1st Aus-Pak International Conference

on

Pulses for Food Security

Science for Growers and Entrepreneurs

March 27, 2019

Organized by

Institute of Plant Breeding and Biotechnology

Department of Agronomy

MNS-University of Agriculture, Multan, Pakistan

Table of Contents

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EXECUTIVE SUMMARY

Pulses are traditionally grown in rainfed areas in Pakistan and on less fertile soils. The technological advancement over the period spanning from 1975 to 2011 have provided positive impact on the yield and production of main crops but no concrete effort to effectively establish sustainable legume based cropping systems has been developed. Therefore, reduction in area, production, and lack of interest in pulse production has been attributed to multiple factors such as poor marketing, reduced yields, price fluctuations, high labour costs, inefficient labour use, biotic and abiotic stresses, lack of adoption of modern day technologies and cropping methods. To solve these issues a scientific collaboration was developed among the eminent scientists of Australian Center for International Agriculture Research (ACIAR), Charles Sturt University, Australia, MNS-University of Agriculture Multan, National Agriculture Research center, Islamabad and Arid Zone Research Institute Bhakkar. As a result of Collaborative efforts of these organizations, "1st Aus-Pak International Conference on Pulses for Food Security: Science for Growers and Entrepreneurs" was held on March 27th, 2019. This conference provided an opportunity to scientists, research scholars, traders, progressive farmers and businesspersons to sit together on single platform to share and enhance the knowledge about productivity, marketability and profitability of pulse production. The conference themes were as under;

- Pulse Crop Improvement
- Pulse Productivity and Profitability
- Pulse Value Addition and Marketability
- Policy Perspective and Socio-economic Impacts of Pulse
- Science for Farmers

Conference was held to promote interdisciplinary dialogues regarding the contemporary issues of pulses. This event provided awareness about technological advances in a business oriented agriculture to cope with the rising problems for pulse production. Important topics covered were the role of pulses in regional and global food security, innovative breeding and production strategies for pulses, seed production and procurement systems, pulse value chain analysis and policy reforms to strengthen pulses production in an era of dwindling natural base.

To promote pulse as sustenance, a plant centric meal competition was also conducted alongside the pulse conference. Fifty teams with 90 stalls of different universities, colleges and cooking institutes contested in a plant centric meal competition. The activity was carried out to promote plant-based food products for a healthy life style, and encouraging people to refrain from the use of fast foods, especially among the youth. Provincial Minister for Forestry, Wildlife and Fisheries Muhammad Sibtain Khan inaugurated the competition and appreciate the participants in bringing different flavor of pulses as food and MNSUAM efforts in providing opportunity for country brain to display their novel ideas. Prizes were distributed among the winners.

The conference served as a platform for sharing experience of pulse production, value addition, socioeconomic impact of pulses and policy perspective mainstreaming at different level from high level political debate to grassroots level interventions. The main recommendations of the conference were training of farmers through participatory approach to adopt agronomy practices for higher productivity and adoption of development led research instead of research for development. Government proposed to encourage public private partnership, and provision of subsidy on postharvest facility and equipment. Moreover, constraint and opportunity for pulse production need to be find out for formulation of pulse policy, in this regard an international project, ACIAR Pulse project-041 “Increasing pulse productivity and profitability of pulse production in cereal based cropping systems in Pakistan” is already surveying and conducting experimental trials across the country could be supportive in promoting pulse industry.

Provincial Minister for Forestry, Wildlife and Fisheries Muhammad Sibtain Khan conveyed his gratitude to all participants in the closing session, and expressed his satisfaction with interactive nature of the discussions while congratulating participants on the extensive networking that had taken place, which he hoped, continue going farward. On the behalf of the government, he ensure his support in solving farmers issues, policy formulation and promotion of pulse industry.

This conference will stimulate and facilitate long-term communication and collaboration, development of networking, joint projects and business plan in achieving sustainable pulse production.

RECOMMENDATIONS

For Researchers

- Genomics-assisted crop improvement needs to be exploited grain legumes for yield improvement.
- Coordinated breeding programs for high yield, agronomically stable advanced germplasm with combined seed quality and disease resistance are needed for chickpea, lentil, mung bean, black gram and soybean.
- Seed delivery system needs to be improved and village-based seed production and dissemination systems can increase farmer access to improved crop varieties
- Integration of improved seed systems and better agronomic packages with the development of improved varieties by using sequence-based breeding can ensure higher genetic gains in farmers' fields.
- The ability of legumes to fix atmospheric nitrogen through symbiosis with rhizobia has largely untapped potential for sustainable agriculture, plant diversity and enhancement of primary production with reduced fertilizer use.
- Knowledge, access, and use of diversity available in cultivated and wild relatives are essential for widening the genetic base of commercial legume crop species.
- Exploitation of diverse sources of variability is required through pre-breeding for the genetic enhancement of grain legumes.
- Proper harvesting, postharvest storage and processing technologies can help achieve far reaching benefits from legumes (Groundnut as an edible oil crop)
- Pre-sowing seed enhancements (seed priming, rhizobial inoculation, seed treatment with fungicides) could improve crop performance against abiotic and biotic stresses
- The impacts of changing climate on pulses production need to be assessed, and quantified to explore vulnerabilities and adaptation strategies.
- Residual herbicides capable of performing under low moisture regime are needed for broad-spectrum weed control in chickpea grown under rainfed conditions.

For Farmers

- ❑ Farmers need to be trained through participatory approach to adopt appropriate agronomy practices together with better seeds of improved varieties so that they can have higher productivity.
- ❑ The value chain needs one more step and that is providing farmers' access to markets through digital technologies so that farmers do not just produce more but also can earn more.
- ❑ Application of the water through sprinkler irrigation system at a time when there is no rain can enhance the production of chickpea.
- ❑ Seed coatings with plant based oils (neem, eucalyptus) could help reduce infestation of stored grain pests during storage.

For Policy Makers

- ❑ Development led research rather than research for development is needed to improve the wellbeing of farm families/farming community
- ❑ Support to seed growers and institutions with the provision of postharvest facilities and equipment is needed.
- ❑ Government support through public-private partnership to enhance seed production and by-product/s is also needed.
- ❑ Federal government should remove the pulses export tax, remove all agricultural subsidies and wheat procurement price.
- ❑ Constraints and opportunities in pulse production need to be chalked out and used as base line for devising overall agricultural agenda for pulses.

For Consumers

- ❑ Consumer should shift their dietary preference towards plant based sources of proteins for a healthy life style.
- ❑ Diets with low glycemic index (whole chickpea) can prevent coronary heart diseases in diabetic patients. There was a lower need for insulin secretion after a meal containing chickpea than after a wheat-based control meal.
- ❑ Value added products of pulses based on consumer preference should be made available.

List of Foreign Participants

1. Dr. Ata ur Rehman (Graham Centre for Agricultural Innovation, Charles Sturt University, Australia)
2. Dr. Chris Blanchard (Director, Functional Grain Centre, Charles Sturt University, Australia)
3. Dr. Gavin Ramsay (Graham Centre for Agricultural Innovation, Charles Sturt University, Australia)
4. Dr. Penelope Jane Heuston (NSW Department of Primary Industries, Australia)
5. Dr. Harbans Singh Bariana (The University of Sydney, Australia)
6. Dr. Nick Bird (KWS UK Ltd)
7. Dr. Richard Trethowan (The University of Sydney, Australia)
8. Dr. Fritz Bohmler (Chief Executive Officer, Solarb O&M Pvt. Ltd, Germany)

List of National Participants

1. Dr. Khalid Hussain
2. Dr. Faqir Hussain Anjum
3. Mr. Faqir Hussain Nusrat
4. Dr. Zahid Akram
5. Dr. Shafqat Saeed
6. Dr. Muhammad Ashfaq
7. Dr. Muhammad Ejaz
8. Dr. Iqbal Saeed
9. Dr. Hamamd Nadeem Tahir
10. Dr. Zulfiqar Ali
11. Dr. Abdul Ghaffar
12. Dr. Iqbal Saeed
13. Dr. Muhammad Faheem
14. Ms. Saima Rani
15. Muhammad Arslan Akhtar
16. Mr. Muhammad Salman
17. Mr. Abdul Ghaffar
18. Mr. Abdul Manan

CONFERENCE PROGRAM:

Wednesday March 27th, 2019

Opening Session

Venue: Seminar Hall, MNS-University of Agriculture Multan
Rapporteurs: (i). Dr. Zulqarnain Khan (ii). Dr. M. Mahmood Ahmed
Moderator: Dr. Amar Matloob

Time	Activity
09:30 am	Recitation from Holy Quraan
09:50 am	Welcome Address by Prof. Dr. Asif Ali, Vice Chancellor, MNS-UAM
10:10 am	Challenges in Australian Pulse Production and Research Landscapes by Dr. Chris Blanchard, Functional Grain Centre, Charles Sturt University, Australia
10:30 am	From Research for Development to Development Driven Research – a change in practice by Dr. Gavin Ramsay, Graham Centre for Agricultural Innovation, Charles Sturt University, Australia
10:50 am	Role of Pulses in Sustainable in Sustainable Agriculture and Food Security: Pakistan Perspective by Dr. Shahid Riaz Malik, Program Leader pulses, National Agricultural Research Center, Islamabad
11:10 am	Chief Guest Address
11:25 am	Vote of Thanks
11:30 am	**Tea Break**

Session 1: i) Policy Perspective and Socio-economic Impact of Pulses
ii) Pulse Crop Improvement

Venue: Seminar Hall, MNS-University of Agriculture Multan
Chair: Dr. Chris Blanchard
Co-chair 1: Dr. Shahid Riaz Co-chair 2: Dr. Khalid Hussain
Rapporteurs: (i). Dr. M. Mahmood Ahmed (ii). Ms. Saima Rasheed
Moderator: Dr. Ummara Waheed

Time	Activity	Name of Scientist
12:00 pm	Current Federal and Punjab Level Policies/Programs Affecting Pulses Production, Promotion and Trade in Pakistan	Khalid Hussain
12:15 pm	Constraints and opportunities for pulses (chickpea and lentil) in project area under the aciar pulses productivity project (cim/2015/041)	Saima Rani
12:30 pm	Genetic diversity among indigenous chickpea germplasm against salinity stress at seedling stage	Rana Muhammad Atif
12:45 pm	Evaluation of mung bean germplasm for selection of short duration, high yielding and disease resistant genotypes as catch-crop in rice-wheat system	Gulfam Riasat

01:00 pm	Estimation of genetic variability, interrelationship, and contribution of various agronomic traits for seed yield in chickpea (*Cicer arietinum*)	Muhammad Aslam
01:15 pm	Genotypic erraticism for yield determinants and pod borer resistance in chickpea	Rozina Gul
01:30 pm	**Lunch Break**	
02:30 pm	Breeding high yielding black seeded mung bean [*vigna radiata* (l.) Wilczek] genotypes	G. S. S. Khattak
02:45 pm	Breeding high yielding desi chickpea (*cicer arietinum* l.) Genotypes	I. Saeed
03:00 pm	Genetic variability, correlation and principal component analysis for agronomic traits in lentil genotypes	Muhammad Ejaz
03:15 pm	Field performance of mashbeen germplasm against collar rot resistance and its chemical management	Muhammad Kamran
03:30 pm	Cultural and pathogenic variability among *macrophomina phaseolina* isolates associated with mung bean	Tariq Mukhtar
03:45 pm	Investigation of agronomic traits through pca, path and correlation analysis in lentil	Muhammad Tariq Mahmood

Session 2: **i) Value Addition and Marketability**
ii) Pulse Productivity and Profitability

Venue: Computer Lab, MNS-University of Agriculture Multan
Chair: Dr. Gavin Ramsay
Co-chair 1: Dr. Ata ur Rehman Co-chair 2: Dr. Abdus Sadeque
Rapporteurs: (i). Mr. Amir Bakhtavar (ii). Ms. Sidra Jameel
Moderator: Dr. Abu Bakar

Time	Activity	Name of Scientist
12:00 pm	Are chickpea markets working efficiently in punjab, pakistan?	Khalid Mushtaq
12:15 pm	Economic analysis of mung bean production: evidence from bhakhar and mianwali districts of punjab, Pakistan	Asghar Ali
12:30 pm	Protective management of chickpea seed against pulse beetle (*callosobruchus chinensis* l.) With different packaging materials and oil coatings	Mahreen Hanif
12:45 pm	Health benefits of low glycemic index foods, such as mung bean in diabetic and cardiac patients over six weeks	Muhammad Faheem Khan
01:00 pm	Spatial distribution and antiserum production of urdbean leaf crinkle virus in punjab, pakistan	Muhammad Ashfaq

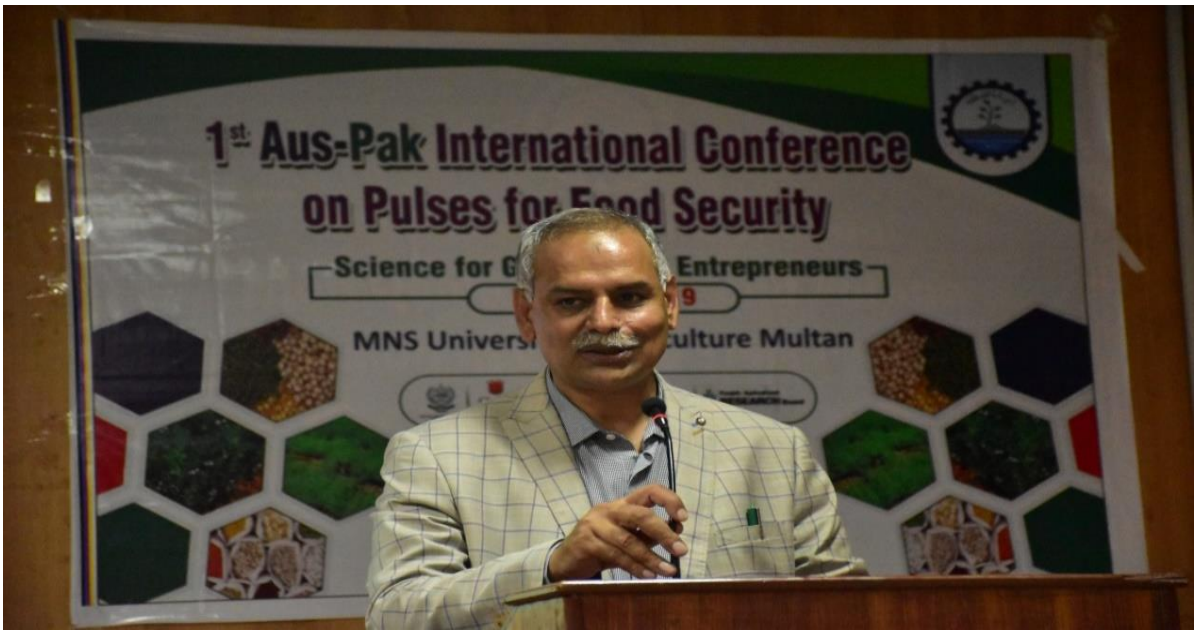
01:15 pm	Dissection of genotypic x environment interaction and stability of promising genotype for grain yield of chickpea	Abdul Manan Khan
01:30 pm	**Lunch Break**	
02:30 pm	Evaluation of chickpea (*cicer arietinum* l.) Varieties of pakistan under agro- ecological conditions of naudero (district larkana)	Aijaz Ahmed Soomro
02:45 pm	Improving the performance of *vigna radiata* through moringa seed priming under water deficit stress	Muhammad Zahid Ihsan
03:00 pm	Effect of seed treatment and stem injection of pgpr on fusarium wilt and phenol contents of lentil	M. Inam ul Haq
03:15 pm	Weed management in chickpea (*cicer arietinum* l.) Through post-emergence herbicides and herbicides tolerant genotypes	Kashif Rashid
03:30 pm	Estimation of genetic variability among chickpea genotypes in rainfed condition	Zahid Akram
03:45 pm	Critical period of weed-crop competition in irrigated chickpea as a tool for judicious herbicide use	Amar Matloob

Concluding Session

Time	Activity
4:00 pm	Recitation from Holy Quran
4:10 pm	Welcome Address by Prof. Dr. Asif Ali Khan, Vice Chancellor MNSUAM
4:40 pm	Recommendations of Pulse Conference by Dr. Ata ur Rehman, Graham Centre for Agricultural Innovation, Charles Sturt University, Australia
4:50 pm	Chief guest address by Muhammad Sibtain Khan, Provincial Minister for Forestry, Wildlife and Fisheries
5:10 pm	Vote of Thanks by Prof. Dr. Zulfiqar Ali, Director ORIC

Inaugural Session

Prof. Dr. Asif Ali (Vice Chancellor, MNS-UAM) welcomed the international delegates and participants of the conference. He gave a comprehensive overview of the conference and thanked all the organizers and sponsors of this conference. He praised the ACIAR for successful interventions to enhance productivity and profitability of pulses in Pakistan through a mega project, in which MNSAUM is an active partner. He said that research work on pulses is our top priority and MNS-UAM is well aware of the current situation. This conference is an attempt to create awareness about this issue to achieve food security in the region in particular and Pakistan in general. He elaborated that how MNS-UAM has been transformed in to an Agricultural Complex where research extension and education are at one place and forum.



Dr. Ata ur Rehman, Graham Centre for Agricultural Innovation, Charles Sturt University, Australia said that leguminous crops, especially lentil and chickpea have been progressively pushed out to the most marginal lands during last few decades. Sharp decline in production during the same period and concomitant increased imports was primarily the result of policy decisions that deteriorated adoption of modern agronomic innovations. Ground nut production, for its numerous uses including as an edible oil crop, is limited by the lack of proper harvesting, postharvest storage and processing technologies. Country's demand for edible oil is continually rising and stressing the account deficit. The whole situation now deserves action so that the neglect of these three crops could be reversed. Current interventions by the ACIAR pulses project on increasing productivity and profitability of pulses in the cereal based cropping systems in Pakistan has luckily come at the right time when leguminous lentil, chickpea and ground nut have gained governmental support and are fast attaining prominence in connection with their health and nutrition status worldwide.

Prof. Chris Blanchard, Director, Functional Grains Centre, Charles Sturt University, Australia discussed challenges in Australian pulse production and research landscapes. He gave an overview of pulse production in Australia and pulses growing regions, the role of Pulse Breeding Australia and its joint venture with Grains Research and Development Corporation in Victoria, News South Wales, Queensland and University of Adelaide. He presented export statistics of important pulses from Australia and pulse trade with Pakistan. He also discussed breeding targets set forth for chickpea, lentil, peas and mung bean along with success stories. His talk unraveled the issues and constraints faced by pulses farmers and industry and possible solution in this regard.

Dr. Gavin Ramsay on behalf of ACIAR pulse project team urged the need to shift from research for development to development driven research. He elaborated the context of agriculture by quoting
"*We are working with a diverse, complex situation and attempting to control the situation is difficult, probably impossible. Therefore, we need to think about how to provide an environment in which the improved situation can emerge. In doing so we acknowledge this is not a situation we control but rather one in which we facilitate a process that enables change to develop*".
Knowledge to make a decision is different to knowledge to write a scientific paper, he added. In both cases new knowledge is generated and in each we use different types of thinking. Farm management decisions are often intuitive and farmers prefer their own experience over other sources of information. Together, as a team (with farm families, researchers from various disciplines and countries) we are inquiring into the situation to better understand and improve it. Understanding what constitutes improvement by focus on the areas that are most important, applying work already done, the impact of the science is increased – and it is related to a direct needs. "How do we operate to improve the situation for a large number of farm families who are operating individually in a complex environment, have their own individual reasons for farming, have diverse sets of resources and can this challenge be a research question?", He urged. In crus, new challenges require new types of questions and innovative approaches.

Dr. Khalid Hussain (Director, Arid Zone Research Institute, Bhakkar) discussed the current status and future prospects of pulse in Pakistan. The use of low quality seed is a major cause of decline in production of pulses in the country as huge amount of Rs 102 billion is being spent annually to import the commodity, he laminated. Apart from this, selection of marginal soil (less fertile-deserts), lack of mechanization, water

shortage and poor marketing system are also some important factors, damaging pulse sector, he informed. Thal desert is a geographically arid area because rainfall is not sufficient to grow arable crops, forest and fruit plants and pastures. This area receives less than 300 mm annual rainfall, 80% of which is concentrated in months of July to September. To meet the crop water requirements, supplemental irrigation is essential for crop production. Gram is the major crop of Thal zone which requires little moisture at critical growth stages. This objective can be achieved by adoption of pressurized sprinkler irrigation system in the water scarce areas of Thal zone. Application of the water through sprinkler irrigation system at a time when there is no rain can enhance the production of gram crop to reduce pulse import bill. Sprinkler irrigation system holds the key to all these problems because it helps maximize efficiency and maintain a favorable growing environment for the crop. Hence, these can be recommended for sandy and undulating soils, topography. Thus, thousands of acres of land of Thal area which is currently facing prolong drought spell can be given supplement irrigation at critical growth stages of gram and in required quantity by sprinkler systems resulting in higher crop yields. To sum up, the sprinkler system presents a ray of hope in safeguarding the agricultural economy of tail end arid zones.

Technical Session-I

Theme 1: Pulse Crop Improvement

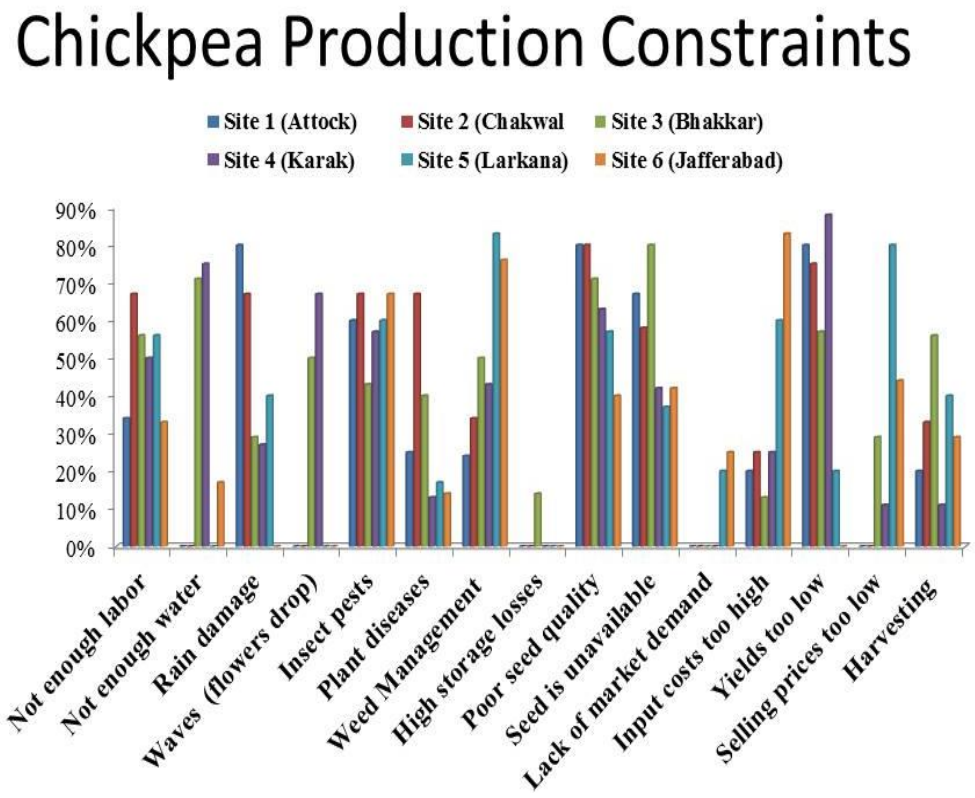
Theme 2: Policy Perspective and Socio-Economic Impact of Pulses

Dr. Khalid Hussain elaborated current federal and provincial level policies/programs affecting pulses production, promotion and trade in Pakistan. In Pakistan, pulse production has stagnated over the past 50 years. Consumption has increased day by day due to increase in population and consequently import bills have increased dramatically in recent years. In 2007, the Pakistani Government stopped pulse exports by imposing a 35% export tax. This was done with intent to secure national production for domestic consumption. Since that time, pulse exports have all but ceased and pulse prices have surged automatically in level and variability, in contrast to other crops. The Government also supports agriculture through subsidies on inputs like fertilizer(s), water and energy. These subsidies affect markets and prices and favour more fertilizer-intensive crop production over pulse production, which requires relatively less fertilizer. The Government implements a support price for wheat, which discourages pulse production by making pulses relatively less profitable and a riskier enterprise compared with wheat. Federal government should remove the pulses export tax, remove all agricultural subsidies and

wheat procurement price. It should not implement a pulses procurement price. He suggested that government should diversify sources of imports, encourage participation in open markets, investment into sustainable agricultural productivity growth through infrastructure development, research and development, effective extension and develop social protection programs to provide security during economic and food crises.

Ms. Saima Rani from Social Sciences Research Institute, NARC, Islamabad talked about "Constraints and opportunities for pulses (chickpea and lentil): Pakistan prospective under pulses project (CIM/2015/041)". She informed the participants that pulses are the important crops and major source of proteins and essential micronutrients in human nutrition worldwide. However, in Pakistan, as compared to major and substitute crops, pulses have been subjected to years of neglect in the capacities of research, development and extension services. Consequently, pulses productivity has decreased over the years, while on the other side, demand for pulses is continuously increasing due to population growth, which is currently being met through imports. The present study is an attempt to identify the current situation of pulses farmers highlighting the constraints and opportunities in chickpea, lentil and groundnut in Pakistan under the pulses productivity project. She explained the objectives and methodology of the situational analyses undertaken so far. Analysis of the primary data collected from the pulses farmers from six project sites indicated multiple factors attributed to the decline of pulses. These aspects include production related issues, low prices obtained by the farmers, neglect in overall agriculture research agenda, low yielding varieties, lack of farmer access to good quality seed, low adoption of modern production technologies, poor crop management, labor

shortage, poor harvesting mechanization, vulnerability to climatic stress, insect and pest attack, and water shortage.To address these constraints, the project has embarked on a farmer led research approach for the three crops initiating participatory varietal selection, distribution of certified pulses seed, improved pulses production technologies and mechanization, better crop management and supplement irrigation facilities, she further added.



Dr. Muhammad Ejaz from Balochistan Agricultural Research and development center Quetta (BARDC) presented research work on "Genetic variability, correlation and principal component analysis for agronomic traits in lentil genotypes". He informed that this study evaluated 15 lentil genotypes for 7 agro-morphological characteristics. The experiment was laid out in a completely randomized block design with three replications. A wide range of divergence for plant characteristics were recorded for the lentil genotypes. The parameters (Days to 50% Flowering, Days to 50% Maturity, Plant height, biological yield, grain yield, harvest Index, 100-seed weight) showed significant differences at (*p≤0.05*) significant level. The promising genotype ILL11 (918.9 Kg ha^{-1}) and ILL8081 (847.4 Kg ha^{-1}) were the highest yielders, respectively. Correlation and PCA was conducted on 15 lentil genotypes over one year for 7 characters. Harvest Index (0.807) and biological yield (0.389) showed positive significant correlation with seed yield and non-significant positive correlation with seed yield was recorded for plant height (0.062). Negative non-significant correlation was recorded for days to flowering (-0.248) and days to maturity (-0.312). The three principal components accounted for 82% of the total variation. The PC1 was positive correlated with the flowering duration , days to maturity, plant height and 100 seed weight and was negatively correlated to biological yield, seed yield and harvest index. The PC2 was positively correlated with grain yield and harvest index.

The PC3 was positively related to days to flowering, harvest index and 100-seed weight. Following the analysis of the agronomic characteristics over the first and second principal components, the lentil genotypes formed 4 different groups. On the bases of yield performance and adoption, 6 (ILL11, ILL8081, ILL648, ILL7686, ILL1196 and ILL465) lentil genotypes were selected for further study.

Dr. Iqbal Saeed from Nuclear Institute for Food and Agriculture (NIFA), Peshawar, taked about "High yielding black seeded mung bean [Vigna radiata (L.) Wilczek] genotypes". He informed that in Pakistan as well as the world, area under mung bean cultivation is occupied by the green seeded type because of its higher demand for human consumption. In Kurram district of KP, farmers grow and consume black seeded mung bean since unknown dates, and land race of black seeded mung bean being cultivated there has poor genetic make-up and therefore low yield potential which needs to be improved. The main objective of this study was to develop mung bean genotypes with black seed coat color, high seed yield potential and mung bean yellow mosaic virus (MYMV) disease resistance. For this reason, a local race of black seeded mung bean collected from Kurram district hereafter named as “Kuram black mung” and another lightly black colored mung bean genotype available at Nuclear Institute for Food and Agriculture (NIFA), Peshawar hereafter named as “NIFA black mung”, were hybridized at NIFA, Peshawar during kharif 2014, F1 generation was raised in summer 2015 and the recombinant plants were individually picked from F1 generation. The F2 and F3 generations were raised along with parents and standard variety Ramzan in kharif 2016 .

and 2017, respectively. The 112 and 404 single plants were selected from F2 and F3, respectively on the basis of more branches and pods, black seed coat color, better plant type and resistance to MYMV disease. The F4 generation was raised as plant-progeny-rows in kharif 2018. 57 true breeding lines were selected based on high seed yield (15-26 g plant^{-1}), bold seeds (3-50 g/1000 seeds), black seed coat color and MYMV disease resistance as compared with the standard mung bean variety Ramzan (13 g plant^{-1}). In addition, NIFA black mung and Kuram black mung were also hybridized with diverse green seeded mung bean genotypes with the aim to breed high yielding mung bean varieties with black seed coat color as well as MYMV disease resistance and the material is being evaluated in F1, F2 and F3 generations. Breeding material developed from the cross between NIFA black mung and Kuram black mung is at advanced stages of evaluation, and after necessary testing in various replicated yield trials at the institute as well as other locations in province and across the country, the most promising line(s) will be released as high yielding black seeded commercial mung bean variety(s). This may be the first black seeded mung bean variety in the country.

He also presented another talk on "Breeding high yielding desi chickpea (*Cicer arietinum* L.) genotypes". Nuclear Institute for Food and Agriculture (NIFA), Peshawar is continuously making efforts to breed high yielding chickpea genotypes and has released a high yielding desi chickpea commercial variety “NIFA-2005” which is being cultivated on a wider chickpea growing area of the KP especially Dera Ismail Khan district. Since crop breeding is a continuous process that helps to replenish the existing germplasm with even better material, and keeping this in view, six different cross-combinations were attempted between various diverse chickpea genotypes at NIFA, Peshawar during 2012-13 crop season, and F1 generation was raised in 2013-14. Single plants were selected from each cross-combination in F2 and F3 generations raised during 2014-15 and 2015-16, respectively. Over 500 single plants selected from F3 populations were planted in plan-progeny-rows as F4 populations during 2016-17, and over 100 true breeding lines were selected on the basis of higher seed yield plant-1 (25–35 g) and other agronomic traits as compared with check variety NIFA-2005 (20 g plant^{-1}). These true breeding lines were further evaluated in yield trials for yield and yield components during 2017-18, and a total of 63 true breeding lines were selected on the basis of seed yield (1667–3500 kg ha^{-1}) compared with the check variety NIFA-

2005 (averaged 1800 kg ha^{-1}). These lines will be further evaluated for yield performance in series of replicated yield trials at NIFA, other locations of the province and across the country in due course of time. The best performing line(s) will be released as commercial variety for chickpea growing areas of the province.

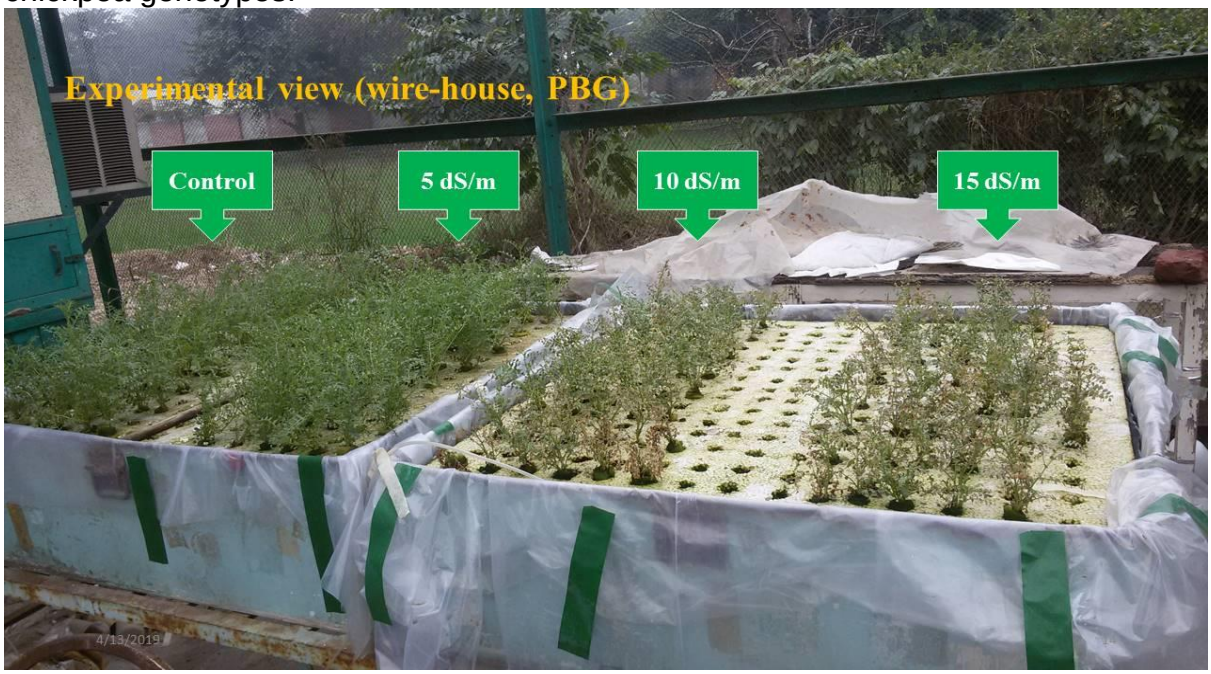
The research work of **Dr. Rozina Gul**, (Department of Plant Breeding and Genetics, The University of Agriculture Peshawar, Pakistan) about "Genotypic erraticism for yield determinants and pod borer resistance in chickpea" was presented by Dr. Amar Matloob. On behalf of Dr. Rozina, he briefed that a study was performed to assess ninety advanced lines and ten check genotypes for natural genotypic resistance against pod borer by using augmented design at The University of Agriculture Peshawar during 2015-16. Highly significant differences were observed for yield, yield components and pod damage percentage. Maximum seed yield was recorded for genotype D-14022 (1539 kg ha^{-1}) while minimum yield was recorded for genotype D-12030 (158 kg ha^{-1}). Maximum pod damage (72%) was recorded for K-01112, K-01302 and K-01308; while, minimum pod damage (20%) was recorded for D-14022 and K-01425. Pods per plant, biological yield per plot and harvest index showed positive and significant relationship with seed yield. However, pod damage percentage was negatively correlated with seed yield. Cluster analysis placed all the genotypes in four clusters i.e. A1, A2, B1 and B2 which possessed 7, 11, 53 and 29 genotypes, respectively. Genotypes with maximum yield and least pod damage percentage were placed in cluster A1 and can be termed as highly resistant genotypes, followed by the resistant genotypes clustered in A2. Similarly moderately susceptible genotypes were placed in cluster B1. The genotypes with minimum seed yield and highest pod damage percentage were placed in cluster B2 and can be termed as most susceptible genotypes. None of the check genotype performed well to show their position in the clusters A1 and A2. Genotypes of cluster A1 including D-10039, D-10026, D-10036, D-10018, D-11033, D-14022 and K-01425 surpassed all the studied genotypes

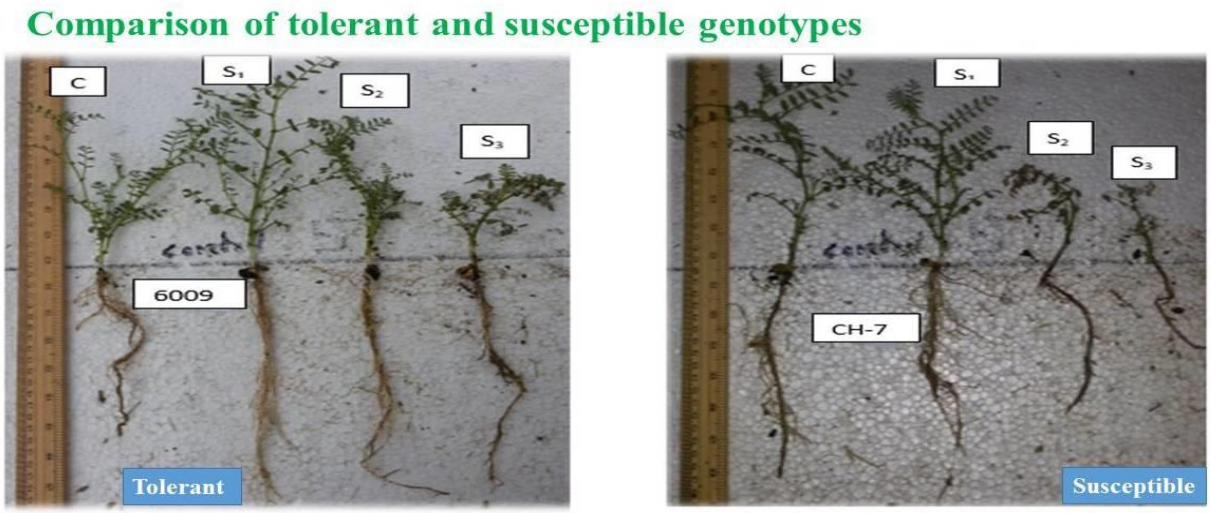
including checks and can be recommended for future breeding programs for the development of pod borer resistant/tolerant verities of chickpea.

Muhammad Arslan Akhtar from Department of Plant Breeding and Genetics, University of Agriculture Faisalabad presented "Estimation of genetic variability, interrelationship, and contribution of various agronomic traits for seed yield in chickpea (*Cicer arietinum*)". Mr. Arslan said that current chickpea yield is quite low due to numerous biotic and abiotic factors and therefore variability for qualitative as well as quantitative traits needs to be explored. He presented results based on analysis of variance, variation and heritability, correlation and path coefficient analyses for various agronomic, phonological and morphological traits. He concluded that significant genetic diversity occurred for studied parameters and selection is essential in order to breed for high yield. The plant height and primary branches per plant have significantly positive association with yield. The number of pods per pant has maximum direct, while primary branches per plant has maximum indirect contribution towards yield.

Mr. Muhammad Waqas from Department of Plant Breeding and Genetics, and Center for Advanced Studies in Agriculture & Food Security, University of Agriculture, Faisalabad presented the findings of research work entitled "Genetic diversity among indigenous chickpea germplasm against salinity stress at seedling stage". He informed that salt stress can reduce chickpea yield by >50%. He informed that objective of present study are to investigate the genetic variability of chickpea germplasm under varying levels of salinity and to identify the salinity tolerant chickpea accessions. Morphological marker based diversity analysis was undertaken. Seedlings of 42 diverse chickpea genotypes were raised for two weeks in sand-filled polythene bags and then transferred to the hydroponic conditions using Hoagland nutrient media. treatment levels viz. control, 5, 10 and 15 dSm^{-1} were developed using NaCl in the Hoagland solution for seedling establishment. Four weeks post-treatment, data were recorded for seedling parameters viz. root and shoot length, shoot/root ratio, fresh root and shoot weight, dry root and shoot weight, total seedling length, and fresh and dry weight.

Two indices i.e. seedling height stressed index and salt tolerant index were also computed for characterization of germplasm into different classes of tolerance or susceptibility by following the pre-designed scale. Significant differences were recorded among salt tolerant and susceptible genotypes under different treatment levels. The genotype × environmental behavior was observed through GGE-biplot. Four genotypes viz. D-6009, Pb-2008, D-6018 and D-615 were categorized as salt-tolerant having maximum OP length in the positive vector as well as high percentage of the salt-tolerance index. On the other hand, four genotypes viz. D-1003, CS-30, CH-7 and D-1103 were identified as salt-sensitive genotypes. Biochemical analyses of these tolerant genotypes revealed higher accumulation of proline, and enhanced activities of catalase and peroxidase enzyme under salt-stress. While, the accumulation of hydrogen-peroxide was increased in the susceptible genotypes. Proline was considered as a prominent indicator for the selection of salt tolerant chickpea genotypes.





C (Control), S_1 (5dS/m), S_2 (10dS/m) and S_3 (15dS/m)

Mr. Qadeer Ahmad from Department of Plant Breeding and Genetics, PMAS-Arid Agriculture University, Rawalpindi laminated that chickpea production and sustainability is being challenged by climate change, which are likely to increase production limitations and uncertainty in yields. He added that an approach to improve the chickpea yield is to identify stable genotypes that should be consistent in yield under variable environmental situations. The present study has been conducted by using fourteen chickpea genotypes following RCBD with three replications at Attock, Punjab in 2017-18. Observations were recorded on the basis of morphological characters such as days to flower, plant height, days to maturity, number of pods per plant and hundred seed weight. The collected data were subjected to statistical analyses for ascertaining the significance of traits. The result revealed that the genotype “Fakhar-e-Thal” has maximum hundred seed weight (24.767 g), followed by Noor-2013 (23.240 g). The genotype DG-92, took more number of days (176) to mature followed by “Parbat” attaining maturity in 165 days, and genotype “Chattan” exhibited the highest yield per hectare (2259.7 Kg ha^{-1}), followed by Noor-2013 (2219.3 Kg ha^{-1}). This study will be helpful for selection of high yielding chickpea genotypes with better stability.

Technical Session-II

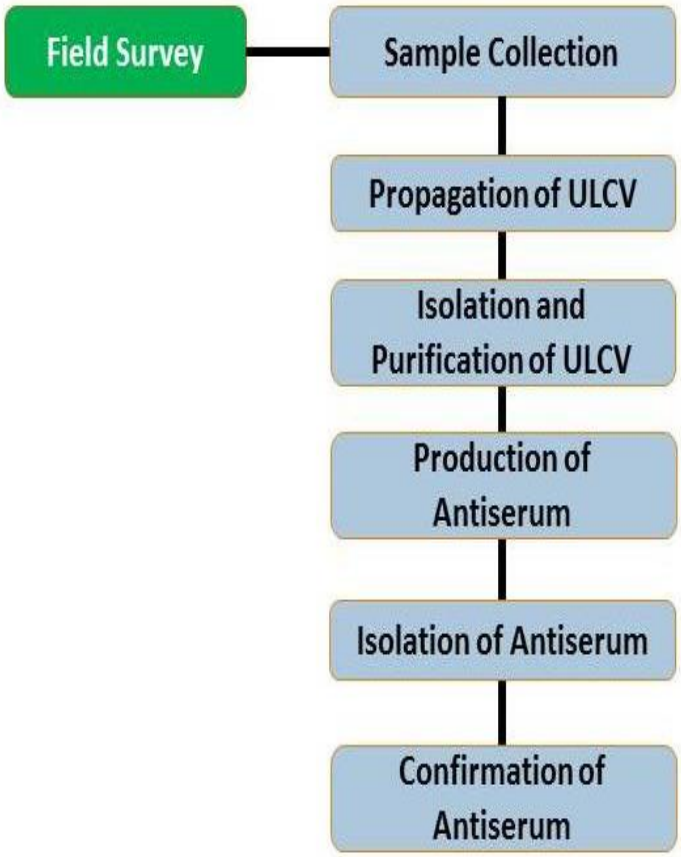
Theme 1: Value Addition and Marketability

Theme 2: Pulse Productivity and Profitability

Dr. Muhammad Ashfaq, Professor, Department of Plant Pathology, Faculty of Agriculture and Environmental Sciences, MNS University of Agriculture, Multan attributed low yield of blackgram (mash) to one of the biotic factors, the leaf crinkle disease, incited by Urd bean leaf crinkle virus (ULCV), which is an important and serious disease of blackgram in Pakistan causing enormous yield losses that may range from 35-81%. He informed that surveys of blackgram growing areas were conducted to assess viral disease incidence, and distribution of leaf crinkle disease incidence. A total of 65 mashbean/ blackgram fields were visited from Sialkot, Narowal, Zafarwal, Shakargarh, Faisalabad, Bahawalpur, Bahawalnagar, Rahim Yar Khan, Bhakar Mianwali, Khushab and Layyah. From each area, several fields from different locations were visited and the disease incidence was computed based on symptomology like leaf crinkling, puckering; vein thickening, upward and downward curling of leaves, stunted growth of plant and the dark green infected leaves. The ULCV disease was found everywhere in mash growing areas with varying disease incidence percentage. Highest disease incidence was calculated from Chakwal and Gujar khan areas (10-70%) followed by Sialkot (10-50%) and Mianwali (10-40%) districts. A set of 5 mash bean varieties was mechanically inoculated with ULCV infected mash bean leaves sap. All the varieties were found to be susceptible. The ULCV was purified and antiserum was produced by injecting the purified virus into New Zealand rabbits 3 times at 15 days interval. The antiserum of ULCV was tested against antigens of ULCV by gel diffusion test. Different reaction rings were observed in Petri plates. The color indication was an approval sign towards the production of ULCV antiserum. The presence of colour in gel diffusion test indicated the positive reaction between antigen (ULCV isolate) and antibodies. The study is useful in assessing the status ULCV in Punjab and production of antibodies against local isolates of ULCV will greatly help to diagnose the ULCV infection serologically.

Materials and Methods

Plan of Work



Ms. Mahreen Hanif, Department of Entomology, Faculty of Agriculture and Environmental Sciences, MNS University of Agriculture, Multan said that they have tested the penetration ability of pulse beetle (*Callobruchus chinensis* into seven different packaging materials: polypropylene (green), polypropylene (white), polyethylene (6 mm), polyethylene (10 mm), cotton, polymer and china lamination under laboratory conditions. sIn the second experiment, repellent effect of six different oil coatings was studied against this pest. The coating used was oil of neem (*Azadirachta indica*), tulsi (*Ocimum tenuiflorum*), deodar (*Cedrus deodara*), eucalyptus (*Eucalyptus saligna*), marigold (*Tagetes erecta*) and taramira (*Eruca sativa*). For the penetration test, three bags (each measuring 14×19 cm) of each packaging material were prepared and placed in plastic cages. All packaging materials were exposed to *C. chinensis* for three months. The repellency of the oil coating was studied in olfactometer at 30%, 40% and 50% concentrations by cotton swab method and 50%, 75% and 90% by seed coating method. The results of penetration experiment revealed lowest penetration in polyethylene (gauge 2) and china lamination packaging, while the highest penetration was recorded in cotton. bags. For repellency test, eucalyptus oil was found most repellent and taramira oil as the least repellent at 50% concentration in cotton swab method. However, in seed coating method, deodar and neem oils caused the highest repellency at 95% concentration. The results will be helpful in managing the infestation of stored grain pests with least toxicity to the environment and public health.

Dr. Muhammad Faheem Khan, Regional Agricultural Research Institute Bahawalpur-Pakistan presented his research work on "Health benefits of low glycemic index foods, such as mung bean in diabetic and cardiac patients over six weeks" He said that the prevalence of diabetes, obesity and cardiovascular diseases is increasing rapidly, especially in young people of both underdeveloped and developing countries. Nutrition is supposed to have a decisive role in the prevention and treatment of these chronic diseases. The aim of the present study was to determine whether any benefit can be availed from lowering the glycemic index in diet of diabetic patients. Very few studies have documented the health benefits that can be obtained by selecting foods of low glycemic index. Pulses are food with low glycemic index. Sixteen well controlled diabetic patients were assigned to either a high glycemic index or low glycemic index diet for six weeks each in a random order. Selected low glycemic index foods have also demonstrated benefits for healthy persons in terms of post – prandial glucose and lipid metabolism. Several health organizations have recently integrated consideration of glycemic index in their nutritional recommendations for patients with metabolic diseases and for the general masses.

Selecting low glycemic index food in the diet of diabetic patient may be an additional measure which favorably influences carbohydrate and lipid metabolism, requiring only a small change in eating habits and has no harmful effects, he concluded.

Mr. Abdul Manan Khan, Project Officer, ACIAR Pulses Project presented his research work pertaining "Dissection of genotypic x environment interaction and stability of promising genotype for grain yield of chickpea". Mr. Manan said that study of genotype x environment interaction is an important aspect of plant breeding that has been successfully used for the introduction of new cultivars. The present study explored the additive mean effects and genotype x environment interaction using biplot analysis to dissect genotype-environment interaction to identify stable chickpea genotypes. The experiment was carried out in randomized complete block design with three replications.

Fourteen different chickpea varieties were grown in four different locations including Fatehjang-Punjab, Bahkkar-Punjab, Karak-Khyber Pukhtunkhaw, and Larkana-Sindh during Rabi 2017-18. The environmental effect was very pronounced for grain yield, highlighting its importance in the performance of chickpea genotypes. Based on the mean grain yield and the yield stability, the Fakhr-e-Thal proved to be superior, performing better compared to other genotypes. The lowest yielding genotypes were KK1, KK2, and KK3. On the other hand, for specific selection genotype, Noor 2013 was ideal genotype with high yield but low stability, responding well in a particular environment. The interrelationship among environment was discriminating for Fatehjang, Bhakkar, and Larkana while Karak was the most representative of the average environment. The identification of high yielding, stable genotype and representative environment should assist in breeding for new chickpea cultivars.

Dr. Amar Matloob, Department of Agronomy, Faculty of Agriculture and Environmental Sciences, MNS University of Agriculture, Multan said that weed infestation comprising of recalcitrant and diverse weed flora especially under irrigated condition remains a challenging task for large scale cultivation of chickpea under irrigated environments. The critical period of weed competition (CPWC) studies are an integral component of integrated weed management as they unravel optimal time and

duration for maintaining and implementing weed management. Studies to appraise CPWC in desi and kabuli chickpea genotypes were undertaken during Rabi 2017-18. Desi (Punjab-2008) and Kabuli (Noor-2009) chickpea crops were subjected to different durations of weed competition [competition for 20 days after sowing (DAS), 40, 60 and 80 DAS] as well as weed free periods [weed-free till 20, 40, 60 and 80 DAS].

Season-long weed check and weed-free plots were also maintained for both chickpea genotypes. Chickpea crop was infested by diverse weed flora comprising of field bindweed, common lambsquarters, fathen, blue pimpernel, broadleaf dock (broad-leaved weeds), and wild oat and canary grass (grassy weeds) under irrigated conditions. Dr. Amar concluded that the CPWC based on 5 and 10% yield loss range from 3-140 DAS, and 5-119 DAS, respectively in irrigated chickpea.

Sr. No.	List of Posters Presented
	Theme 1: Pulse Crop Improvement
1	In Vitro Multiple Shoots Induction and Plant Regeneration in Mung bean (*Vigna radiata* L.) **Plosha Khanum,** Saba Aslam , Muhammad Zain, Afaq Khalid and Wajiha Khan
2	Assessment of Morphology Based Genetic Diversity and Interrelationship among Yield and Yield Contributing Traits in Chickpea (*Cicer arietinum*) **Muhammad Aslam**, Syed Ali Zafar, Muhammad Arslan Akhtar, Muhammad Sulaman Saeed
3	Response Evaluation of Cercospora Leaf Spot (Cls) Disease on Diverse Minicore Set of Mung bean (*Vigna radiata*) Germplasm **Muhammad Aslam**, Muhammad Arslan Akhtar and Roland Schafleitner
4	Identification of Anthracnose Resistance in Lentil **Rubab Altaf**, Chaudhary Abdul Rauf, Amjad Shehzad, Aliya Tariq, Hira Manzoor and Abdul Sattar
5	Seed Priming Techniques for Enhancing Productivity in Mung bean Muhammad Tahir, **Rizwan Maqbool**, Niaz Ahmed, Muhammad Ather Nadeem, Rao Muhammad Ikram
6	Genetic Studies for Yield and Related Traits in Micro and Macrosperma Exotic Lentil Genotypes **Sadia Kaukab**, Aqsa Tahir and Ch. Muhammad Rafiq
7	Punjab Masoor-2018: A New Lentil Strain Ready to Release in Pakistan **Sadia Kaukab**, Ch. Muhammad Rafiq and Aqsa Tahir
8	Role of DNA Fingerprinting for Detection and Characterization of Genetic Variation in Legume Crops Muhammad Bin Mustaq, Saima Rasheed, **Zulfiqar Ali**, Amar Matloob, Abdul
9	Phenotypic variability of chickpea genotypes for seedling, vegetative and reproductive traits
	Theme 2: Pulse Productivity and Profitability
10	Evaluation of Lentil (*Lens culinars* Medik.) varieties of Pakistan under agro-ecological conditions of Ratodero (District Larkana), Sindh, Pakistan **Abdul Naeem Shaikh**
11	Phosphorus Acquisition in Mung Bean (*Vigna radiata* L.) Under Cadmium Stress Amina Farooq, **Imran Ashraf**, Athar Mahmood
12	Response of Nitrogen Fixing Bacteria by application of Phosphorus in Mung Bean (*Vigna radiata* L.) Khadija Tul Kubra, **Imran Ashraf**, Muhamad Shahid and Hafeez-ur-Rehman
13	Impact of Lead on Phosphorus Acquisition in Mung bean (*Vigna radiata* L.) Nisheeta Ayub, **Imran Ashraf** and Muhammad Imran Khan
14	Impact of Salinity on Nitrogen Uptake in Mung bean (*Vigna radiata* L.) Oreha sultan, **Imran Ashraf** and Sardar Alam Cheema
15	Effect of Low Doses of Glyphosate on Germination and Seedling Growth of Chickpea **Muhammad Naeem Mushtaq**, Maryam Imdad Ali , Tabinda Tariq, Muhammad

16	Impact of Salt Stress on the Phosphorous Uptake in Mung bean (*Vigna radiata* L.) Arooj Fatima, **Imran Ashraf**, Hafeez -ur- Rehman
17	Genotypic Variation in the Response of Chickpea (*Cicer arietinum* L.) to Rhizobial Inoculation and Fertilizer Application **Rozina Gul**, Hamayoon Khan, Saad Ahmed
18	Analysis of Genotypic Environment Interaction in the Yield of Chickpea **Abdul Ghaffar** , Niaz Hussain, Muhammad Aslam, Muhammad Irshad, Muneer Abbas, Zubeda Parveen, Khalid Hussain and Muhammad Ajmal
19	Study of variation in root/shoot and other yield contributing attributes and their relationship with drought tolerance in lentil genotypes **Aqsa Tahir** , Sadia Kaukab, Ch. Muhammad Rafiq
20	Effectiveness of Gram Pod Borer Management Strategies Muneer Abbas, **Khalid Hussain**, Abdul Ghaffar, Muhammad Ramzan and Niaz Hussain
21	Effect of Humic Acid Application Methods on Yield and Quality of Mung bean Muhammad Tahir, **Rizwan Maqbool**, Muhammad Javed, Muhammad Ather Nadeem, Rao Muhammad Ikram
22	Evaluation of Chickpea Genotypes for Yield Stability Under Drought Prone Environment **Niaz Hussain**, Muhammad Aslam, Abdul Ghaffar, Muneer Abbas, Muhammad
23	The Efficacy of Sulfur and Boron Application in Enhancing Yield and Quality of Green gram Rizwan Maqbool, Muhammad Tahir, Muhammad Faisal Mubeen, Muhammad Ather Nadeem, **Rao Muhammad Ikram**
24	Root knot nematode Infection in mung bean germplasm and its management through resistance inducers Misbah Naz, **Huma Abbas**, Nazir Javed, Muhammad Kamran, Ehetisham-ul-Haq, Aslam Javed and Iqra Akram
25	Fusarium wilt of Chickpea and its management under field conditions **Asif Mahmood Arif**, Amar Matloob, Zulfiqar Ali, Abdul Manan Khan, Hasan Riaz, Muhammad Arslan Khan and Nadeem Ahmed
26	Production and Efficiency of Mung Bean cultivation as a Third main Crop: A Case Study of Kamber-Shahdakot Sindh Pakistan **Faiz Muhammad Shaikh**, Mubashir Mehdi, Sagheer Shaikh
27	Nutrients Effect on Yield and Quality of Chickpea M. Asif Mansoor, M. **Abu Bakar Saddique**, M. Hammad Nadeem Tahir, Zulfiqar Ali, Rao Muhammad Ikram, Abdul Manan Khan
	Theme 3: Pulse Value Addition and Marketability
28	Volume Expansion in Lentil (***Lens culinaris*** Medic.) While Soaking and Cooking at Different Levels of Temperature Sadia Kaukab, Ch. Muhammad Rafiq and **Aqsa Tahir**

Plant Centric Meal Competition

Reception of Chief Guest, Mr. Muhammad Sibtain Ahmed Khan (Provincial Minister for Forestry, Wildlife and Fisheries)






Glimpses of plant centric meal competition

Concluding Session

The concluding ceremony of the conference was graced by Mr. Muhammad Sibtain Khan (Provincial Minster of Punjab for Forestry, Wildlife and Fisheries), Mr. Qasim Abbas Khan (MPA, PP-222, Multan-XII), Syed Ibne Hussain (Retired IG, Railway Police), Dr. Khalud Bali, Dr. Daniel Putnam, Dr Jeffry Dahlberg, Dr. Abdul Qayyum, Dr. Qamar Shakeel, Dr. Tassawar Hussain Malik, Dr. Faqir Hussain Nusrat. Mr. Sibtain applauded the efforts of MNS-UAM to boost agricultural development in this dynamic region. He promised unconditional support of all the departments at his disposal to the MNS-UAM. Speaking on the occasion, he stated that under the plant for life project, government was planting saplings across the country, adding in the current spring season 1.2 million saplings would be planted. He disclosed that owners of the new housing colonies would be bound to plant sapling in it to tackle environmental changes. The provincial minister informed that government was formulating a new law for landlords who own up to 25 acres land, they will have to plant saplings on one acre piece of land. Prof. Dr. Ata ur Rehman 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.


Provincial Minister for Forestry, Wildlife and Fisheries, Punjab
University of Agriculture Multan


1st Aus-Pak Internation
on Pulses for Food
1ST ENTREPRENEURIAL COMPETITION
IDEA FEST 2019
DATE: 27-03-2019
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March 24
1st Aus-Pak International Conference
IDEA FEST
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Winners of plant centric meal competition

Souvenir Distribution

Seminor Hall (1st session)

Attendance

1st Aus-Pak International Conference on Pulses for Food Security

March 27, 2019

MNS-University of Agriculture Multan, Pakistan

Sr.NO.	Name	Organisation	Contact No./ Email	Signature
1	Muhammad Bin Mushtaq	MNSUAM	0334-6032...	[signature]
2	DR. KHALID HUSSAIN	ARID ZONE BKR	03336847...	[signature]
3	DR FAQIR HUSSAIN ANJUM	Agronomist ARS Karor Kayyah	dr.fhanjum786@gmail. 0301-609060...	[signature]
4	Sasor Hussain	ACIAR – Project	0300-5445890	[signature]
5	Sumera Rani	PARC	0332-5575847	[signature]
6	Böhmler Fritz	Sola-bo gmbh	0049 170 7794648	[signature]
7	Dr. Faiz Mirza Shah	SZABAC Doku	03063610500	[signature]
8	Dr. Ghulam Haider	MNSUAM	03006344474	[signature]
9	Asif	UAF	—	[signature]
10	GAVIN RAMSAY	CSU	gramsay@csu.edu.au	[signature]
11	Penny Heuston	HAS	pennyheuston@bigpond.com	[signature]
12	Ata-ur Rehman	CSU	arehman@csu.ed.au	[signature]
13	Harbans Bariana	Uni of SYDNEY	harbans.bariana@sydney.edu.au	HB
14	Faqir Nusrat Hussain	FPCAL	0333-7025701	[signature]
15	Zulfiqar Ali	UAM	061-9201684	[signature]
16	Nicholas Bird	KWS UK	—	[signature]
17	Richard Trethowan	Uni Sydney	+61400320553	[signature]
18	Dr Mahmood ul Hassan	Arid University	03335120508	[signature]
19	Dr. Abdul Ghaffar	MNSUAM	-	[signature]
20	Dr. M. Mahmood Ahmad	MNSUAM	03116611501	[signature]
21	Tania Safdar	"	0308-5078957	[signature]
22	Saima Rasheed	"	—	[signature]
23	Umratta Waheed	MNS-UAM	—	[signature]
24	Dr. Muhammad Ijaz Khan	ARS, Karak.	0346-9086631	[signature]
25	Dr. Iqbal Saeed	NIFA, Peshawar	03130474793	[signature]
26	ISHFAQ AHMED	ARS, Karak	0312 9667971	[signature]
27	Muhammad Bilal	MNSUAM	0303-0783878	[signature]
28	Zeeshan Muhammad	MNSUAM	0301-5282475	[signature]
29	M. Afaq Khalid	MSNUAM	0307-4799418	[signature]
30	Zeshan Zafar	IPBB	0306-6390431	[signature]
31	Mudassir Ali	MNSUAM	—	[signature]
32	Hassan Anbar	IPBB	0334-7814182	[signature]

Attendance

1st Aus-Pak International Conference on Pulses for Food Security

March 27, 2019

MNS-University of Agriculture Multan, Pakistan

Sr.NO.	Name	Organisation	Contact No./ Email	Signature
33	M. Rehan Ashfaq	MNSUA	rehanashfaq@	
34.	HIRA MARYAM	MSc student IPB2 MNSUAM	hira.maryam01@gmail.com	Hira
35	Muhammad Sajid	MNSUAM	03054142639	
36	Saif-ur-Rehman	MNSUAM	03157531825	
37	Qadeer Ahmad	PMAS-AAUR	0313-2995806	
38	Ghulam Mustafa	MNSUAM	0306-5693116	
39	Bilal Mansoor	MNSUAM	0307-5907176	
40	Ubaid-ullah	MNSUAM	0300-8733226	
41	Hafiz M. Awais	MNSUAM-	0302-9892751	
42	Wasim Altaf	MNSUAM.	0302-7864078	
43	M. Waseem Shahzad	MNSUAM	———	
44	Hafoozullah	MNSUAM	03015657431	
45	M Hassain abass		0301-8759846	
46	M.Zahid	MNS-UAM	0303-3695221	
47	Shoaib Hassan	MNSUAM	0304.7886255	
48	Faisal JALEEL	MNSUAM (SST)	0308-8624995	
49	Fahad Bhutta	MNSUAM (SST)	0316-8456201	
50	Umar Farooq	(MNSUAM Bidea)	———	
51	Zubair bhatti	MNSUAM-	———	
52	M. Faizan	MA——	———	
53	Irfan	M——	———	
54	M. Bilal	———	———	
55	M.Abu Bakar	MNSUAM	03326278072	
56	Abdul Manan	MNS-UAM	03345032490	
57	Barkha Binyameen	MNSUAM	———	Barkha.
58	Azfar Nawaz	MNSUAM	03047054892	Azfar
59	Tahira Saboor	MNSUAM	03030531215	
60	Wajiha Khan	MNSUAM	03101562195	
61	Bareera Zahoor	"	03074533933	Bareera
62	Fatima Gulzar	"	———	Fatima Gulzar
63	Dr. Nadia Iqbal	WUM	0333-8392450	Iqbal
64	Tooba Ishfaq	MNSUAM	"	Tooba

Seminar Hall (1st session)

Attendance

1st Aus-Pak International Conference on Pulses for Food Security

March 27, 2019

MNS-University of Agriculture Multan, Pakistan

Sr.NO.	Name	Organisation	Contact No./ Email	Signature
65	Saba Aslam	MSc. student MNSUAM	saba_49@live.com	Saba
66	Farzana Rafeeq	BS.c Hons Student	0308-4012704	
67	Seema Kanwal	MNSUAM	seemajkanwal9@gmail.com	Kanwal
68	M. Faheem Zafar	MNSUAM	0302-7055658	
69	H. Abdul Qudoos	MNSUAM (Agronomy)	0303 9039314	
70	M. ZARRAR KHAN	BS(Hons) Ento	0335-8719614	
71	M. Usama Fareed	Agri-Ento	0308 7555017	
72.	M. Ashir	Ento	0307 8961071	
73.	Hasnain Shafi	Ento	03167961071	
74	Muhammad Iqbal	Agronomist	0301-2466099	
75	Dr. Khurram Mubeen	MNSUAM-Agrm.	0333-6469159	
76	Mudassar Aziz	MNSUAM. Agronomy Dept.	03006188703	
77	Sufyan Raza	MNSUAM-PP	0302-6878057	
78	M. Zia-ur-Rehman	" PP	0302-4439988	
79	Mughis Ahmad	MNSUAM PP	0310-1042787	
80	Majid Ali	MNSUAM-PP	0345-7022090	
81	M. Aseel	MNS-Ento	0304-2303437	
82	M. Javed Aslam	MNS-BSCS	0306-8776741	Jawad
83	Mehmood ul Hassan	MNS-UAM(CS)	0307-7360212	
84	Dr. M. Ishtiaq	MNS-UAM (Ent)	0301-7498455	
85	RASHID MUKHTIAR	MNS-UAM (SES)	0333-7646118	
86	Dr. Muqarrab Ali AP Agron	MNS-UAM	03067575225	
87	M. Asif	MNS-UAM (ento)	0349-3364149	
88	M. Awais Amjad	MNS-UAM(ento)	03327139106	
89	Sadaqat Ali	MNSUAM(ENTO)	0304-6085738	
90	Sabir Hussain	MNSUAM(ENTO)	0303-6563422	
91)	Mudasar Raza	MNSUAM(ENTO)	0312-6702294	
92	KHURSHEED Ahmed Bhayo	Horticulture	0312-7687080	
93	M. ASAD	Horticulture	0308-4672742	ASAD
94	M. Nadeem	Plant Pathology	0304-7373655	
95	M. Sufyan Arshad	Plant Pathology	0303-7511998	
96	Khawaja Mazahir	" "	0308-7486525	

Attendance

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
97	Muhammad Saeed	MNSUAM	0304-6183532	[signature]
98	M. Azam Ullah	MNSUAM	0340-7151925	M. Azam
99	Faisal Nadeem	MNSUAM	0306-7550615	[signature]
100	Dr. Asmatullah	AARI, ARS	0300-6762659	[signature]
101	Dr. Hafiz M. Nasrullah	ARS, Kharewal	03336229318	[signature]
102	Usman Iqbal	MNSUAM	0304-8456059	[signature]
103	M Junaid Shabbir	Student	0305-1170391	[signature]
104	Dr. M. Arslan Khan	MNSUAM	03477644959	[signature]
105	Dr. Shahid Iqbal	MNSUAM	0332-6341876	[signature]
106	Dr. ASIF SHEHZAD	MNSUAM	0334-6059373	[signature]
107	Dr. Zulqurnain Khan	"	0302-5880755	[signature]
108	M. ARSLAN AKHTAR	UAF	0307-7476027	M. Arslan Akhtar
109	Syed Abdul Hannan	MNSUAM	0346-6363706	[signature]
110	Syed Abid Tahir Shah	MNSUAM	03017392818	[signature]
111	Munawar Saeed	MNSUAM	03406273037	Saeed
112	M. Saeed ch	"	———	[signature]
	Ameer Hamza	———	———	[signature]
	Muhammad Shaid	———	———	Shaid
	M Bilal	———	———	[signature]
	Bilal Mansoor	———	———	[signature]
117	M. Ahmed Qasim	"	0308-7743494	[signature]
118	Sanwal Murtaza	MNSUAM	03467707558	[signature]
119	M. Shakeel	"	03049845290	Shakeel
120	Asif Mahmood Arif	MNSUAM	03457221054	[signature]
121	M. AMIR BAKHTIAWAR	MNSUAM	03331629807	[signature]
122	Safdar Hussain	MNSUAM	03007366495	[signature]
123	Naveed Raza	MNSUAM	0311-6083141	Naveed
124	M. Zain-ul-Abdin	MNSUAM	0316-6573606	Zain
125	Irfan Ahmad	MNSUAM	0304-7709267	Irfan
126	Mohsin Ali Raza	MNS-UAM	0300-7355231	[signature]
127	M. Raees Yaqub	MNS-UAM	0303-9884483	[signature]
128	Hafiz M. Azhar Fareed	" "	0301-5308788	Azhar

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
129	Nouman Arshad	MNSUAM	0303-7586457	
130	Asmat ullah	MNSUAM	0313-7393280	
131	Danijal Ahmad	MNSUAM	0349-6702095	
132	Adnan Iqbal	MNSUAM.MSc	— —	
133	Hafiz Ghulam Mujtaba	FSD (UAF)		
134	Luqman Shahid	UAF. FSD	03036196607	
135	Ubaid-ur- Rehman	BZU (PBG)	0331-6000511	
136	Nouman Shakeel	BZU (PBG)	0301-7116612	
137	M. SAJJAD RAZA	BZU (PBG)	0302-2849682	
138	Mehwish Kinayat	MNSUAM		
139	Faiza Afzal	MNSUAM		
140	Ali Ammar	U	0333-6147062	
141	Shoaib Liaqat	MNSUA	0332-6080543	
142	M. Farukh Zafar Khan	MNS-UAM	03065810843	
143	Safdar Ali	MNS-UAM	0345-8772224	
144	Danyal Haider Khan	MNS-UAM	0306-7474898	
145	Muhammad Rauf Shah	MNS-UAM(IPB²)	0305-4818571	
146	Zain Abbas	MNS-UAM (IPB²)	0340-1268572	
147	M. Waqar Hassan	MNS-UAM	0304-4130905	
148	HASSAN ASKARI	MNSUAM	0307-4672124	
149	M. Faisal Mumtaz	MNSUAM(KENT)	0302-4191135	
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	Mahreen Hamid	MNSUAM	03346021702	
	M. SHAHZAD	MNSUAM	0301-4079435	

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
1	M. Asif Mansoor	MNSUA	asifmansoor1997@gmail.com	
2	Ghulam Fareed Rahid	Osam Seeds Pvt Ltd	0300-8691321	osamagroup@gmail.com
3	Dr. Muhammad Ejaz	PARC, BADC	0342-5164329	
4	Zulfiqar Ali Rahyo	ARI Tandojam PARC	03323314708	
5	Dr. Faheem Khan	AARI, Bhawalpur	0306-[illegible]	
6	M. Mahmood Ahmed	MNSUAM	03446611501	
7	Dr. Akash Fatima	MNSUAM	—	
8	M. Jamshed Iqbal	MNSUAM	—	Jamshed
9	M Kashif	MNS.UAM	0307-7871269	M Kashif
10	Kamran Ijaz	MNS. ENTO		
11	Samiullah	MNS.ENTO		
12	Mari Nawaz	MNS-UAM	0303-5090640	
13	Zuhaib Khalid	MNS-UAM	03017159314	
14	M-Shahbaz	MNS-UAM	03029778835	
15	M. Fahad Naveed	MNS-UAM	0300-4140177	
16	M-Arslan	//	0301-7905016	
17	M. Usman	//	0307-5682150	
18	Hira Tasleem	MNSUAM	raohiras89@gmail	

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
1	Qadeer Ahmad	PMAS-AAUR	03132995806	
2	Saima Rani	PARC		
3	M ATIF USMAN	CAPP	0300-7731815	
4	G.M. Hashif	APP	03467073194	
5	Dr. Shahid Iqbal	MNSUAM	0322-6341576	
6	M. WAQAS	PhD Scholar UAF	0321-4876131	
7	M. ARSLAN AKHTAR	UAF	0307-7476027	
8	Luqman Shahid	UAF Fsd	03036196607	
9	M-Arslan	MNS-UAM	03017905010	
10	Zain Abbas	MNS-UAM	0340-1268572	
11	M. Usman	MNS-UAM	03075682150	
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13	Fahad Bhatti	MNSUAM	0310-6815372	
14	Ameer Ahmad	MNS-UAM	03023622756	
15	M-Shahzaib Arshad	MNS-UAM	0303-6400539	
16	M. Fahad Javed	MNS-UAM	0300-6140577	
17	Zubair Khalid	MNS-UAM	03017159314	
18	M. Sabir	MNS.UAM	0301-6783784	
19	M. Faheem Zafar	MNS.UAM	0302-7056658	
20	Hafiz Abdul Qudoos	MNS-UAM Agronomy	03039039314	
21	Wasim Altaf	MNSUAM (IPBB)	0308-7864079	
22	Bilal Mansoor	MNSUAM (IPB²)	0307-5907176	
23	Ghulam Mustafa	MNSUAM (IPB²)	0306-5693118	
24	Ubaid-Ullah	MNSUAM (IPB²)	0300-8733226	
25	Hafiz M. Awais	MNSUAM (IAB²)	0302-9892754	
26	Zeeshan muhammad	MNSUAM PBG	0301-0782425	
27	M. Tariq Mahmood	GBRSS, K.Kot	0333-6038204	
27	Abdul Ghaffar	AZRI, Bhakkar	0346-7722781	
28	Dr. Faheem Khan	RARI Bahawalpur	0306-6434891	
29	Dr. Muhammad Ejaz	PARC-BARDC	0342-5164329	
30	NIAZ HUSSAIN	AZRI, Bhakkar	0333-6084107	
31	Irfan Ahmed	MNSUAM	03057911389	

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
32	Waqar Hassan	MNSUAM	0304-4130905	
33	M. Shahid	MNSUAM	03056894709	
34	Humayun Raza	UAF	03462184985	
35	Kashmala Zubair	SES. (MNS)		
36	Jahangir Ahmad	SES (MNS)		
37	M. Sheraz Ismail	Agronomy		
38	Danish Ahmed	Agronomy		
39	Imran Nawaz	Agronomy	0340-7770213	
40	Waseem Akram	PBG	0307-6707073	
41	Hamza Ahmad Qureshi	MNSUAM	03095200099	
42	M. Sajid	MNSUAM	0305-6462639	
43	Seyf-ur-Rehman	4	0308-7895981	

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
1	M. SHAHZAD	MNSUAM	0301-4079435	
2	M. Tasiq Mahmood	Agri. Res. Kot	0333-6038214	
3.	Dr. Akash Fatima	MNSUAM	-	
4.	Dr. Farhana Aslam	B.Z.U	-	
5	Dr. Nadia Iqbal	WUM	-	
6.	Sadia Hakeem	MNS-UAM.	-	
7.	Ammara Sakhi	MNSUAM	-	
8.	Ayesha Nawaz	MNSUAM	-	
9	Nadia Ayoub	MNSUAM	-	
10	Faiza Afzal	MNSUAM	-	
11	Mehwish Iftikhar	MNSUAM	-	
12	M. Asif Mansoor	MNSUAM	-	
13	M. Waseem Shehzad	MNSUAM	-	
14	Muhammad Ashfaq	S.C.R.S. BWP	0301-7772379	
15	Muhammad Bin Mushtaq	MNSUAM	0334-6082840	
16	Hira Jasleem	MNSUAM		
17.	Zarmeena Amjad	MNSUAM		
18	Dr. Iqbal Saeed	NIFA, Peshawar	03130474793	
19	Ashfaq Ahmed	ARS Ahmed wala Kot	03129667971	
20.	Dr. Muhammad Ijaz Khan	ARS Ahmad wala Kot	03469086631	
21.	Dr. ASIF SHEHZAD	MNSUAM	0334-6059373	
22	M. Rehan Asghar	MNSUA	0306-8292528	
23	M. Zeeshan Zafar	MNSUA	0312-1121817	
24	Hassan Akbari	"	034-7781804	
25	Wajiha Khan	MNSUAM	0307-4779448	
26	M. Afaq Khalid	MNSUAM	0307-4794448	
27	BILAL Mansoor	MNSUAM	0310-6180128	
28	Hafeez Ullah	MNSUAM	0301 7857432	
29	M. Shahid	MNSUAM	0305-6294787	
30	Ameer Hamza	MNSUAM	0308-9060066	
31	M. Saeed Ch			
32	Ali Ammar	"	0333-6147062	

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
33	M. Farukh Zafar Khan	MNS-UAM	03065510843	[illegible]
34	Shoaib Liaqat	MNS-UAM	0332-8180543	[illegible]
35	M. Asif	MNS-UAM	0308-1846345	Asif
36	Mudassar Abbas	MNS-UAM	0309-7154958	[illegible]
37	Mian M. Ahmed	MNS-UAM	0300-6871623	Ahmed
38	Abdul Manan	MNS-UAM	03340358050	[illegible]
39	Serar Hussain	MNS-UAM	03005449840	[illegible]
40	AMAR MATLOOB	"	0333-9926990	[illegible]
41	Dr. Faheem Khan	RARI, Bhawalpur	0346-4434893	[illegible]
42	Abdul Ghaffar	AZRI, Bhakkar	0346-7722781	[illegible]
43	Saba Aslam	MNSUAM	0301-3648779	Saba
44	DR F. H. Anjum	Agronomist ARS Karor (Layyah)	0301-6090603	[illegible]
45	Zulfiqar Ali Rehaab.	ARI, Jaffarabad	03332316208	[illegible]
46	Muhammad Zeeshan	MNSUAM	0300-6770543	M. Zeeshan
47	Irfan Ahmed	MNSUAM	0305-7911389	[illegible]
48	M. Rauf Shah	MNS-UAM (PBG)	0305-4818571	M. Rauf
49	Fatima Gulzar	MNS Uam (Biotech)	———	Fatima
50	Shoaib Hassan	MNSUAM	0304-7886255	[illegible]
51	Hafiz Abdul Qudoos	MNS-UAM (Agronomy)	0303-9039314	Qudoos
52	M. Faheem Zafar	MNS-UAM	0302-7055658	[illegible]
53	Muhammad Nasir	" "	0345-7269271	M. [illegible]
54	Samual Murtaza	MNSUAM	03467707538	[illegible]
55	Hammad Hassan	MNS-UAM	0331-9281102	Hamad H
56	Rashid Rafeeq	MNS-UAM	0307-7409889	Rashid R
57	M. Usman	MNSUAM	03166232246	M. Usman
58	M. Ali Sher	MNSUAM	———	Ali Sher
59	Mansoor Ahmad	MNSAM	03009586009	[illegible]
60	M. Nadeem	MNSUAM	03017091996	M. Nadeem
61	Uzair Iqbal	MNSUAM	0304-8456059	[illegible]
62	MOHAMMAD WAQAR	MNSUAM	0315-3879819	Waqar
63	SAEED AHMAD	MNSUAM	0300-7216540	Saeed Ahmad

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Sr.NO.	Name	Organisation	Contact No./ Email	Signature
	Ghulam Mustafa	MNSUAM (IPP)	0306-3653116	
	M. Farman	MNSUAM (AGRON)	0300-2406765	
	Sobia Manzoor	MNSUAM (Agronomy)	Sobia.magsi33@gmail.com	
	Syeda Fatima Bukhari	MNSUAM (Entomology)	—	
	Iqra Ahmad	" "		
	Sidra Asghar	" "		
	Areej Fatima	" "		
	Atif Riaz	MNSUA (Agronomy)	0304-6255034	
	M. Aman Hussain	IPBB (MNSUA)	03046994450	
	Ghani-e-Mustafa	MNSUAM (AGR)	0313-5909925	
	Abdullah	MNSUAM (Agron)	0304-6464210	
	Noaman Nazir	MNSUAM (PP)	03206638643	
	M. Zubair	MNSUAM	03365835290	
	Mohammad Sajid	MNSUAM	0305-6462689	
	Ibrar Nawaz	MNSUAM (Agro)	0340-7170219	
	Saif-ur-Rehman	MNSUAM	0315-7531825	
	Syed Abdul Hakeem	MNSUAM	/	
	Waleem Akram	MNSUAM	0303-6767073	
	Hamza Ahmad Qureshi	MNSUAM	03095200099	

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4. National Agriculture Research Centre, Islmabad

5. Arid Zone Research Institute, Bhakkar

6. Doaba Foundation, Multan

Presentations of foreign speakers:

Challenges in Australian Pulse Production and Research Landscapes

Prof. Chris Blanchard
Director, Functional Grains Centre
Charles Sturt University, Australia

Email: cblanchard@csu.edu.au
Twitter: @FGC_Chris

csu.edu.au/research/fgc

Outline

- Australian Pulse Production
- Pulse breeding in Australia
- Australian pulse exports
- Challenges for the Australian pulse industry

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The Australian Pulse Industry

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Pulse Production

- Production around **2-2.5** million tonnes
  - Chickpeas **0.5 – 1.0** million tonnes
  - Lupins **0.6 - 1.5** million tonnes
  - Lentils/Peas/Faba **0.2-0.4** mln t
  - Mung Beans **0.1-0.2** mln t

- Export 90%+ of production

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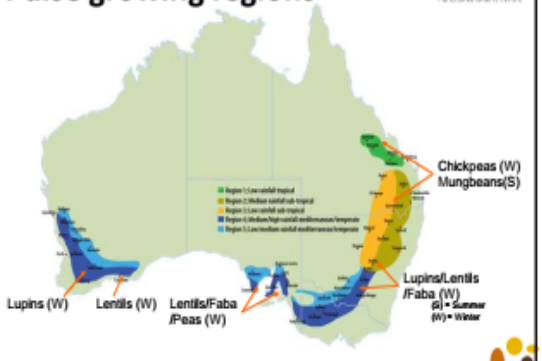
Pulse growing regions



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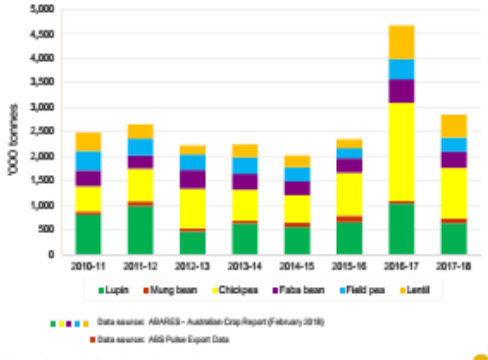
Pulse Production



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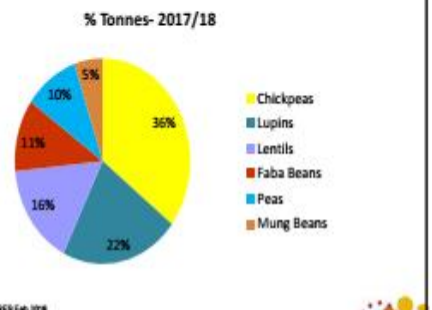
Pulse production – by type



Source: Aust Govt- ABARES Feb 2018

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Pulse Breeding in Australia

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Pulse Breeding Australia (PBA)

- Joint Venture between the **Grains Research and Development Corporation** (GRDC) and:
  - Victorian State Department (Peas, Lentils)
  - Queensland State Department (Mungbeans, Peanuts)
  - NSW State department (Chickpeas)
  - University of Adelaide (Faba Beans)

PBA PULSE BREEDING AUSTRALIA

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Chickpea breeding targets

Pulse Breeding Australia (PBA) aims to increase high quality chickpea production through:

- Specific adaptation to agro-climatic regions
- Improved agronomics & yield potential
- Improved disease resistance

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Lentil breeding targets

Pulse Breeding Australia (PBA) aims to increase high quality red & green lentil varieties production through:

- Improved yield potential & regional adaptation
- Improved disease resistance & tolerance to toxic levels of salt & boron
- Red lentils are bred for consistent grey seed coat colour

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Pea Breeding Targets

Pulse Breeding Australia (PBA) aims to increase high quality field pea production through:

- Regional adaptation
- High yielding
- Improved disease resistance
- Enhanced agronomic traits

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Mungbean breeding targets

Superior marketing qualities include:

Shiny green coat

Uniform seed size

Highest level of food safety

Australian Mungbean Association (AMA) aims to maximise productivity & quality in Australian dryland & irrigation farming systems:

- High yielding
- Uniformity of flowering & maturity
- Disease resistance & plant architecture

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Australian Pulse Exports

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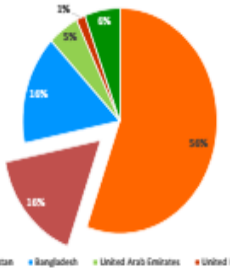
Chickpea exports



5 years to 2017/18

Value: AUD 945 million (Annual Average)

Source: Aust Govt – AIBS Exports

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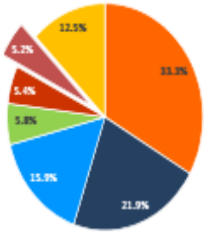
Lentil exports



5 years to 2017/18

Value: AUD 332 million (Annual Average)

Source: Aust Govt – AIBS Exports

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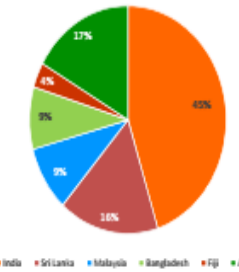
Pea exports



5 years to 2017/18

Value: AUD 85 million (Annual Average)

Source: Aust Govt – AIBS Exports

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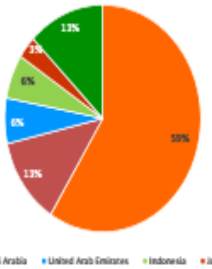
Faba Bean exports



5 years to 2017/18

Value: AUD 175 million (Annual Average)

Source: Aust Govt – AIBS Exports

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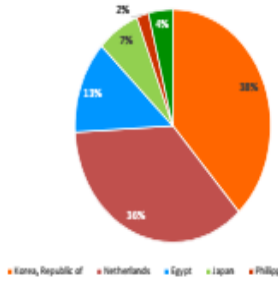
Lupin exports



5 years to 2017/18
Value: AUD 119 million
(Annual Average)

Source: Aust Govt – ABS Exports

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Pulse Trade with Pakistan

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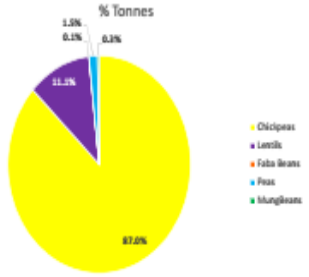
Aust. Pulse Trade with Pakistan



5 years to 2017/18

Source: Aust Govt- ABS Exports

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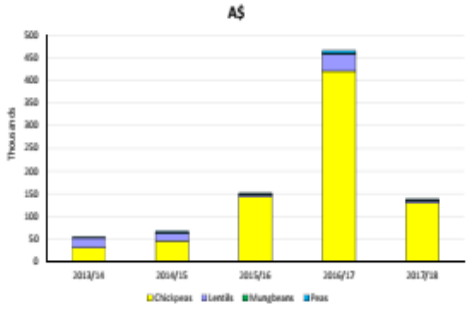
Aust. Pulse Trade with Pakistan



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Challenges for the Australian Pulse industry

- Adoption of pulse production by farmers
- Need to breed enhanced varieties:
  - High Yielding
  - Disease resistant
  - High quality

- Competition from more profitable crops (Canola)
- Volatile markets
- Farmers lack confidence in trying new crops

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Possible solutions

- Increased **investment** in breeding through private investment
- New **methodologies** to assist farmers to **change** their farming **practices** to include more pules
- Improve returns by improving **quality**
- Improve market stability through **diversification**

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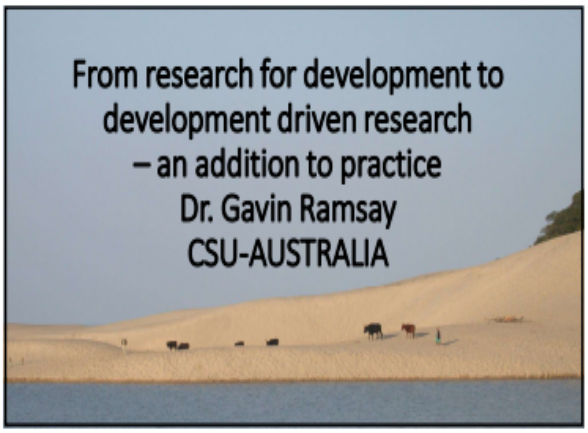


The context for agriculture

"We are working with a diverse, complex situation and attempting to control the situation is difficult, probably impossible. Therefore, we need to think about how to provide an environment in which the improved situation can emerge. In doing so we acknowledge this is not a situation we control but rather one in which we facilitate a process that enables change to develop."

Ramsay, Bellotti, Narain and Kumar (2015)

What is research?

- Is research the driver of human development?
- Does the need for human development drive research?
- Is it both?

- Does it depend on what you want to achieve?

The uses of research outcomes

- Knowledge to make a decision is different to knowledge to write a scientific paper.
- In both cases new knowledge is generated
- In each we use different types of thinking

- The processes to generate new knowledge differ

Relationship between research and on-farm decisions

- Decision processes are poorly understood
- Farm management decisions are often intuitive
- Farmers preference their own experience over other sources of information

Inquiry – an additional approach

- ***Together, as a team (with farm families, researchers from various disciplines and countries) we inquire into the situation to better understand and improve it.***
- Understand what constitutes improvement
- Focus on the areas that are most important
- Apply work already done
- Impact of the science is increased - it is related to a direct need

The basis of inquiry

- Thinking in terms of wholes – changing our perceptions
- Seeing the world from the view of others
- Understanding our boundaries – moving up a level of complexity
- Examining connections
  - people to people,
  - people to objects and
  - objects to other objects
- Evaluating purpose

What happens when we inquire?

- We understand the context in which we research better
- We develop different research questions
- We bring others into the research and make them partners
- New knowledge developed is applied immediately

A Challenge

- How do we operate to improve the situation for a large number of farm families who:
  - Are operating individually in a complex environment
  - Have their own individual reasons for farming
  - Have diverse sets of resources
- Can this challenge be a research question?

Acknowledgements

- The work in this presentation is part of the ACIAR funded project CIM/2015/041 Increasing Productivity and Profitability of Pulse Production in Cereal Based Cropping Systems in Pakistan
- This presentation is derived from the work of the ACIAR project team and not one individual
- The team includes farm families
- We thank ACIAR for their support

Presentations of national speakers

Current Status and Future Prospects of Pulses in Pakistan

Dr. Khalid Hussain
Director
Arid Zone Research Institute
Bhakkar

PULSES

Pulses are high in protein, micronutrients and B vitamins, rich in dietary fiber and low in fat (perfect human food!!)
Pulses provide a low-cost, nutritious solution ***for the world's poor***, and help fight hunger and malnutrition.
Pulses are a adaptable grain that can be grown in a low input agricultural system.
Pulse demand has been increasing day by day in Pakistan due to rapid increase in population
Record gram production in 2012-13 (0.7 million tonnes)

- Excellent break crop for cereal crop rotations
- Weeds, diseases, insect pests different to cereals
- Fix nitrogen from air for use by plants
- Well suited to different soils, climate
- Soil improvers
- Low input crop
- Careful harvesting needed for quality product

GLOBAL SCENARIO

Pulse total global production around 60 to 70 million tonnes
Pakistan produces **0.501** million tonnes of pulses a year and consumes **1.095**million tonnes
India produces **12 to 20** million tonnes of pulses a year and consumes **16 to 25** million tonnes
Canada and Australia are the biggest exporters
Australia produces around **1-4** million tonnes
Pakistan buy 200k tonnes, Chickpea and Lentils from Australia)
Value ($265M/yr= Rs 23 billion PKR)

MAJOR PULSES

Rabi Pulses	Kharif Pulses
Chickpea	Mungbean
Lentil	Mashbean

PRODUCTION & CONSUMPTION OF MAJOR PULSES IN PAKISTAN 2016-17

Crop	Area (000 ha)	Yield (kg/ha)	Prod. (000 tons)	Req. (000 tons)	Shortfall (000 tons)
Chickpea	935.5	382.5	357.8	617	259.2
Mung	178.7	728.6	130.2	197	66.8
Mash	17.1	421.1	7.2	112	104.8
Lentil	14.8	452.7	6.7	169	162.3
Total	1146.1	-	501.9	1095	593.1

Import 102 Billion PKR

NATIONAL SCENARIO

THAL REGION OF THE PUNJAB:

- Major supply of food legumes depends upon chickpea and mungbean.
- 80% Chickpea and Mungbean area and Production contributed by the Thal Region of the Punjab and rest of the area is spread in other 3 provinces.
- Chickpea is grown in rain fed agriculture
- Mungbean is pre-domentaly planted in irrigated conditions

POTHWAR REGION OF THE PUNJAB

- Pothwar region is another potential area of Mash and Lentil.

Causes of Low productivity of Pulses in Pakistan

Major Biotic and Abiotic Stress of Pulse crops

Crop	Biotic Stresses	Abiotic Stresses
Chickpea	Ascochyta Blight, Fusarium Wilt , Root and stem rot, collar rot, pod borer, weeds	Low temperature, terminal drought
Lentil	Ascochyta Blight, Rust, Root rot Wilt complex , weeds	Cold (high lands), drought low lands
Mungbean	Mungbean Yelllow Mosaic Virus, Cercospora Leaf Spot, Bacterial Leaf Spot, Leaf Crincle Virus, Hairy Cater Pillar, Army worm, sucking insect pest	High temperature at flowering
Mash	Mung Yelllow Mosaic Virus, Cercospora Leaf Spot, Bacterial Leaf Spot, Leaf Crincle Virus, Hairy Cater Pillar, Army worm, sucking insect pest	

Socio Economic Constraints

- Low adoption of improved package of practices.
- Inadequate extension services for promotional activities
- Lack of systemic seed production system
- Lack of indicative prices and proper market and trading system for pulses.
- Post emergence chemical weed control not available for chickpea.

CHICKPEA

Constraints and Opportunities for Pulses (Chickpea and Lentil): Pakistan Prospective under Pulses Project (CIM/2015/041)

1st Aus-Pak International Conference on Pulse for Food Security

Saima Rani

Social Sciences Research Institute

PARC - National Agricultural Research Center,

Islamabad, Pakistan

Outline of the Presentation

- Overview of the sector
- Research Methodology
- Research Results
- What need to be done/Recommendation

Background

Pulses are the important

- Beside protein --- a major source of micronutrients, used as animal fodder and improve soil health

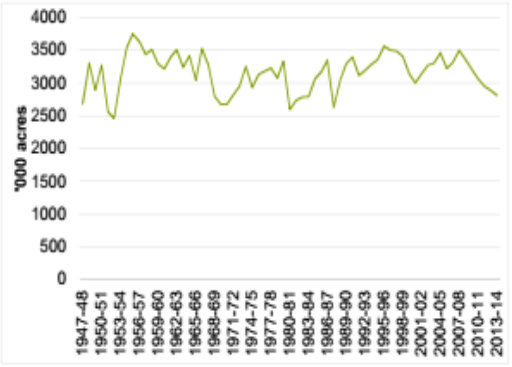
Cultivated on 5 percent of total cropped land

- Chickpea 85 Percent
- Mungbean 12 percent
- Mashbean 2 percent
- Lentils 1 percent

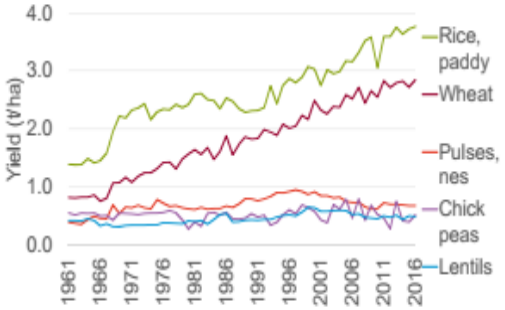
Having Relativity

- High Price
- Less Input cost as compared to the competing crops
- Despite of that have been progressively Pushed out to the most marginal lands
- Consumption is increase over the time

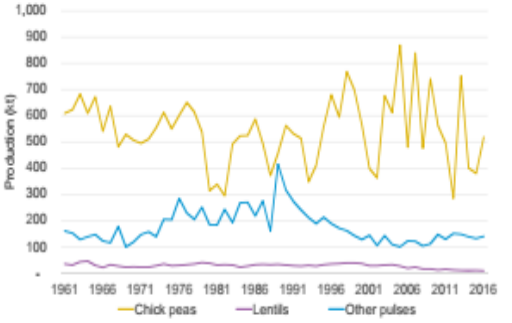
Area Planted to pulses



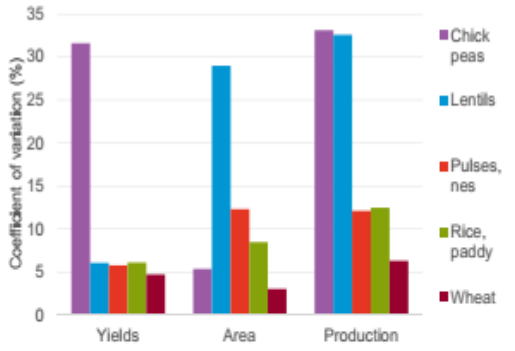
Yield



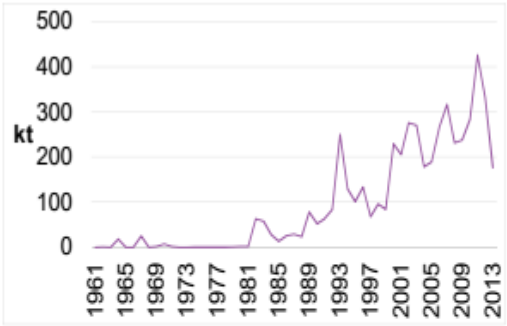
Production



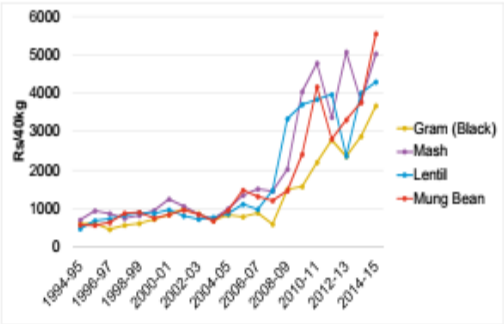
Variability (2007-2017)



Import of pulses



Whole sale prices of the Pulses



Project Aim

The Project mainly through the Farmers led Research and demonstration, aims to enhance the pulses production and profitability in the existing cropping system in Pakistan, SO that the decline in Legume Production is reversed

Objective of Situation Analysis

1. To extensive analyses to understand the current situation of pulses in the project areas at farm;
2. To identify the possible misconception and knowledge gaps that limit the Production and Profitability
3. To explore Farmer's attitude towards new technologies and knowledge of the systems and
4. Provide feedback to the researchers.

Method Approach

- KAP Approach
  - Knowledge
  - Attitude
  - Practices
- Groups of Collaborative Research (GCR)
- 69 Farm families in 6 sites
  - 51 farm families for Chickpea
  - 18 farm families for Lentil

Breeding high yielding chickpea (*Cicer arietinum* L.) genotypes

Iqbal Saeed (PhD), Senior Scientist
NIFA, Peshawar, KP-Pakistan
Iqbal.saeed@yahoo.com

Objectives

Development of high yielding desi chickpea varieties for the agro-climatic conditions of the Khyber Pakhtunkhwa

Plant material used

S.No.	Genotype	Origin
1	NIFA-2005	Pakistan
2	NIFA-88	Pakistan
3	NDC-6-I-6	Pakistan
4	NDC-6-I-7	Pakistan
5	Thal-2006	Pakistan
6	Dasht	Pakistan
7	BRC390	Pakistan

Cross-combinations attempted

S.No.	Cross-combination
1	NIFA-2005 x NDC-6-I-6
2	NIFA-2005 x NDC-6-I-7
3	NIFA-88 x NIFA-2005
4	Thal-2006 x NIFA-2005
5	Dasht x NIFA-2005
6	BRC390 x NIFA-2005

Breeding history

Season	Generation
2012-13	F_0
2013-14	F_1
2014-15	F_2
2015-16	F_3
2016-17	F_4
2017-18	Evaluation in replicated trials

Selection Criteria

- More branches plant^{-1}
- More pods plant^{-1}
- Semi-spreading growth habit
- Stiff stem

Single plants/lines selections

F_2 generation

Cross-combination	Single plants/lines selected
NIFA-2005 x NDC-6-I-6	95
NIFA-2005 x NDC-6-I-7	60
NIFA-88 x NIFA-2005	40
Thal-2006 x NIFA-2005	50
Dasht x NIFA-2005	47
BRC390 x NIFA-2005	50
Total	342

F_3 generation

Cross-combination	Single plants/lines selected
NIFA-2005 x NDC-6-I-6	50
NIFA-2005 x NDC-6-I-7	40
NIFA-88 x NIFA-2005	30
Thal-2006 x NIFA-2005	38
Dasht x NIFA-2005	33
BRC390 x NIFA-2005	39
Total	230

F_4 generation

Cross-combination	Single lines selected	Yield range (g plant^{-1})
NIFA-2005 x NDC-6-I-6	33	60-139
NIFA-2005 x NDC-6-I-7	24	63-119
NIFA-88 x NIFA-2005	08	36-87
Thal-2006 x NIFA-2005	10	34-107
Dasht x NIFA-2005	09	41-71
BRC390 x NIFA-2005	09	48-90
Total	93	-

Evaluation in replicated yield trial-1

Line #	Paren/ped	DM (90%)	HGW (g)	GY (kg ha^{-1})
1-1	NIFA-2005 x NDC-6-I-6	168	24	1667
1-3	-do-	168	23	1528
3-1	-do-	167	24	1667
3-2	-do-	168	24	1528
4-1	-do-	168	23	1528
4-2	-do-	168	24	1389
6-1	-do-	168	23	1528
9-2	-do-	169	24	1390
10-1	-do-	169	24	1389
10-3	-do-	168	24	1388
10-4	-do-	168	26	2361
116-2	-do-	169	24	1471
116-3	-do-	170	23	1399
NIFA-2005	Standard check	170	21	1210
LSD (5%)	-	1.84	2.61	150.12

Evaluation in replicated yield trial-2

Line #	Paren/ped	DM (90%)	HGW (g)	GY (kg ha^{-1})
NDC-20-1	NDC-6-I-7 x NIFA-2005	165	23	2639
NDC-20-3	-do-	166	24	2778
NDC-20-7	-do-	164	22	3500
NDC-21-3	-do-	166	22	2917
NDC-33-4	-do-	167	24	2778
NDC-34-1	-do-	166	24	2778
NDC-36-1	-do-	166	25	2639
NDC-36-2	-do-	166	22	3500
NDC-39-1	-do-	166	23	3056
NDC-39-3	-do-	166	23	2778
NDC-41-3	-do-	168	23	3056
NDC-48-4	-do-	169	26	2778
NDC-50-2	-do-	168	26	2778
NDC-52-2	-do-	168	25	2461
NDC-66-2	-do-	169	23	2778
NIFA-2005	Standard check	171	21	2280

Evaluation in replicated yield trial-3

Line #	Paren/ped	DM (90%)	HGW (g)	GY (kg ha^{-1})
1-2	NIFA-88 x NIFA-2005	165	24	1528
1-5	-do-	164	23	1667
1-6	-do-	164	24	1667
4-4	-do-	165	24	1944
6-1	-do-	165	24	2639
8-2	-do-	166	24	2222
1-1	Thal-2006 x NIFA-2005	165	23	1480
1-3	-do-	163	23	1491
2-1	-do-	166	24	1478
3-1	-do-	166	24	1445
4-2	-do-	168	24	1481
6-1	-do-	166	23	1491
6-2	-do-	166	24	1511
9-1	-do-	166	23	1450
20-2	-do-	165	25	1680
NIFA-2005	Standard check	172	21	1273
LSD (5%)		1.73	2.13	129.33

M. Ashfaq, H. Riaz, N. Ahmed,
M. H. N. Tahir and Z. Ali

"SPATIAL DISTRIBUTION AND ANTISERUM PRODUCTION OF URDBEAN LEAF CRINKLE VIRUS IN PUNJAB, PAKISTAN"

Department of Plant Pathology
MNS- University of Agriculture
Multan

INTRODUCTION

Mash or Blackgram (*Vigna mungo*)

- One of the most important pulse crop.
- In Pakistan cultivated on 15.2 thousand ha
- Production of 7.5 thousand tones in Pakistan
- Worldwide average production is 3-5 tones/ha
- In Pakistan average production is 1.7 tones/ha
- The quality and yields are affected by biotic and abiotic factors.
- Among biotic factors viruses are important.

Viruses infecting Mash crop

- Viruses: DNA and RNA.
- RNA Viruses constitute 90% of the total viruses.

INTRODUCTION

- ULCV, an unclassified virus, devastating pathogen
- Causes significant losses in mungbean and mashbean crops.
- Cause upto 100% yield losses in urdbean and mungbean crops in case of early infection. (Beniwal & Chaubey., 1979; Singh., 1980)
- In Pakistan, ULCV decrease grain yield from 35-81%. (Bashir et al.,, 1991)
- ULCV disease incidence depends upon the host genotypes, growing seasons and suitable environmental conditions (Ashfaq et al., 2008).

INTRODUCTION

First Report

- India (Chohan & Kalia, 1967), a new disease.
- Confirmed as a viral diease (William et al., 1968)
- Pakistan (Bashir & Zubair., 1985).

Virus properties

- DEP: 1: 100,000
- TIP: 60-70 °C
- LIV: 5 Days

Urdbean Leaf Crinkle Virus

Symptoms

- Extreme crinkling
- Leaf Curling
- Puckering
- Leaf rugosity
- Stunting of plants
- Malformation of floral organs

Transmission

- Insect vector
- Seed-borne
- Mechanical inoculation

Objectives

- To assess Urdbean leaf crinkle disease incidence and distribution in major blackgram producing areas of Pakistan.
- Development of low cost, efficient and rapid diagnostic method based on serological properties of the virus.

MATERIALS & METHODS

Materials and Methods

Plan of Work

- Field Survey
- Sample Collection
- Propagation of ULCV
- Isolation and Purification of ULCV
- Production of Antiserum
- Isolation of Antiserum
- Confirmation of Antiserum

Materials and Methods

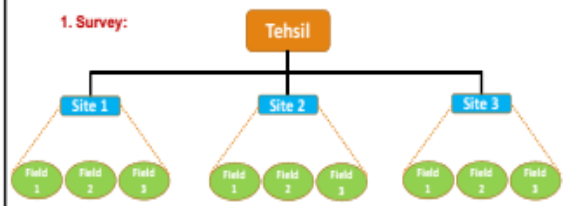
Survey and collection of samples.

Badin
Thatta
Hayderabad
Tandu Allayar
Umer Kot
Bahawalpur
Muzafargarh
Multan
Lodhran
Vehari
Faisalabad
Rawalpindi
Attock
Chakwal
Sialkot
Sheikhupura
Loralai

Materials and Methods

Survey and collection of samples.

1. Survey:



Quadrant (1×1m) × 3
60-75 samples from each field

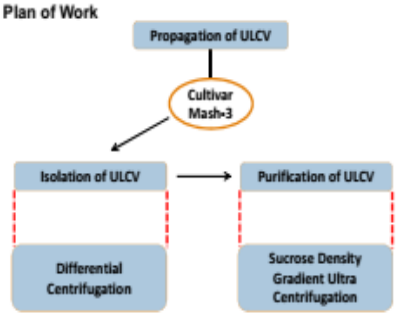
Materials and Methods

$$\text{Disease Incidence (\%)} = \frac{\text{Number of Infected Plants}}{\text{Total Number of Collected Plants}} \times 100$$

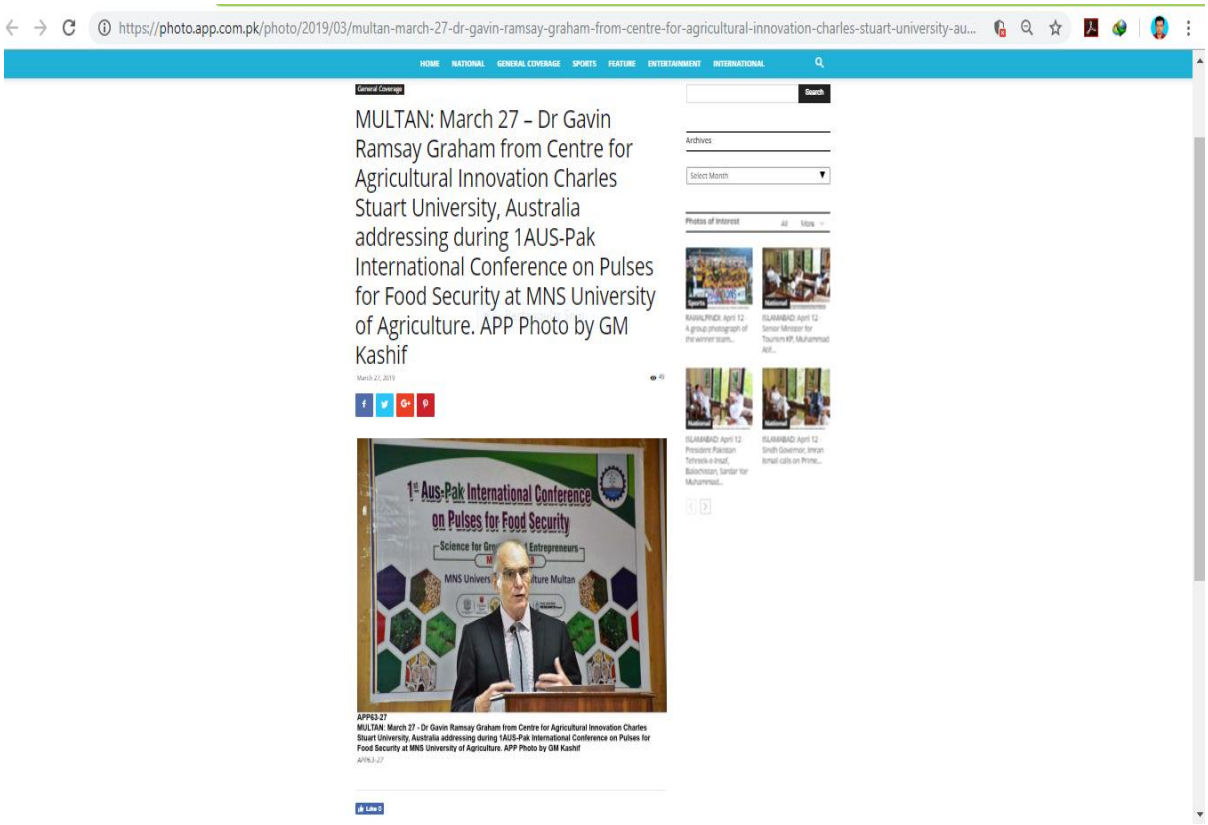
$$\text{Disease Prevalence (\%)} = \frac{\text{Number of Infected Fields}}{\text{Total Number of Inspected Fields}} \times 100$$

Materials and Methods

Plan of Work



Media Coverage



https://www.brecorder.com/2019/03/28/483755/plant-centric-meal-competition-under-pulses-theme-held/

GENERAL NEWS

Plant centric meal competition under Pulses theme held

Parvez Jabri March 28, 2019

MULTAN: As many as 50 teams of various educational institutions contested in a plant centric meal competition held under the auspices of Muhammad Nawaz Sharif University of Agriculture (MNSUA) here on Wednesday.

The theme of the competition was 'the meals made up of Pulses' and was the part of ongoing international conference week.

Provincial Minister for Forestry, Wildlife and Fisheries Muhammad Sibtain Khan opened the competition.

Speaking on the occasion, he stated that under the plant for life project, government was planting saplings across the country, adding in the current spring season 1.2 million sapling would be planted.

He disclosed that owners of the new housing colonies would be bound to plant sapling in it to

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جلد نمبر 45 | جمعۃ المبارک 21 رجب المرجب 1440، 29 مارچ 2019ء، 15 چیت 2073ب | صفحات 12 قیمت 15 روپے | شمارہ نمبر 203

ایم این ایس زرعی یونیورسٹی کے زیر اہتمام دالوں کی پیداوار میں خود کفالت حاصل کرنے کیلئے ویک کے آخری روز تقریب کا انعقاد

آسٹریلین سنٹر فار انٹرنیشنل ایگریکلچرل ریسرچ کے تعاون سے دالوں کی پیداوار میں اضافہ اولین ترجیح ہے: ڈاکٹر آصف علی

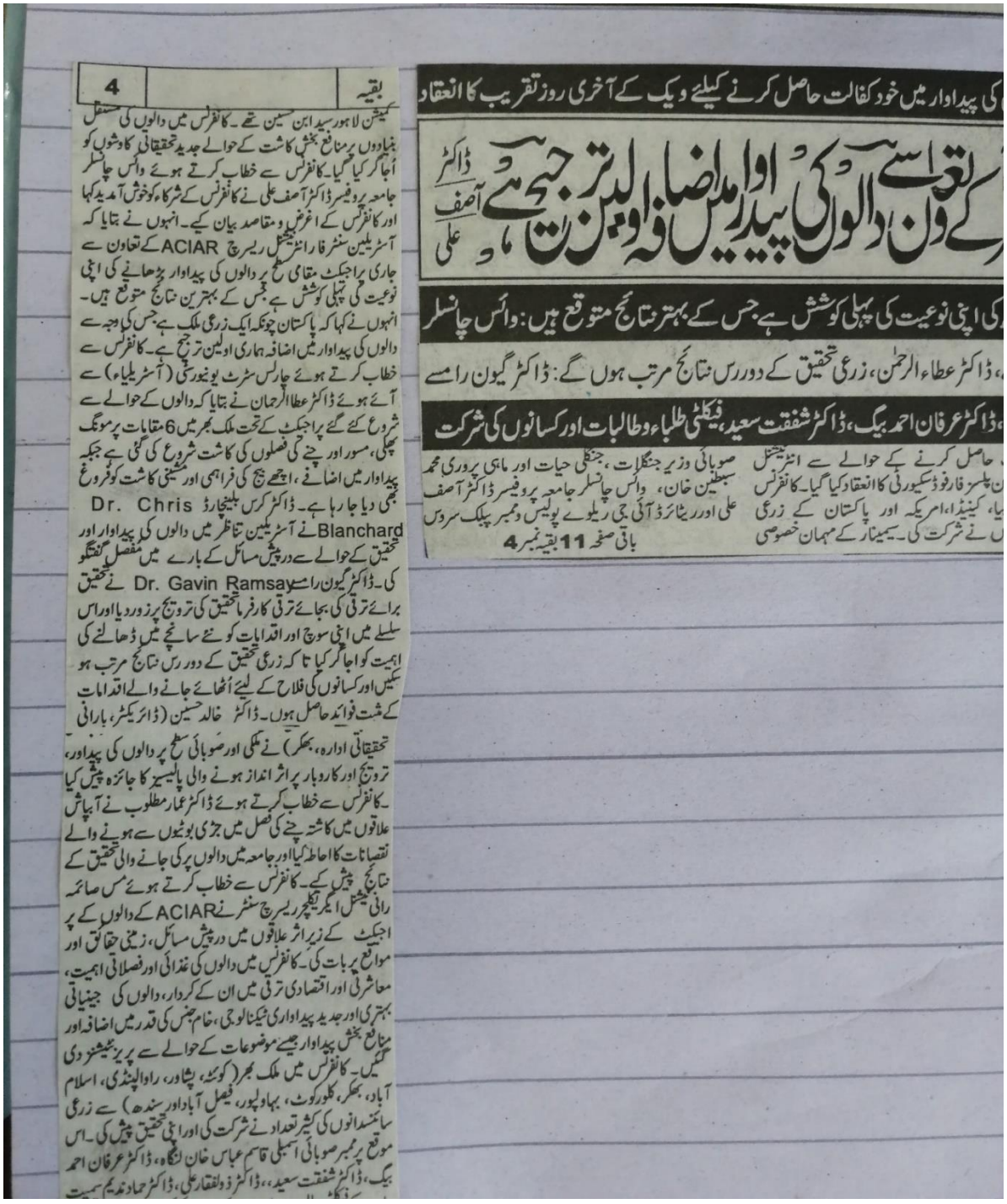
پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہتر نتائج متوقع ہیں: وائس چانسلر

اچھے بیج کی فراہمی اور مشینی کاشت کو فروغ دیا جا رہا ہے، ڈاکٹر عطاء الرحمٰن، زرعی تحقیق کے دوررس نتائج مرتب ہوں گے: ڈاکٹر گیون رامسے

تقریب میں ممبر صوبائی اسمبلی رانا قاسم، عباس خان لنگاہ، ڈاکٹر عرفان احمد بیگ، ڈاکٹر شفقت سعید، فیکلٹی طلباء و طالبات اور کسانوں کی شرکت

ملتان (آفتاب نیوز) ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ویک کے آخری روز شعبہ اکرانومی اور شعبہ پلانٹ بریڈنگ اینڈ جینٹکس کے زیر اہتمام دالوں کی اہمیت اور ان کی پیداوار میں خود کفالت حاصل کرنے کے حوالے سے انٹرنیشنل کانفرنس آن بائسز فار فوڈ سیکیورٹی کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکہ اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور ریٹائرڈ آئی جی ریلوے پولیس و ممبر پبلک سروس

باقی صفحہ 11 بقیہ نمبر 4



کی پیداوار میں خود کفالت حاصل کرنے کیلئے ویک کے آخری روز تقریب کا انعقاد

کے دون دالوں کی پیداوار میں اضافہ اولین ترجیح ہے

ڈاکٹر آصف علی

کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہتر نتائج متوقع ہیں: وائس چانسلر

، ڈاکٹر عطاء الرحمٰن، زرعی تحقیق کے دوررس نتائج مرتب ہوں گے: ڈاکٹر گیون رامسے

، ڈاکٹر عرفان احمد بیگ، ڈاکٹر شفقت سعید، فیکلٹی طلباء وطالبات اور کسانوں کی شرکت

حاصل کرنے کے حوالے سے انٹرنیشنل
ن پلسز فار فوڈ سیکورٹی کا انعقاد کیا گیا۔ کانفرنس
یا، کینیڈا، امریکہ اور پاکستان کے زرعی
ں نے شرکت کی۔ سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور ریٹائرڈ آئی جی ریلوے پولیس و ممبر پبلک سروس

باقی صفحہ 11 بقیہ نمبر 4

بقیہ 4

کمیشن لاہور سید ابن حسین تھے۔ کانفرنس میں دالوں کی مستقل بنیادوں پر منافع بخش کاشت کے حوالے جدید تحقیقاتی کاوشوں کو اُجاگر کیا گیا۔ کانفرنس سے خطاب کرتے ہوئے وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی نے کانفرنس کے شرکاء کو خوش آمدید کہا اور کانفرنس کے اغراض و مقاصد بیان کیے۔ انہوں نے بتایا کہ آسٹریلین سنٹر فار انٹرنیشنل ریسرچ ACIAR کے تعاون سے جاری پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہترین نتائج متوقع ہیں۔ انہوں نے کہا کہ پاکستان چونکہ ایک زرعی ملک ہے جس کی وجہ سے دالوں کی پیداوار میں اضافہ ہماری اولین ترجیح ہے۔ کانفرنس سے خطاب کرتے ہوئے چارلس سٹرٹ یونیورسٹی (آسٹریلیا) سے آئے ہوئے ڈاکٹر عطاالرحمان نے بتایا کہ دالوں کے حوالے سے شروع کئے گئے پراجیکٹ کے تحت ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے جبکہ پیداوار میں اضافے، اچھے بیج کی فراہمی اور مشینی کاشت کو فروغ بھی دیا جا رہا ہے۔ ڈاکٹر کرس بلینچارڈ Dr. Chris Blanchard نے آسٹریلین تناظر میں دالوں کی پیداوار اور تحقیق کے حوالے سے درپیش مسائل کے بارے میں مفصل گفتگو کی۔ ڈاکٹر گیون رامسے Dr. Gavin Ramsay نے تحقیق برائے ترقی کی بجائے ترقی کا رفرما تحقیق کی ترویج پر زور دیا اور اس سلسلے میں اپنی سوچ اور اقدامات کو نئے سانچے میں ڈھالنے کی اہمیت کو اجاگر کیا تا کہ زرعی تحقیق کے دور رس نتائج مرتب ہو سکیں اور کسانوں کی فلاح کے لیئے اُٹھائے جانے والے اقدامات کے مثبت فوائد حاصل ہوں۔ ڈاکٹر خالد حسین (ڈائریکٹر، بارانی تحقیقاتی ادارہ، بھکر) نے ملکی اور صوبائی سطح پر دالوں کی پیداوار، ترویج اور کاروبار پر اثر انداز ہونے والی پالیسیز کا جائزہ پیش کیا۔ کانفرنس سے خطاب کرتے ہوئے ڈاکٹر عمار مطلوب نے آبپاش علاقوں میں کاشتہ چنے کی فصل میں جڑی بوٹیوں سے ہونے والے نقصانات کا احاطہ کیا اور جامعہ میں دالوں پر کی جانے والی تحقیق کے نتائج پیش کیے۔ کانفرنس سے خطاب کرتے ہوئے مس صائمہ رانی نیشنل ایگریکلچر ریسرچ سنٹر نے ACIAR کے دالوں کے پراجیکٹ کے زیر اثر علاقوں میں درپیش مسائل، زمینی حقائق اور مواقع پر بات کی۔ کانفرنس میں دالوں کی غذائی اور فصلاتی اہمیت، معاشرتی اور اقتصادی ترقی میں ان کے کردار، دالوں کی جینیاتی بہتری اور جدید پیداواری ٹیکنالوجی، خام جنس کی قدر میں اضافہ اور منافع بخش پیداوار جیسے موضوعات کے حوالے سے پریزینٹیشنز دی گئیں۔ کانفرنس میں ملک بھر (کوئٹہ، پشاور، راولپنڈی، اسلام آباد، بھکر، کلورکوٹ، بہاولپور، فیصل آباد اور سندھ) سے زرعی سائنسدانوں کی کثیر تعداد نے شرکت کی اور اپنی تحقیق پیش کی۔ اس موقع پر ممبر صوبائی اسمبلی قاسم عباس خان لنگاہ، ڈاکٹر عرفان احمد بیگ، ڈاکٹر شفقت سعید، ڈاکٹر ذوالفقار علی، ڈاکٹر حماد ندیم سمیت

باقاعدہ تصدیق شدہ اشاعت ABC CERTIFIED پاکستان کے ہر روزنامے سے زیادہ

THE DAILY JANG MULTAN

روزنامہ جنگ ملتان

بانی..... میر خلیل الرحمٰن مجسٹہ

صفحات 12 قیمت 20 روپے

جلد 17 | جمعہ 21 رجب 1440ھ 29 مارچ 2019ء 15 چیت 2076ب | شمارہ 93

زرعی یونیورسٹی میں دالوں کے موضوع پر سیمینار، غیر ملکی ماہرین کی شرکت

آسٹریلوی ادارے کے تعاون سے جاری پراجیکٹ دالوں کی پیداوار بڑھانے کی پہلی کوشش ہے، وائس چانسلر

ملتان (سٹاف رپورٹر) ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ویک کے آخری روز دالوں کی اہمیت اور ان کی پیداوار میں خود کفالت حاصل کرنے بارے انٹرنیشنل کانفرنس کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکا اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ مہمانان خصوصی میں صوبائی وزیر محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور سید ابن حسین شامل تھے۔ وائس چانسلر نے کہا کہ آسٹریلین سنٹر فار انٹرنیشنل ریسرچ کے تعاون سے جاری پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہترین نتائج متوقع ہیں۔ ڈاکٹر عطاالرحمان نے بتایا کہ ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے۔ ڈاکٹر کرس بلینچارڈ، ڈاکٹر گیون رامسے نے دالوں کی پیداوار اور تحقیق کے حوالے سے درپیش مسائل اور تحقیق برائے ترقی کی بجائے ترقی کار فرما تحقیق کی ترویج پر زور دیا۔ کانفرنس میں دالوں کی غذائی اور فصلاتی اہمیت، معاشرتی اور اقتصادی ترقی میں ان کے کردار، دالوں کی جینیاتی بہتری اور جدید پیداواری ٹیکنالوجی، خام جنس کی قدر میں اضافہ اور منافع بخش پیداوار جیسے موضوعات کے حوالے سے پریزنٹیشنز دی گئیں۔

nawaiwaqt.com.pk
editor@nawaiwaqt.com.pk
multan@nawaiwaqt.com.pk
@nawaiwaqt_ fb.com/nawaiwaqt

DAILY
NAWA-I-WAQT
MULTAN

روزنامہ

نوائے وقت

ملتان

بانی حمید نظامی مرحوم
مدیر مجید نظامی مرحوم
ایڈیٹر رمیزہ مجید نظامی

لاہور، کراچی، راولپنڈی/اسلام آباد، کوئٹہ اور ملتان سے بیک وقت شائع ہوتا ہے

جلد	جمعۃ المبارک 21 رجب المرجب 1440ھ 29 مارچ 2019ء 16 چیت 2076ب	صفحات	رجسٹرڈ نمبری پی ایل	شمارہ
41	فون 74-4545571 UAN111-222-007 قیمت 20 روپے	12	96	279

اللہ کے نام سے جو بے انتہا مہربان رحم فرمانے والا ہے

O بالآخر ہم نے اسے اور اس کے لشکروں کو اپنے عذاب میں پکڑ کر دریا میں ڈال دیا۔ وہ تھا ملامت کے قابل O اسی طرح عادیوں میں بھی (ہماری طرف سے تنبیہ ہے) جبکہ ہم نے ان پر خیر و برکت سے خالی آندھی بھیجی O وہ جس چیز پر گزرتی تھی اسے بوسیدہ ہڈی کی طرح (چورا چورا) کر دیتی تھی O اور ثمود (کے قصے) میں بھی (عبرت) ہے۔ جب ان سے کہا گیا کہ تم کچھ دنوں تک فائدہ اٹھالو O

سورۃ الذّٰریٰت (آیت 40 تا 43)

ملتان: ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ایک کے دوران منعقدہ انٹرنیشنل کانفرنس آن پلسز اینڈ فوڈ سکیورٹی سے صوبائی وزیر جنگلات حیات اور ماہی پروری جناب محمد سبطین خان ، وائس چانسلر جامعہ پر وفیسر ڈاکٹر آصف علی ودیگر خطاب کررہے ہیں

دالوں کی پیداوار میں اضافے کیلئے اقدامات کئے ہیں: ڈاکٹر عطاء الرحمٰن

اچھے بیج کی فراہمی اور مشینی کاشت کو فروغ دیا جارہا ہے: انٹرنیشنل کانفرنس سے خطاب

ملتان (نمائندہ نوائے وقت) ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ویک کے آخری روز شعبہ اگرانومی اور شعبہ پلانٹ بریڈنگ اینڈ جینیٹکس کے زیر اہتمام دالوں کی اہمیت اور ان کی پیداوار میں خود کفالت حاصل کرنے کے حوالے سے انٹرنیشنل کانفرنس آن پلسز فار فوڈ سکیورٹی کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکہ اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور ریٹائرڈ آئی جی ریلوے پولیس و ممبر پبلک سروس کمیشن لاہور سید ابن حسین تھے۔ کانفرنس میں دالوں کی مستقل بنیادوں پر منافع بخش کاشت کے حوالے جدید تحقیقاتی کاوشوں کو اُجاگر کیا گیا۔ چارلس سٹرٹ یونیورسٹی (آسٹریلیا) سے آئے ہوئے ڈاکٹر عطاالرحمان نے بتایا کہ دالوں کے حوالے سے شروع کئے گئے پراجیکٹ کے تحت ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے۔

ہمارے لیے اللہ ہی کافی ہے اور وہی سب سے بہترین کارساز ہے القرآن

ملتان/لاہور/راولپنڈی/اسلام آباد/کراچی پشاور سے بیک وقت شائع ہونیوالا سب سے بڑا قومی اخبار فیکس نمبر-4577928 فون نمبر-4577925-7

روزنامہ پاکستان ملتان

THE DAILY PAKISTAN MULTAN

چیف ایڈیٹر: مجیب الرحمٰن شامی

ایڈیٹر: عمر مجیب شامی

جلد 15 | جمعۃ المبارک 21 رجب المرجب 1440ھ 29 مارچ 2019ء 17 چیت 2075 بکرمی 16 صفحات 12 قیمت 20 روپے | شمارہ 72

ملتان: زرعی یونیورسٹی میں بین الاقوامی کانفرنس سے صوبائی وزیر محمد سبطین خان، وائس چانسلر ڈاکٹر راؤ آصف و دیگر خطاب کر رہے ہیں

زرعی یونیورسٹی میں انٹرنیشنل کانفرنس

دالوں کی پیداوار میں خود کفالت، جدید ریسرچ پر تفصیلی بحث

پاکستان زرعی ملک، دالوں کی پیداوار میں اضافہ اولین ترجیح، غیر ملکی سائنسدانوں کا تقریب سے خطاب

کانفرنس میں ملکی سائنسدانوں، طلباء اور ارکان اسمبلی کی شرکت، مسائل پر بات چیت، حل پر غور

ملتان (نیشنل رپورٹر) ایم این ایس زرعی یونیورسٹی ملتان میں انٹرنیشنل کانفرنس دیک کے آخری روز شعبہ اگرانومی اور شعبہ پلانٹ بریڈنگ اینڈ جینیٹکس کے زیر اہتمام دالوں کی اہمیت اور ان کی پیداوار میں خود کفالت حاصل کرنے کے حوالے سے انٹرنیشنل کانفرنس آن بائیو فارٹیفکیشن کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکہ اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ (بقیہ نمبر 43 صفحہ 7 پر)

43 | کانفرنس

سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور ریجنل پولیس آفیسر ملتان ریجن ملک سرور، پبلک سروس کمیشن لاہور سید حسن حسین تھے۔ کانفرنس میں دالوں کی مستقل بنیادوں پر مناسب بخش کاشت کے حوالے جدید تحقیقاتی کاوشوں کو اجاگر کیا گیا۔ کانفرنس سے خطاب کرتے ہوئے وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی نے کانفرنس کے شرکاء کو خوش آمدید کہا اور کانفرنس کے اغراض و مقاصد بیان کیے۔ انہوں نے بتایا کہ آسٹریلین سنٹر فار انٹرنیشنل ریسرچ ACIAR کے تعاون سے جاری پراجیکٹ متقاضی ہے کہ دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہترین نتائج متوقع ہیں۔ انہوں نے کہا کہ پاکستان چونکہ ایک زرعی ملک ہے جس کی وجہ سے دالوں کی پیداوار میں اضافہ ہماری اولین ترجیح ہے۔ کانفرنس سے خطاب کرتے ہوئے چارلس سٹرٹ یونیورسٹی (آسٹریلیا) سے آئے ہوئے ڈاکٹر عطاالرحمان نے بتایا کہ دالوں کے حوالے سے شروع کئے گئے پراجیکٹ کے تحت ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے جبکہ پیداوار میں اضافے، واجبی نرخ کی فراہمی اور مستقل کاشت کو فروغ بھی دیا جا رہا ہے۔ ڈاکٹر کرس بلینچارڈ Dr. Chris Blanchard نے آسٹریلین تناظر میں دالوں کی پیداوار اور تحقیق کے حوالے سے درپیش مسائل کے بارے میں مفصل گفتگو کی۔ ڈاکٹر گین رامسے Dr. Gain Ramsay نے تحقیق برائے ترقی کی بجائے ترقی کا فریم تحقیق کی ترجیح پر زور دیا اور اس سلسلے میں اپنی سوچ اور اقدامات کو نئے سانچے میں ڈھالنے کی اہمیت کو اجاگر کیا تاکہ زرعی تحقیق کے ثمرات منتج مرتب ہو سکیں اور کسانوں کی فلاح کے لیے اٹھائے جانے والے اقدامات کے مثبت فوائد حاصل ہوں۔ ڈاکٹر خالد حسین (ڈائریکٹر، بارانی تحقیقاتی ادارہ، بھکر) نے دالی اور صوبائی سطح پر دالوں کی پیداوار اور ترویج اور کاروبار پر اثر انداز ہونے والی پالیسیز کا جائزہ پیش کیا۔ کانفرنس سے خطاب کرتے ہوئے ڈاکٹر ظہار مطلوب نے آبپاشی علاقوں میں کاشت چنے کی فصل میں جڑی بوٹیوں سے ہونے والے نقصانات کا احاطہ کیا اور جامعہ میں دالوں پر کی جانے والی تحقیق کے نتائج پیش کیے۔ کانفرنس سے خطاب کرتے ہوئے مس سائرہ رانی سینئر انجینئر ریسرچ سنٹر نے ACIAR کے دالوں کے پراجیکٹ کے زیر اثر علاقوں میں درپیش مسائل، زمینی حقائق اور مواقع پر بات کی۔ کانفرنس میں دالوں کی غذائی اور فصلاتی اہمیت، معاشرتی اور اقتصادی ترقی میں ان کے کردار، دالوں کی جینیاتی بہتری اور جدید پیداواری ٹیکنالوجی، خام جنس کی قدر میں اضافہ اور مناسب بخش پیداوار جیسے موضوعات کے حوالے سے پریزنٹیشنز دی گئیں۔ کانفرنس میں ملک بھر (کوئٹہ، پشاور، راولپنڈی، اسلام آباد، بھکر، گلگت، بہاولپور، فیصل آباد اور سندھ) سے زرعی سائنسدانوں کی کثیر تعداد نے شرکت کی اور اپنی تحقیق پیش کی۔ اس موقع پر رکن صوبائی اسمبلی قاسم عباس خان نگاہ، ڈاکٹر عرفان احمد بیگ، ڈاکٹر شفقت سعید، ڈاکٹر ذوالفقار علی، ڈاکٹر حماد ندیم سمیت جامعہ کے دیگر اساتذہ طلباء و طالبات اور کسانوں کی کثیر تعداد موجود تھی۔

روزنامہ
اوصاف
ملتان
چیف ایڈیٹر: مہتاب خان
ایڈیٹر: محسن بلال خان
جمعۃ المبارک 29، مارچ 2019ء

ملتان، ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ویک کے دوران منعقدہ انٹرنیشنل کانفرنس آن پلسز اینڈ فوڈ سکیورٹی سے صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی و دیگر خطاب کر رہے ہیں

زرعی یونیورسٹی میں انٹرنیشنل کانفرنس فوڈ سکیورٹی کا انعقاد

ملک بھر سے زرعی سائنسدانوں کی شرکت

پاکستان زرعی ملک، جس کی وجہ سے دالوں کی پیداوار میں اضافہ ہماری اولین ترجیح ہے، پروفیسر ڈاکٹر آصف علی و دیگر کا خطاب

کانفرنس میں آسٹریلیا، کینیڈا، امریکہ کے سائنسدانوں بھی شریک ہوئے، صوبائی وزیر جنگلات محمد سبطین خان مہمان خصوصی تھے

ملتان (وقائع نگار خصوصی) ایم این ایس زرعی یونیورسٹی ملتان میں جاری انٹرنیشنل کانفرنس ویک کے آخری روز شعبہ اگرا (باقی صفحہ 7 بقیہ نمبر 23)

اوصاف | کانفرنس | 23

نومی اور شعبہ پلانٹ بریڈنگ اینڈ جینیٹکس کے زیر اہتمام دالوں کی اہمیت اور ان کی پیداوار میں خود کفالت حاصل کرنے کے حوالے سے انٹرنیشنل کانفرنس آن پلسز فار فوڈ سکیورٹی کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکہ اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان، وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی اور ریٹائرڈ آئی جی ریلوے پولیس و ممبر پبلک سروس کمیشن لاہور سید ابن حسین تھے۔ کانفرنس میں دالوں کی مستقل بنیادوں پر منافع بخش کاشت کے حوالے جدید تحقیقاتی کاوشوں کو اجاگر کیا گیا۔ کانفرنس سے خطاب کرتے ہوئے وائس چانسلر جامعہ پروفیسر ڈاکٹر آصف علی نے کانفرنس کے شرکاء کو خوش آمدید کہا اور کانفرنس کے اغراض و مقاصد بیان کیے۔ انہوں نے بتایا کہ آسٹریلین سنٹر فار انٹرنیشنل ریسرچ ACIAR کے تعاون سے جاری پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہترین نتائج متوقع ہیں۔ انہوں نے کہا کہ پاکستان چونکہ ایک زرعی ملک ہے جس کی وجہ سے دالوں کی پیداوار میں اضافہ ہماری اولین ترجیح ہے۔ کانفرنس سے خطاب کرتے ہوئے چارلس سٹرٹ یونیورسٹی (آسٹریلیا) سے آئے ہوئے ڈاکٹر عطا الرحمان نے بتایا کہ دالوں کے حوالے سے شروع کیے گئے پراجیکٹ کے تحت ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے جبکہ پیداوار میں اضافے، اچھے بیج کی فراہمی اور مشینی کاشت کو فروغ بھی دیا جا رہا ہے۔ ڈاکٹر کرس بلینچارڈ Dr. Chris Blanchard نے آسٹریلین تناظر میں دالوں کی پیداوار اور تحقیق کے حوالے سے درپیش مسائل کے بارے میں مفصل گفتگو کی۔ ڈاکٹر گیون رامسے Dr. Gavin Ramsay نے تحقیق برائے ترقی کی بجائے ترقی کارفرما تحقیق کی ترویج پر زور دیا اور اس سلسلے میں اپنی سوچ اور اقدامات کو نئے سانچے میں ڈھالنے کی اہمیت کو اجاگر کیا تاکہ زرعی تحقیق کے دوررس نتائج مرتب ہو سکیں اور کسانوں کی فلاح کے لیئے اٹھائے جانے والے اقدامات کے مثبت فوائد حاصل ہوں۔ ڈاکٹر خالد حسین (ڈائریکٹر، بارانی تحقیقاتی ادارہ، بھکر) نے ملکی اور صوبائی سطح پر دالوں کی پیداوار، ترویج اور کاروبار پر اثر انداز ہونے والی پالیسیز کا جائزہ پیش کیا۔ کانفرنس سے خطاب کرتے ہوئے ڈاکٹر عمار مطلوب نے آبپاش علاقوں میں کاشتہ چنے کی فصل میں جڑی بوٹیوں سے ہونے والے نقصانات کا احاطہ کیا اور جامعہ میں دالوں پر کی جانے والی تحقیق کے نتائج پیش کیے۔ کانفرنس سے خطاب کرتے ہوئے مس صائمہ ربانی نیشنل ایگریکلچر ریسرچ سنٹر نے ACIAR کے دالوں کے پراجیکٹ کے زیر اثر علاقوں میں درپیش مسائل، زمینی حقائق اور مواقع پر بات کی۔ کانفرنس میں دالوں کی غذائی اور فصلاتی اہمیت، معاشرتی اور اقتصادی ترقی میں ان کے کردار، دالوں کی جینیاتی بہتری اور جدید پیداواری ٹیکنالوجی، خام جنس کی قدر میں اضافہ اور منافع بخش پیداوار جیسے موضوعات کے حوالے سے پریزنٹیشنز دی گئیں۔ کانفرنس میں ملک بھر (کوئٹہ، پشاور، راولپنڈی، اسلام آباد، بھکر، کلورکوٹ، بہاولپور، فیصل آباد اور سندھ) سے زرعی سائنسدانوں کی کثیر تعداد نے شرکت کی اور اپنی تحقیق پیش کی۔ اس موقع پر ممبر صوبائی اسمبلی قاسم عباس خان لنگاہ، ڈاکٹر عرفان احمد بیگ، ڈاکٹر شفقت سعید، ڈاکٹر ذوالفقار علی، ڈاکٹر حماد ندیم سمیت جامعہ کے فیکلٹی، طلباء و طالبات اور کسانوں کی کثیر تعداد موجود تھی۔

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رجسٹرڈ نمبر 357 | فون: 9-4540116-061 فیکس: 4540107-061 | صفحات 12 قیمت 20 روپے

ملتان: صوبائی وزیر سبطین خان، وی سی پروفیسر ڈاکٹر آصف علی و دیگر کانفرنس سے خطاب کرتے ہوئے

زرعی یونیورسٹی کے زیر اہتمام انٹرنیشنل کانفرنس اختتام پذیر

پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی پہلی کوشش، وائس چانسلر ڈاکٹر آصف

ملتان (خصوصی رپورٹر) ایم این ایس زرعی یونیورسٹی اور شعبہ پلانٹ بریڈنگ اینڈ بائیوٹیکنالوجی کے زیر اہتمام میں جاری انٹرنیشنل کانفرنس کے آخری روز شعبہ اگرانومی دالوں کی اہمیت اور ان کی پیداوار (صفحہ 6 بقیہ نمبر 33)

بقیہ نمبر 33

کانفرنس

میں خود کفالت حاصل کرنے کے حوالے سے انٹرنیشنل کانفرنس آن پلسز فار فوڈ سیکورٹی کا انعقاد کیا گیا۔ کانفرنس میں آسٹریلیا، کینیڈا، امریکہ اور پاکستان کے زرعی سائنسدانوں نے شرکت کی۔ سیمینار کے مہمان خصوصی صوبائی وزیر جنگلات، جنگلی حیات اور ماہی پروری محمد سبطین خان تھے۔ وائس چانسلر پروفیسر ڈاکٹر آصف علی نے کہا کہ آسٹریلین سنٹر فار انٹرنیشنل ریسرچ کے تعاون سے جاری پراجیکٹ مقامی سطح پر دالوں کی پیداوار بڑھانے کی اپنی نوعیت کی پہلی کوشش ہے جس کے بہترین نتائج متوقع ہیں۔ چارلس سٹرٹ یونیورسٹی (آسٹریلیا) سے آئے ڈاکٹر عطاالرحمان نے بتایا کہ دالوں کے حوالے سے شروع کئے گئے پراجیکٹ کے تحت ملک بھر میں 6 مقامات پر مونگ پھلی، مسور اور چنے کی فصلوں کی کاشت شروع کی گئی ہے جبکہ پیداوار میں اضافے، اچھے بیج کی فراہمی اور مشینی کاشت کو فروغ دیا جا رہا ہے۔ ڈاکٹر کرس بلیمن چارڈ نے دالوں کی پیداوار اور تحقیق کے حوالے سے درپیش مسائل کے بارے میں مفصل گفتگو کی۔ کانفرنس میں ملک بھر سے زرعی سائنسدانوں کی کثیر تعداد نے شرکت کی اور اپنی تحقیق پیش کی۔ اس موقع پر ایم پی اے قاسم عباس لنگاہ، ڈاکٹر عرفان بیگ، ڈاکٹر شفقت سعید، ڈاکٹر ذوالفقار علی، ڈاکٹر حماد ندیم سمیت اساتذہ، طلبا اور کسانوں کی کثیر تعداد موجود تھی۔

Miscellaneous Activities

Tree Plantation at Campus by Foreign Guests

Meeting of Australian Scientists with postgraduate students of MNS-UAM

Australian Scientists visited Experimental Farms of MNS-UAM