DEFENSE DAY CELEBRATION

existence. We salute to those mothers who gave birth to the brave soldiers for this homeland. Prof. Ali further said that youth of Pakistan is our future therefore they should work hard with devotion and discipline to make the country developed and secure in the era of 5th generation war and non-traditional security threats. Students of Music Club and Dramatic Society 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.



MNS University of Agriculture Multan is leading from front to meet the challenges of food security and malnutrition in the region. Office of the Research and Innovation, MNSUAM and HarvestPlus, Pakistan organized an awareness webinar on zinc biofortification in wheat on September 14, 2021. The event was chaired by Prof. Dr. Asif Ali (T.I), Vice Chancellor, MNSUAM who said that food as well nutritional security are big challenges of developing countries like Pakistan. Biofortification is the need of the time and should be considered on priority basis as part of crop improvement programs, he further added. Dr. M. Yaqoob, Country Manager HarvestPlus, explained the role of HarvestPlus in promoting zinc biofortified wheat in the country. He pointed out that the first zinc wheat variety, Zincol-2015, provided to the farmers at the onset of the wheat season 2015-16, and mass produced through our partnership with public and private seed multipliers and farmers. Initially, we are focusing on multiplying and providing zinc wheat seed through selected number of partners to target home production and consumption. We are also setting up demonstration plots in all provinces, and providing seed at subsidized rates to small and medium scale farmers. Public awareness campaigns, including trainings, meetings, field days, and the media, are helping to educate farmers on the benefits of

Webinar on Addressing Zinc Deficiency through Biofortification of Wheat in Pakistan

zinc wheat. Prof. Dr. Hammad Nadeem Tahir, Prof. Dr. Zulfiqar Ali, Prof. Dr. Irfan Ahmad Baig from MNSUAM and Mr. Munawar Hussain, Dr. M. Imtiaz, Dr. Makhdoom Hussain from HarvestPlus, Ch. Faiz Rasool from GAIN, Pakistan, Dr. Javed Iqbal, from AARI, Faisalabad and Mr. Shahzad Sabir, Director Agriculture Extension, Multan also participated in the event. It was agreed upon that the effective linkages and cooperation between academia, research and industry will lead to the development of biofortified food crops in future.



Hands on Training on Fish Farming

Department of Fisheries and Aquaculture, MNSUAM organized hands on training for farmers on fish farming on September 16, 2021. Imparting training to farmers was aimed at promotion of fish farming in the country and was attended by a good number of farmers besides faculty members. The trainer, Dr. Naheed Bano, Assistant Prof. discussed technical aspects of fish farming and efficient management techniques. She informed that fish could be preserved for one year with proper management adding that farmers could get better production of fish even from brackish water. Dishes made by fish are appreciated across the world as they curb the dietary needs of kids and women. In his inaugural address, MNSUAM Vice Chancellor, Prof. Dr. Asif Ali (T.I), said that fish is rich source of protein which is essential part for human body growth adding that our population is facing its deficiency. Fish farming is gaining popularity in urban as well as rural, Dr. Asif added that biofloc fish farming has been much successful in the cities and now its trend is growing with each passing day.



Seminar on "Leadership and Entrepreneurship" and Oath taking Ceremony of Character Building Society



The MNS University of Agriculture Multan (MNSUAM) in Collaboration with National Accountability Bureau (NAB) organized a seminar on "Leadership and Entrepreneurship" on September 21, 2021. The seminar was presided over by MNSUAM Vice Chancellor, Prof. Dr. Asif Ali (T.I) and Mr. Nauman Aslam, DG NAB, Multan who was the chief guest on the occasion. The oath-taking ceremony of newly elected cabinet of Character Building Society (CBS) took oath in the ceremony.. Prof. Dr. Asif Ali said that our students are actively taking part in such activities which made them different from students of other universities. "CBS is platform provided by NAB, which is building leadership character among the students who say no to corruption." He further said that such initiatives are crucial and will help engage the young generations for thinking positively and contribute in the development of the country. Mr. Nauman Aslam said that they have established more than 10,000 such societies, which are playing an important role for a corruption free society and the country. He greeted Prof. Dr. Zulfiqar Ali for winning the best university teacher award in year 2021 and appreciated Prof. Dr. Asif Ali for creating a congenial environment for leadership development at the university.



Capacity Building Workshop for Scaling up Alfalfa Production



Institute of Plant Breeding and Biotechnology, and Department of Agronomy, MNS University of Agriculture Multan in collaboration with Maxim International PVT limited successfully organized "Capacity Building Workshop for Scaling up Alfalfa Production" on September 23, 2021. Objective of organizing this timely and much needed workshop was to guide farmers and alfalfa exporters about modern production technology and processing techniques because alfalfa sowing time is approaching. Alfalfa expert panel included Dr. Qamar Shakeel, Dr. Muhammad Asif Shahzad, Engineer Mazhar Hussain, and Mr. Waqas Shah. Experts guided the farmers via effective presentations and responding to farmer's queries. Experts explained critical aspects of crop management for quality fodder and hay production. Due to escalating livestock population, its usage in the form of fresh foliage and hay is increasing locally and internationally. Hay export is increasing especially to Qatar, Dubai, Kuwait, they pointed out. MNSUAM provided a platform to all stakeholders for better fodder, hay production and its export. Forty alfalfa growers, five hay exporters joined physically including faculty members Prof. Dr. Muhammad Hammad Nadeem Tahir, Dr. Abdul Ghaffar, Dr. Shahid Iqbal Mr. Mahmood Alam Khan, Dr. Rao Muhammad Ikram; while, 70 participants were linked with online zoom network.

MNSUAM Join Hands with Chinese Academy of Tropical Agricultural Sciences and National Agricultural Universities



MNSUAM Join Hands with Chinese Academy of Tropical Agricultural Sciences and National Agricultural Universities

Chinese Academy of Tropical Agricultural Sciences (CATAS) and University of Agriculture, Faisalabad (UAF) arrange CATAS-UAF online workshop on Tropical Agricultural S&T Cooperation. A memorandum of understanding was inked among Institute of Tropical Bioscience and Biotechnology of CATAS, China; MINSOL Consultant (Pvt) Limited, University of Agriculture Faisalabad (UAF), PMAS Arid Agriculture University Rawalpindi; and MNS University of Agriculture (MNSUA) Multan. As per agreement, MINSOL will strive to viably commercialize the products developed in collaboration with other parties. Federal Minister for National Food Security and Research, Syed Fakhar Imam was the chief guest of this event. Syed Fakhar Imam said that modern agriculture technology must be trickled down to the farmers so that they could enhance per acre yield in addition to switching over to value addition. He further added that we must grow high-value crops to secure space in the global food market. He said that we have to learn from the experiences of the other countries. He hoped that the collaboration with China will bring the tangible results to address the problems of the farming community. Prof. Dr. Iqrar Ahmad Khan, Vice Chancellor, UAF; Prof. Dr. Qamar-uz-Zaman, Vice Chancellor, Pir Mehr Ali Shah Arid Agriculture University; Prof. Dr. Asif Ali, Vice Chancellor, MNS University of Agriculture; Prof. Dr Jafar Jaskani, Prof. Dr. Aman Ullah Malik, Dr. Rahid Waseem, Dr. Muhammad Azam, Dr. Gu Wenliang, Agriculture Official of China; Dr. Li Kaimian, Vice President of CATAS; Chen Yixi from China, Mr. Nihal Ahmed, CEO MINSOL Consultant (Pvt) Limited and other notables also shared their views.



Promotion of Peace and Pluralism in Society

To mark the International Peace Day on September 21, MNS University of Agriculture Multan organized some series of event. On September 21, 2021 an interactive seminar was organized in collaboration with NAB Multan division. As the continuity of the activities regarding peace and leadership at campus, the Community Theatre and Mutual Learning event was organized on September 27, 2021. Human Health, Research and Welfare Associations as a partner to MNSUAM invited youth representative from Union Council, Bosan Road so that youth representatives from local rural community can avail an opportunity to learn from the skills of Dramatic Club member of MNSUAM. While addressing the audience, Dr. Mirza Abdul Qayyum (Focal Person, Peace Portfolio) reiterated the vision of the University. He further informed the community about how MNSUAM laid the foundation of peace and leadership at campus through positive engagements. He declared that the key to success for achieving the status of model institution is through youth engagement in a vibrant and a fruitful manner. Dr. Usman Jamshaid (Senior Tutor) stated that along with the scientific advancement, learning the skills and real soul of arts is mandatory to lead a peaceful life. Mr. Mahfooz (Project Officer) Human Health, Research and Welfare Associations appreciated the efforts of the University for keeping its identity and recognition on the way to peace and leadership. Representatives from Union Council, Boson Road presented their theatrical skills at stage and later, the students from Dramatic club showed their talent. The last component of the program was the discussion on thought sharing on mutual learning. This session was exclusively organized for youth from rural area of Bosan Road to provide them a chance to learn from the students of the University.



Inter Firm Linkages workshop on Value Chain of Fish and Fish Products

A one day Inter Firm Linkages Program was conducted on September 23, 2021 in collaboration with MNSUAM and SMEDA. The purpose of this program was to develop links between academia, farmers and Industries. Dr. Mubashir Mehdi, Director Business Incubation and Entrepreneur Center, MNSUAM welcomed all participants and highlighted the importance of fish farming. Mr. Fawad Ahmad Khan, Manager BDS, SMEBFC Multan talked about the importance of inter-firm linkages and future of fisheries. Mr. Kamran Maqsood MD Fish Feed Industry highlighted the significance of feed and use of advance equipment for fish farming. Mr. Muhammad Umer Sindhu, MD

Inter Firm Linkages workshop on Value Chain of Fish and Fish Products

Tawakkal Fish Hatchery, Muzafargarh talked about the use of new species and innovations in hatchery. Mr. Muhammad Ali, Assistant Director, State Bank of Pakistan explained different schemes and loan options for farmers. Manager Food Safety Ramada, Dr. M. Abbas Ranjha elaborated the process of food selection and criteria of quality checking at Ramada. Dr. Muhammad Ali from Punjab Food Authority talked about the selection and quality evaluation methods of Punjab food Authority. Mr. Nisar Ali Khan, Deputy Director, Pakistan National Accreditation Council, briefed about the accreditation process and how to register a company. Dr. Naheed Bano, Assistant Professor, Faculty of Veterinary and Animal Sciences, MNSUAM postulated that the fish farming requirements in the scenario of climate change and the importance of new techniques in fisheries and aquaculture. At the end, Dr. Mubashir Mehdi gave concluding remarks and emphasized on the collaborative research work.



Stakeholder Inception Workshop under ACIAR Funded Project

An inception workshop of Australian Centre for International Agriculture Research (ACIAR) funded project "Adapting to salinity in the Southern Indus Basin", was held on September 30, 2021 at MNSUAM. This project has been launched in Punjab and Sindh provinces and carried out in collaboration with various universities and research institutions across the globe. This 2.5-year project is a launching pad for a 10-year program to explore how Pakistan can withstand the menace of salinity that has entrenched in its landscape. The project aims to develop and study adaptation options and strategies with people managing and living in salinity affected agricultural lands in the southern Indus Basin. The aim of this workshop was to present the salient features of

Stakeholder Inception Workshop under ACIAR Funded Project

the project for active engagement of the relevant government departments, policy makers, farmers and other institutions to explore collaboratively determined adaptation packages to cope with salinity. Mr. Saqib Ali Ateel, Secretary Agriculture, South Punjab attended this event as a chief guest. He applauded the efforts of the varsity and ACIAR to address the germane issue of salinity in Pakistan. He added that findings of this project will bring prosperity by increasing livelihood of farmers on sustainable basis. Dr Munawar Raza Kazmi, ACIAR's Country Manager, presented the significant work of ACIAR and how this work focuses on the rural communities. He expressed the hope that the project would prove to be a landmark in improving the livelihoods of salt affected farming community of Pakistan. Prof. Dr. Asif Ali (T.I), Vice Chancellor MNSUAM thanked all the participants and urged the use of phytoremediation strategies and cultivation of halophytic plants to get most out of salt-affected soils. He shared the success stories of Jalalpur Pirwala farm where cultivation of exotic Australian grass was fruitful and also palatable to farm animals. Our experience shows that shrimp farming can be another economically viable option on such soils, he further added. The event was attended by experts from ACIAR, IUCN, CSIRO, ICBA, University of Cumbria, Monash University, MUET, MNSUAM, US-Pakistan Centre for Advanced Studies in Water, PARB, officials from Agriculture Department who shared their research and learning experiences as part of participatory approach.



Low-cost Wastewater Treatment System is in Place at MNSUAM: To Protect Agriculture and Environment

In agricultural context of Multan, where major source of earning in the area directly or indirectly depends on agriculture and the area is being irrigated by the canals originating from the tail of the rivers, extent of hazardous contamination is getting extremely harmful for the local rural and peri-urban economies.

Multan, being the center of South Punjab and emerging as the new agricultural capital of Pakistan is in dire need that increasingly contaminated water be made useful and be used in its most productive possible ventures after treatment. Therefore, keeping in view the shortage of freshwater resources and production of huge volumes of wastewater and its usage for irrigation purposes, the Soil and Environmental Sciences Department of MNS-University of Agriculture, Multan has developed a method known as use of constructed wetlands for the treatment of wastewater. Through this technology, wastewater of mills and factories could be purified of toxic materials. Dr. Tanvir Ul Haq, Departmental Chairman informed that plantation near ponds could be conducted through this technology adding that varsity's experts are using polluted water for crop production by constructed wetland technology. Constructed wetland is an artificial wetland to treat sewage, greywater, stormwater runoff or industrial wastewater. It may also be designed for land reclamation after mining or as a mitigation step for natural areas lost to land development.

Constructed wetland technique is an efficient, reliable, and active biological method for the removal of pollutants from wastewater that discharged from different point and non-point sources. It is a natural, environment-friendly, and economical indigenous wastewater treatment technique. This system comprised of series of ponds including sedimentation, treatment and collection ponds with specialized size and depth to speed up the process. In constructed wetlands, different native aquatic plants such as Duckweed, Water lettuce, Typha, pennywort and vetiver are used for the treatment of sewage water. Specially isolated microbes and algae further promote the process. The treatment system is developed with the financial support from HEC and local industry in Multan. The cost on the establishment of this system is much lower than commercial wastewater treatment plants.

The constructed wetland model can be scaled up and modified as per need of the



industry and municipalities to protect the environment. Treated wastewater is considered a key source of several essential micro and macro-nutrients necessary for plant growth and development. In fact, wastewater irrigation provides considerable quantities of nitrogen, phosphorus and potassium to soil and plant. The treated wastewater has a great potential to be used as an alternative source of irrigation to crops, to plants in urban landscapes, in recreation sites, in sports sites, schools, and along road side. There is a need to treat wastewater effluents before discharging them into drains so that we can save our environment and minimize the health-related issues for humans, and for this purpose a separate system is necessary that make water fit for discharge into water bodies. Several postgraduate students at the department are working on various aspects of the system to improve its efficiency.

Varsity develops Iron, Iodine Rich Tomatoes

To address issue of deficiency of iodine and iron in human diet, the scientists of MNSUAM are working on tomato, rich in iodine and iron, by applying agronomic techniques. Micronutrients were key components of balanced nutrition. Deficiency of iron and iodine causes severe problems to human health. Iodine deficiency caused goiter, mental retardation, laziness and some other health complications. Similarly, iron deficiency in nutrition also led to different health hazards including anemia.. Mr. Nabeel Ahmad Ikram, Lecturer Agronomy added that red blood cells are very much important because these carry oxygen to different body parts. Similarly, its deficiency in human diet also led to stunted growth, increased loss in pregnancy and new born mortality. Mr. Ikram added that iodine could be provided through salt but the patients with blood pressure could not use it. He, however, added that iodine and iron rich tomato could be best nutrition for human health. Use of tomato salad or ketchup is very much common in the country, he noted. t MNSUAM is working on iodine and iron rich tomatoes. For this purpose, the tomatoes are grown at an area of two and half Kanal in the varsity, under supervision of Vice Chancellor Prof. Dr. Asif Ali (T.I). The tomatoes were enriched with iron and iodine by applying agronomical methods. To a query about cost, Mr. Nabeel stated that the project is not costly. Nutritious tomatoes can be sold through high end market. It is highly profit generating crop, he claimed. Replying to how these enriched tomatoes are different from other tomatoes, the MNSUAM researcher stated that iron and iodine enriched tomatoes are visually dark-red. Similarly, it has more shelf life. He also added that they achieved average 12 kilogram tomatoes per plant and termed it remarkable production.





Flying insect pests (FIPs) cause 50-60% loss of fruits and vegetables in Pakistan, valued approximately 200 million US\$ annually. On the other hand, excessive use of chemicals is harmful to human health, environment, birds, pollinators, soil quality, fruit yield and quality. Farmers often remain uninformed about insect pest species that might have attacked their orchard/farms. These factors also contribute towards fruit/vegetable certification issues and reduce demand of Pakistani agricultural commodities in the international market.

Smart Traps is a solar-powered Artificial Intelligence and IoT-based device developed by Dr. Ayesha Hakim (Assistant Professor, Computer Science) and her MSCS student Ms. Sana Tariq. This device uses state-of-the-art technologies for continuously monitoring of flying insect pests that attack several crops including fruits and vegetables. This system informs farmer about the type and species of FIPs as well as the location of attack (hotspots) through alert by mobile application. In future, SmarTraps will be connected to spraying system to automatically spray pesticide precisely on the infested area. So far, on-field testing of SmarTraps on two common species of fruit flies (*Bactrocera Zonata* and *B. Dorsalis*) with satisfactory results has been completed. In near future, it will also be tested for monitoring of pink bollworm on cotton crop. At present, this device is installed on Small Tree System orchard at MNS-University of Agriculture, Multan for demonstration.

Team Members:

Dr. Ayesha Hakim:	Supervisor (Academic Team Lead)
Ms. Sana Tariq	(MSCS-4th Semester Student)
Dr. Shazia Hanif	(Solar System Advisor)
Mr. Muhammad Owais	(BSCS-7th Semester Student)

Synopsis Defense

- Ms. Farzana Ashraf, Reg. No. 2017-uam-924, Ph.D scholar of Institute of Plant Breeding and Biotechnology has successfully defended her Ph.D thesis online on August 30, 2021 at 10:00 AM. The title of her thesis is "Comparative transcriptomic analysis of contrasting cotton intraspecific lines for fibre traits".
- Mr. Shoaib Liaqat, Reg. No. 2018-uam-909, Ph.D scholar of Institute of Plant Breeding and Biotechnology will defend his Ph.D thesis on September 21, 2021 at 2:00 PM (online) in MNS University of Agriculture Multan. The title of his thesis is "Improving lodging resistance through HvGA20ox transcript abundance in barley (*Hordeum vulgare L.*)."
- Mr. Ali Ammar, Reg. No. 2018-uam-910, Ph.D scholar of Institute of Plant Breeding and Biotechnology will defend his Ph.D thesis on September 20, 2021 at 2:00 PM (online) in MNS University of Agriculture Multan. The title of his thesis is "Effect of TaHSP90A transcripts abundance on temperature stress tolerance in wheat".