



SEMINAR

Organized by

Sindh Agriculture University Tandojam

in collaboration with

Sindh Higher Education Commission Karachi

on

SEED SECTOR: CHALLENGES AND OPTIONS

Held on

19-20, August 2023

at

Pearl Continental Hotel Karachi



Introduction:

The boosted crop yields at national level depends upon the availability of sufficient quantity of quality seeds of crops and farmers' easy access to it. As Pakistan is an agricultural based economy and hence this sector requires precision in terms of resources including high yielding quality seeds and technology. Keeping in view such perspectives, a dire need was felt to highlight the importance of seed and, therefore, the Sindh Agriculture University, Tandojam with the financial support of Sindh Higher Education Commission, Karachi held a two day Seminar on Seed Sector: Challenges and Options at PC Hotel, Karachi on the 19th & 20th August, 2023.

The event took place under the leadership of **Prof. Dr. Fateh Muhammad Marri**, Vice Chancellor, Sindh Agriculture University, Tandojam. The organizers of the event brought plant breeder of province, policy makers, owners and officials of the seed companies, eminent agri-scientists from academia and research institutes across the country, representatives from different public and private organizations of provincial and federal levels, representatives of farmer bodies, progressive growers etc. Under one platform to discuss the seed development and production plan, supply of quality seed to growers along with production technology with the goal to achieve higher crop stand and greater yields in context to prosperity of farmers, increase in GDP, and increased earnings in terms of strengthening the national economy.

Opening Ceremony:

Prof. Dr. S.M Tariq Rafi (TI), Chairman, Sindh Higher Education Commission, Karachi was the Chief Guest of the opening ceremony held on the 19th August 2023 while, the guest of honor was Mr. Kazi Aijaz Ahmed Mahesar, Secretary, Agriculture, Supply and Price Department, Government of Sindh. The Keynote Speech was delivered by Prof. Dr. Iqrar Ahmed Khan, Vice Chancellor, University of Agriculture, Faisalabad. Prof. Dr. Fateh Marri, Vice Chancellor, Sindh Agriculture University, Tandojam, welcomed the experts and policy makers to the seminar and plant breeders' platform.

Professor Dr. Fateh Muhammad Marri, Vice Chancellor, Sindh Agriculture University, Tandojam during his welcome address also said that the issues associated with the development of quality seeds of the major crops will be deliberated applicably in the presence of versatile agriculture experts. Moreover, plans to make the quality seed of crop plants available for farmers will be set. The Plant Breeders will be provided with ample facilities to make quality seed of crop plants available to the farmers. In this context the action plans will be made, for the purpose a way forward will be sort. Furthermore, Plant Breeders' Forum will be made.

In his keynote speech, Professor Dr. Iqrar Ahmed Khan, the Vice-chancellor of the University of Agriculture, Faisalabad, highlighted several critical challenges in the agricultural sector. He emphasized the persistent issues in breaking the stagnation of crop yields, particularly in wheat and cotton. Despite the commendable efforts of breeders and positive experimental results, wheat yields remain stagnant at 30 maunds per acre for farmers. Seed replacement, especially in Punjab province, takes an extended period of 5-10 years, hindering progress. Although there are 500 registered wheat varieties, they are not readily available to farmers, revealing a significant gap in the seed industry.

While breeders have excelled in developing crop varieties, the transition to a commercial mode has proven challenging. Rice hybrids are available, but similar advancements have not occurred in wheat, cotton, and vegetables. The need for a million tons of wheat is acknowledged by the government, claiming to possess half a million tons with a track and trace system, yet a void remains in wheat seed availability. Heat-tolerant varieties have altered cropping patterns, especially in cotton, where CLCV resistant varieties collapsed. Breeders are credited with developing resistant cotton varieties and the introduction of Bt cotton has reduced the need for chemical sprays, making it environmentally and economically friendly.

Despite the structural failure and challenges in gaining approval for Bt cotton, Professor Khan stressed the importance of streamlining the regulatory process, as agriculture's efficiency hinges on a well-framed and followed regulatory system. The private sector, vibrant and ready to invest, could collaborate with government organizations for efficient seed development to benefit farmers. Seed processing, particularly seed treatment, has become crucial, with seeds now sold by numbers rather than weight.

Challenges persist in pulses, with Mungbean being a success story while chickpea and lentils face obstacles. In vegetables, hybrid seeds have bridged gaps, especially in Sindh province, holding potential for improvement. Finally, Professor Khan advocated for a parallel regulatory body for seed certification, akin to PS & QSA or ISTA, where the private sector could play a significant role.

James Okath, representing UN-FAO Pakistan, emphasized key points regarding food security and agricultural challenges. According to him, achieving food security is contingent upon efficient and timely interventions. The escalating impact of dynamic climate changes has exponentially increased the workload for plant breeders. As resources and development opportunities decline, the need for strategic measures becomes paramount. UN-FAO, recognizing the vulnerability of certain communities,

has taken steps to address this by distributing wheat seeds, aiming to enhance food security at the grassroots level.

Additionally, Okath advocated for the safeguarding of land races, emphasizing the importance of preserving these traditional crop varieties. Protecting land races becomes crucial to counter the effects of climate change, as their unique genetic makeup can be utilized in developing resilient crop varieties.

This approach aligns with the broader goal of creating climate-resistant crops that can withstand the challenges posed by evolving environmental conditions. In summary, Okath underscored the urgency of proactive measures, collaborative efforts, and the preservation of traditional crop varieties to ensure sustainable food security in the face of ongoing climatic shifts and diminishing resources.

Mr. Syed Meeran Muhammad Shah, President, Sindh Chamber of Agriculture, expressed his concern over the unavailability of certified seed in sufficient quantity. According to him, consequently the growth and development of crop plants is badly effected by using seed of substandard. Mr. Shah convinced the authorities that seed certification should be a provincial subject and may be dealt accordingly. Seed sale of inferior standards may be avoided and private sector may be provided environment to expand their business. He further clarified that shortage of certified seed is 53% in case of wheat, 36% in cotton and 73% in case of vegetables could be cover up with the extra efforts of Plant Breeders and partnership between public and private sectors.

Mr. Kazi Aijaz Mahesar, Secretary of the Agriculture, Supply, and Price Department, Government of Sindh, highlighted crucial aspects of agricultural governance and strategies for enhancing seed-related initiatives. Stressing that seeds serve as the foundation for agriculture, Mahesar pointed out the evident governance failures and the international isolation faced by the region. He acknowledged the insufficient budget allocated for research and development, coupled with the underutilization of available resources, emphasizing the need for improved mechanisms for varietal approval. Mahesar highlighted the importance of a supervisory mechanism led by breeders and advocated for the transfer of agricultural knowledge to farmers in their native language. Recognizing the global advancements in agriculture, he urged the adoption of relevant practices in local conditions. Emphasizing the necessity of regular dialogues among all stakeholders, Mahesar suggested a focused approach on seeds for crops in short supply, encouraging collaboration with the private sector.

Furthermore, Mahesar called for private organizations holding seed stocks to consult with the food department, enabling their seed stocks to be marked and exempted from



being considered as grains. He expressed his department's commitment to cooperating in bridging the gap by providing quality seeds to farmers, ultimately enhancing crop stands and contributing to agricultural advancement.

Professor Dr. S. M. Tariq Rafi (T.I), Chairman of the Sindh Higher Commission, Karachi, emphasized the critical need for collaboration and connection between academia, industry, and farmers. Identifying a significant gap in these interactions, he underscored the necessity of bridging it through effective and proper implementation. Dr. Rafi highlighted the importance of aligning Pakistan's progress with collaborative efforts, suggesting that a united approach involving academia, industry, and farmers is the way forward for addressing challenges and fostering advancements in the agricultural sector.

TECHNICAL SESSION-I WHEAT CROP



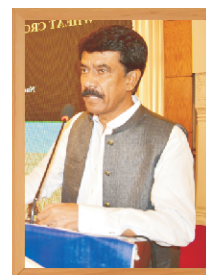
Problem, Challenges & Solution

Keynote Speaker:

DR. MAHBOOB ALI SIAL (TI)

Chief Scientist and Director

Nuclear Institute of Agriculture (NIA), Tando Jam.



Chaired by:

DR. GHULAM MUHAMMAD ALI

Chairman

Pakistan Agriculture Research Council, Islamabad

Discussant-I:

MR. NAWAZ AHMED NIZAMANI

Managing Director

Hyderabad Seed Corporation

Discussant-II:

MR. MANZOOR AHMED KHUHRO

Former Director

Seed Production and Development Center, Sind Agriculture University, Tandojam





Importance of Quality Seed, Problems with Wheat Seeds and Solutions

By

**Dr. Mehboob Ali Sial, Chief Scientist and Director
Nuclear Institute of Agriculture (NIA), Tandojam**

Dr. Sial outlined several critical issues plaguing the wheat sector. These challenges encompassed the lack of availability of pure seeds, poor quality and insufficient supply of inputs, inadequate infrastructure, stagnating crop yields with disparities between progressive and average farmers, high pre and post-harvest losses, a knowledge gap, declining investments in research, development, and extension, and a restrictive regulatory framework. The regulatory challenges included a lack of incentives for breeders, a cumbersome testing and variety registration system, and a lengthy approval process. Moreover, regulatory enforcement faced shortcomings with less stringent penalties. A significant gap existed between the supply and demand for certified seeds, with only 56% availability. Research institutes faced challenges in providing pure seeds, and the public seed sector exhibited limited involvement in meeting farmers' seed requirements. Water scarcity and inefficient water use further compounded the issues.

To address these challenges, Dr. Sial proposed a comprehensive set of solutions. These included the development of high-yielding, climate-resilient, and nutrient-use-efficient wheat varieties. He advocated for the adoption of new modern technologies and improved management and production techniques. Strengthening research institutes to enhance the production of pure wheat seeds, restructuring and improving the public seed sector, and fostering coordination between the public and private seed sectors were also emphasized as crucial steps toward overcoming the existing challenges in the wheat industry.



DISCUSSANT-I

MR. NAWAZ AHMED NIZAMANI

Managing Director

Hyderabad Seed Company, Tandojam.

In the capacity of a discussant, Mr. Nawaz Ahmed Nizamani highlighted the need of variety registration, he reiterated that the varieties registered for the province of Punjab may also be registered for commercial cultivation in Sindh officially.

DISCUSSANT-II

MR. MANZOOR AHMED KHUHRO

CEO

Hingol Seed Corporation, Tandojam and

Former Director

Seed Production and Development Center, SAU, Tandojam.

In the capacity of discussant, Mr. Manzoor Ahmed Khuhro said that a revolving fund should be established utilizing which the plant breeders may develop crop varieties as per the demand of seed companies in context of market need so as to satisfy farmers' choice.

CHAIR:

DR. GHULLAM MUHAMMAD ALI

Chairman

Pakistan Agriculture Research Council, Islamabad

The chair of the session, Dr. Ghullam Muhammad Ali, concluded the session with the remarks that so far 250 varieties of crop plants have been developed since independence, 50 to 60 varieties in last decade and 4 to 5 varieties are released each year. According to him, hard-work is still required with deeper interest and available resources so as to feed the nation and bring self sufficiency in terms of food security in the homeland.

TECHNICAL SESSION – II COTTON CROP



Current Problems Challenges in Pure Seed

Keynote Speaker:

Dr. Muhammad Iqbal Bandesha

Director

National Institute of Cotton Breeding

Islamia University, Bahwalpur



Chaired By:

Prof. Dr. Asif Ali (T.I)

Vice Chancellor

Muhammad Nawaz Sharif University of Agriculture, Multan

Discussant-I:

Abdul Wahab Soomro

Scientific Officer

Central Cotton Research Institute, Sakrand

Discussant-II:

Mr. Muhammad Tariq Khanzada

Managing Director

TASSCO Seed Corporation





Importance of Quality Seed, Problems with Cotton Seeds and Solutions

By

**Prof. Dr. Muhammad Iqbal Bandesha,
Director**

**National Cotton Breeding Institute (NCBI)
The Islamia University of Bahawalpur**

Dr. Bandesha began by highlighting the advantages of cotton cultivation in Sindh, where the mild climate allows for early cotton cultivation, typically managed on large farms by hardworking individuals.

However, he identified various issues related to good quality cotton seed production. The primary challenge lies in insect damage caused by pests such as Pink Bollworm, Spotted Bollworm, Heliothus, Armyworm, Whitefly, Jassid, and Thrips. Other concerns include competition with weeds, unavailability of irrigation water when needed, the impact of climate change on germination, and government policies.

Regarding the quality of cotton seed, Dr. Bandesha pointed out constraints related to the Variety Approval System, which is less facilitating and more hindered. The Regulatory System established by the Ministry of Climate Change and MFS&R has weak enforcement. The presence of illegal business in the market and grower reluctance to adopt GMOs further complicate matters. Additionally, inadequate research and development facilities and poor infrastructure limit the production of quality cotton seed.

Dr. Bandesha proposed several solutions to address insect damage, including the application of cultural practices, pheromone traps, PB ropes, and chemical applications. For the production of quality cotton seed, he emphasized the need for genetic manipulation of available plant stock. He also advocated for the adoption of GMOs, citing their success in resolving issues related to cotton production, seed yield, and the production of cotton seed globally. Dr. Bandesha highlighted the absence of reported illnesses associated with GMO adoption, suggesting that trying GMOs in cotton could contribute to the production of better quality cotton seed.

DISCUSSANT I:

MR. TARIQ AHMED KHANZADA

Managing Director

TASSCO Seeds Tando Allahyar

In the capacity of discussant, Mr. Tariq informed the house that the certified seed in lower Sindh is grown on larger scale proportionately to other cotton growing regions of Pakistan. He further added that the pre-basic seed developed in Punjab province may be brought to Sindh for the development of basic seed. Mr. Khanzada, while describing the use of fertilizer said that phosphorous and potash may be applied instead of nitrogen in order to have good cotton stand in case of cotton crop.

DISCUSSANT II:

DR. ABDUL WAHAB SOOMRO

Scientific Officer

Central Cotton Research Institute, Sakrand

The discussant II, Dr. Abdul Wahab Soomro mentioned issues hindering efficient seed system. Dr. Soomro further said that the selection procedures are only practiced, though genetic manipulation is required for uniformity and stability which is the prerequisite in improving crop varieties. Dr. Soomro added that the 39% short fall of cotton seed in Sindh may be covered through public private partnership.

CHAIR:

PROF. DR. ASIF ALI

Vice Chancellor

MNS University of Agriculture, Multan.

The chair of the session, Prof. Dr. Asif Ali, advocated the swift replacement of cotton genotypes. According to him the BNS, Pre-Basic and Basic Seed developed by the Plant Breeder should be multiplied by the private sector organizations to meet the market needs. The importance of track and traceability was also emphasized by Dr. Ali. He further added that regulatory system may be further made efficient.

TECHNICAL SESSION - III PADDY CROP



Problems and their Solution

KEYNOTE SPEAKER:

DR. IFTIKHA ODHANO

Principal Scientist

Plant Genetic Division

Nuclear Institute of Agriculture (NIA), Tandojam



Chaired By:

PROF. DR. INAYATULLAH RAJPAR

Dean

Faculty of Crop Production,

Sindh Agriculture University, Tandojam

Discussant-I:

MR. MUHAMMAD FAHAD ARAIN

Managing Director

Union Seed Corporation

Discussant-II:

MR. HAFEEZ-UR-REHMAN BUGHIO

Head

Plant Genetic Division

Nuclear Institute of Agriculture (NIA), Tandojam



Importance of Quality Seed, Problems with Paddy Seeds and Solutions

By

Dr. Iftikhar Odhano

**Principal Scientist, Plant Breeding Division
Nuclear Institute of Agriculture (NIA), Tandojam**

Dr. Odhano emphasized the critical importance of quality seed, defining it as healthy, clean, pure, disease-free, and with a high germination percentage. He highlighted the substantial impact of seed quality on yield and production, affecting various aspects of products, services, processes, and overall livelihoods. The reasons for the significance of quality included customer satisfaction, competitive advantage, brand reputation, reduced costs, efficiency, compliance with regulations, innovation, employee morale, and risk mitigation.

Identifying challenges in the seed sector, Dr. Odhano noted the narrow genetic diversity leading to mono-culture, risking genetic erosion and vulnerability to pests and diseases. Limited paddy varieties meeting stakeholder demands, the import dependence on hybrid seeds due to shortages, climate change affecting crop adaptability, and regulatory barriers were highlighted as significant obstacles. Ensuring seed quality and purity was identified as a continuous challenge, with potential repercussions on crop yields.

Dr. Odhano proposed solutions that require collaborative efforts among governments, research institutions, private seed companies, and farmers. Increased investment in research for developing high yielding and high-quality rice varieties, along with the establishment of systems to reduce yield losses, was deemed essential. Efforts to promote seed diversity, improve seed quality, ensure fair access, and safeguard genetic resources were highlighted as crucial steps for the future of global agriculture and food security. Addressing challenges collectively would contribute to overcoming obstacles in the seed sector and ensuring sustainable agricultural practices.

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DISCUSSANT I:

MR. MUHAMMAD FAHAD ARAIN

Managing Director

Union Seed Corporation, Tandojam.

In the capacity of discussant appreciated the efforts of plant breeders of Nuclear Institute of Agriculture (NIA), Tandojam for developing varieties of rice crop. According to him private sector may be given the responsibility of multiplication of the same. He added that the rice hybrids are like for their shorter life cycle. Furthermore, Mr. Arain assured the house for cooperation of the private sector to help public sector organizations to get hybrid seeds of rice from abroad.

DISCUSSANT II:

MR. HAFEEZ-UR-REHMAN BUGHIO

Head of Plant Genetics Division

Nuclear Institute of Agriculture (NIA), Tandojam

Appreciated the efforts so far taken by the plant breeders in developing rice varieties that are cultivated across province, according to him, such varieties have played a significant role in reducing hunger in remote areas.

CHAIR:

PROF. DR. INAYATULLAH RAJPAR,

Dean

Faculty of Crop Production

Sindh Agriculture University, Tandojam:

Expressed his grave concern about water shortage during the time of rice nursery development. He emphasized the nursery development at locations where water is in abundance so that the seedlings may be shifted to drought hit areas in an efficient manner. He shared that in case of rice, the hybrids have dominated the open pollinated varieties. According to him, the local genotypes of rice should also be conserved. He further added that use of substandard fertilizers and pesticides may be curbed immediately. Dr. Rajpar advocated the cultivation of zinc responsive and tolerant varieties of rice to overcome the problem of lower yields. Describing the behavior of rice plants, Dr. Rajpar clarified that nitrogen in the ammoniacal form is in taken by the rice plants, therefore, nitrate form of nitrogen should not be used.

TECHNICAL SESSION – IV VEGETABLES

Keynote Speaker:

DR. FARAH NAZKALERI

Assistant Professor

Department of Plant Breeding

Lasbella University of Agriculture, Water & Marine Sciences

Uthal, Balochistan



Chaired By:

MR. SYED MEHMOOD NAWAZ SHAH

Senior Vice President

Sindh Abadgar Board

Discussant-I:

MR. MIAN MUHAMMAD SALEEM

Progressive Grower, Kunri

Discussant-II:

DR. SHAZIA YASIN RAJPUT

Principal Scientist

Oilseed Research Institute

Agriculture Research Center, Tandojam



Importance of Quality Seed, Problems with Seeds of Vegetables and Spices and Solutions

By

Dr. Farah Naz Kalari

**Assistant Professor, Department of Plant Breeding
Lasbella University of Agriculture,
Water & Marine Sciences, Uthal, Balochistan**

Dr. Kalari highlighted several challenges faced by smallholding farmers in accessing quality seeds for vegetable crops in Pakistan. Limited distribution networks and financial constraints make it difficult for these farmers to obtain quality seeds, as local seeds may not meet the required standards, and imported hybrid seeds are often expensive. Additionally, climate and environmental factors, including extreme temperatures, water scarcity, and changing weather patterns, impact the growth of vegetable and spice seeds, necessitating the development of new varieties with improved drought and heat resistance. The evolving pest and disease pressure poses threats to vegetable and spice seed production, emphasizing the need for the development of resistant or tolerant varieties. Lack of genetic diversity within vegetable crops due to modern agricultural practices makes crops vulnerable to environmental changes and disease outbreaks. Furthermore, the limited production of certified, high-quality seeds results in reliance on informal seed systems, potentially compromising seed purity and quality. Weak enforcement of quality control standards during seed production, packaging, and distribution leads to substandard seeds in the market, affecting consumer trust and export competitiveness.

To address these challenges, Dr. Kalari proposed a range of solutions. These include domestic breeding programs, international collaboration, strengthened regulations, seed certification, post-harvest management, collaboration between public and private sectors, genetic diversity preservation, engagement with local farmers, development of stress-tolerant varieties, farmer training and extension services, market-oriented breeding, linkage with agribusinesses, enhancement of distribution networks and market linkages, support for seed production, supply chain enhancement, infrastructure development, establishment of seed testing laboratories, creation of online platforms or mobile applications for information dissemination on quality seeds, and the introduction of farmer support centers, helplines, and credit programs.

In conclusion, Dr. Kalari emphasized that while the seed sector for vegetable crops faces significant challenges, employing various options and strategies, such as collaboration, innovation, and a focus on the diverse needs of farming communities, can overcome these challenges and ensure the availability of high-quality seeds for sustainable vegetable production.



DISCUSSANT I

MR. MIAN MUHAMMAD SALEEM

Progressive Grower, Kunri

Mr. Mian Muhammad Saleem, while sharing his views in the discussion reiterated utilization of hybrid seeds for vegetable cultivation. According to him, open pollinated varieties may be improved through collaborative research over onion and chilies.

DISCUSSANT II

DR. SHAZIA YASIN RAJPUT

Principal Scientist

Oilseeds Research Institute,

Agriculture Research Center, Tandojam

Dr. Shazia Yasin Rajput as discussant expressed her concern and shared that vegetables and developing good quality seed of vegetable crops have never been given importance, therefore, collaborative efforts by the public and private sectors are needed to develop pure, healthy and high quality seeds of vegetables. She further signified the development of hybrid vegetables by our own national plant breeders. According to Dr. Rajput, this will enable the availability of vegetables on lower rates to the communities.

CHAIR:

MR. SYED MEHMOOD NAWAZ SHAH

Senior Vice President

Sindh Abadgar Board

Mr. Syed Mehmood Nawaz Shah, while concluding the session in the capacity of the chair shared that the traits of open pollinated varieties of vegetables are as per changing climate. However, national and international collaborations are required along with proper infrastructure, strengthened regulations and appropriate logistics is the need of time. Mr. Shah further added that genetic diversity may be dealt carefully in case of vegetable so that timely genetic modifications may be scientifically practiced in wake of changing climate so that the vegetable production may not be reduced to a drastic level.

Technical Session-V Research and Development

Issues and Challenges

Keynote Speaker

DR. LIAQUAT ALI BHUTTO

Director

Agriculture Research Center, Tandojam, Sindh

Chaired By:

MR. NOOR MUHAMMAD BALOCH

Director General

Agriculture Research Sindh



Discussant-I:

PROF. DR. SHAHANA UROOJ

Vice Chancellor

Women University, Sawabi, Khyber Pakhtunkhwa, KPK

Discussant-II:

MR. NABI BUX SATHIO

General Secretary

Sindh Chamber of Agriculture





Issues and solutions regarding Research and Development

Highlighted By

Dr. Liaquat Ali Bhutto

Director

Agriculture Research Center, Tandojam

CHALLENGES AND ISSUES

According to the speaker, lack of awareness, inferior infra structure and lack of funds for research and development are the primary constrains in higher harvest of the major crop plants. The availability of quality seed is inevitable for good crop stand. Larger amount of funds may be allocated for research and development according to Dr. Bhutto.

SOLUTIONS

According to the presentation given by Dr. Bhutto, high yielding varieties resilient to climate change is the need of time. The research and development of pure seeds may be given priority by the research organizations and handsome amount may be spent in this area. For the purpose upgradation of institutes with better infrastructure, provision of fertile lands and establishment of advance laboratories may be done. According to Dr. Bhutto, traceability of certified seed and regulations to monitor the same may be developed. Effective extension services for reducing knowledge gap is also imperative. The produce of farmers may be given good price, moreover, introduction and development of biofortified seeds may be made possible. Plant Breeders' Forum on provincial level may be established. Dr. Liaquat Ali Bhutto, in the end reiterated the approval of the Sindh Seed Act 2021.



DISCUSSANT -I

PROF. DR. SHAHANA UROOJ

Vice Chancellor

Women University, Sawabi,

Khyber Pakhtunkhwa, KPK

According to Prof. Dr. Shahana Urooj, the quality seed itself is a key factor for greater crop production. This is a well-known fact, however, we are unfortunate to have excellence in the development of quality seed in sufficient quantity so as to serve our nation in a better fashion. So far this is a dilemma that has to be ended. According to her the seed quality may lead to food security and self-sufficiency in the agricultural commodities, therefore, additional efforts may be done to get quality seeds in the required quantity so as to modify our agriculture and improve the socio-economic status of the agrarian community.

DISCUSSANT- II

MR. NABI BUX SATHIO

General Secretary

Sindh Chamber of Agriculture

Mr. Nabi Bux Sathio highlighted the importance of greater funds in the research and development of quality seed of major crop plants in sufficient quantity. Mr. Sathio also emphasized the framing of better policies for the same purpose. He added that the indigenous stock may also be protected in future so as to reduce the risk of hybrid seed failure or in case any natural calamity.

CHAIR:

MR. NOOR MUHAMMAD BALOCH

Director General

Agriculture Research Sindh

The session was chaired by Mr. Noor Muhammad Baloch, his good-self closed the talk by sharing his wisdom with regards to strengthening of agriculture sector with the development of quality seed. He also advocated the development of crop varieties with greater yield potential and resistance to withstand the biotic and abiotic stresses in wake of climate change.



LIST OF PARTICIPANTS

PROF. DR. INAYATULLAH RAJPAR Dean, Faculty of Crop Production, Sindh Agriculture University, Tandojam	PROF. DR. SHAH NAWAZ MARI Chairman, Plant Breeding And Genetics Sindh Agriculture University, Tandojam
PROF. DR. ZAHOR A. SOOMRO Director, Seed Production and Development Center	Mr. SUBHAN MEMON (Rtd), CHIEF SECRETARY, GOVERNMENT OF SINDH
DR. LIAQUAT ALI BHUTTO Director, Agriculture Research Center, Tando jam	OKOTH J.R Head of Sindh Province, FAO
DR. ZAKIR DAHRI Director General, PARC, Karachi	Dr. AKBAR ALI ZARDARI Director, Agriculture Extension, Sindh
MR. GHULAM MUSTUFA NANGRAJ Director, Information Agriculture Extension, Sindh	MR. HAFEEZ-UR- REHMAN BUGHIO Head, Plant Genetic Division, NIA, Tandojam
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MR. ASADULLAH JAMALI Senior Scientist, Foundation Cell	DR. SHEREEN NAZ BALOCH Principal Scientist / Director Barley and Wheat Research Institute. Tando jam
DR. MAZHAR DIN KEERIO Principal Scientist / Director Cotton Research Institute, Tandojam	DR. NIHALLUDIN MARI Agriculture Research Sindh
MS. SAMREEN KHANZADA Senior Scientist, Wheat And Barley Research Institute, Tandojam	MS. SAMIA ARAIN Scientist Officer PARC, NSTHRI, Thatta
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DR. SHABANA MEMON Associate Professor, PBG Sindh Agriculture University Tandojam	DR. WAJID ALI JATOI Associate Professor, PBG Sindh Agriculture University Tandojam



<p>DR. SIRAJ AHMED CHANNA Associate Professor, PBG Sindh Agriculture University Tandojam</p>	<p>DR. NASREEN FATIMA VEESAR Associate Professor, PBG Sindh Agriculture University Tandojam</p>
<p>DR. ABDUL WAHID BALOCH Associate Professor, PBG Sindh Agriculture University Tandojam</p>	<p>MR. SAEED HYDER GHALLO Assistant Professor, PBG Sindh Agriculture University Tandojam</p>
<p>MR. ASGHAR ALI RAJPAR Assistant Professor, PBG Sindh Agriculture University Tandojam</p>	<p>DR. PIAR ALI SHAR Assistant Professor, PBG Sindh Agriculture University Tandojam</p>
<p>DR. FAHAD NAZIR KHOSO Assistant Professor, Entomology Sindh Agriculture University Tandojam</p>	<p>DR. NAILA GANDAH Lecturer, PBG Sindh Agriculture University Tandojam</p>
<p>DR. A.J KHASKELI Lecturer, Department of Biotechnology, Sindh Agriculture University Tandojam</p>	<p>MR. ABDUL LATIF LAGARI ARO, Seed Production And Development Center Sindh Agriculture University Tandojam</p>
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<p>MR. KASHIF RAZA Director Sales And Marketing, Union Seed Corporation</p>	<p>MR. TANVEER ALI SOOMRO Research Assistant, PBG Sindh Agriculture University Tandojam</p>
<p>DR. MAJID HUSAIN Research Associate, PBG Sindh Agriculture University Tandojam</p>	<p>MR. MUHAMMAD FAHAD ARAIN Managing Director, Union Seed Corporation</p>
<p>MR. NAWAZ AHMED NIZAMANI Managing Director, Hyderabad Seed Corporation</p>	<p>MR. ABDUL KARIM MARI Business Manager, Shunong Seed</p>
<p>MR. JAMEEL SOLANGI ICI Pakistan (PVT) Ltd</p>	

Distribution of Shields & Cultural





Closing of the Seminar:

The seminar was closed on August 20, 2023 at 4.00 PM with the keynote speech by **Dr. Asif Ali**, Vice Chancellor, MNS University of Agriculture, Multan and chaired by **Dr. Ghulam Muhammad Ali**, Chairman, Pakistan Agriculture Research Council, Islamabad. Prof. Dr. Asif in his keynote speech touched for important aspects. According to him the exchange of patented germplasm should be expanded, the adaptation of technology and recent advancements in the area of seed production is inevitable, therefore, comprehensive methodology involving mutation breeding and other sophisticated procedures may be followed. He further added that the seeds supply chain may be made more effective. Regulations may strictly be followed particularly the national bio safety committee should hold its meeting more frequently. In the end, Prof. Dr. Asif emphasized the intervention of technology as essential way forward so that fruitful results may be achieved. According to him, there still lies genetic potential among the crop varieties, however, to utilize the same proper approach should be used. Moreover, Dr. Asif asked the authorities to give space to private sector to flourish in the seed industry. At last he congratulated Prof. Dr. Fateh Muhammad Marri, Vice Chancellor, SAU, Tandojam for successfully organizing this seminar of immense importance. Dr. Ghulam Mohammad Ali, Chairman, PARC, Islamabad appreciated Prof. Dr. Fateh Mohammad Marri and his team for holding this seminar. According to him it was an opportunity to bring all the stack holders under one umbrella, he further added that this event was long a waited and recommendations extended in the end of this seminar will be long lasting in the quest for searching a way forward towards resolving the issue of quality seed production and supply of the same in the easiest way to the growers. In his speech, Dr. Ali said that tissue culture techniques may also be utilized along with hybridization. Indigenous resources may be generated by developing trained man power starting from a smaller scale. According to him this will be a step towards progress in the economic status of the farmer in general.

Vote of Thanks by Prof. Dr. Fateh Muhammad Marri, Honourable Vice Chancellor, SAU, Tandojam

Dr. Marri appreciated the academic staff of the Department of Plant Breeding and Genetics for assisting his good-self in organizing the two day seminar on Seed Sector: Challenges & Options. His good-self extended deepest gratitude to Sindh Higher Education Commission, Karachi for the financial and moral support in the context. In the end the participants and supportive organizations were acknowledged. Dr. Marri emphasized the collaboration between public and private sector for future scientific research in the area of quality seed production. Dr. Marri also expressed his interest to



develop the Plant Breeders' Forum so as to create an efficient seed system that can facilitate the growers and large scale production.

Recommendations of the Seminar as read by Prof. Dr. Shah Nawaz Mari, Chairman, Department of Plant Breeding and Genetics, Sindh Agriculture University, Tandojam

- Plant Breeders' Forum should be developed to enhance research activities in relevance to making of quality seed of all the major crop plants.
- Public and Private Partnership should be developed and strengthened. R & D grants should be allocated with sufficient funding.
- Latest and modern infrastructure should be made for laboratory associated research activities.
- A handsome amount in proportion and %age should be spent by public and private research organizations from their funds / profit over research on development of quality seed.
- Modification in seed production and processing policies should be done at earliest. Incentives to plant breeders should be given on developing a crop variety.
- Collaborative efforts should be taken to make farmers' accessibility to quality seed with easiest ways and means.
- Focus should be placed over promotion on pure and quality seed.

Award of Appreciation was given to Eminent Plant Breeder

MR. KARAM KHAN KALERI

(TI)

Former Director General, Agriculture Research Sindh



**Eminent Plant Breeder and Former Director General,
Agriculture Research Sindh**

Mr. Karam Khan Kaleri, while receiving the shield of honor from Prof. Dr. Fateh Muhammad Marri, Vice Chancellor, Sindh Agriculture University, Tandojam said that his two wheat varieties viz TJ-83 and TD-I dominated area under wheat cultivation, both varieties are grown in millions of acres across Pakistan, however, he never received any royalty. Therefore, the breeders' rights may be protected for prosperity of the plant breeder along with name and fame.



WHY THE QUALITY SEEDS OF THE CROP PLANTS SHOULD BE GIVEN PRIORITY

1. **Seed supplies staple food:** Seeds are food for mankind, animals, and other living beings. Globally 95% of the total food comes from the seed. About 250 species of seeds are used as food for human and animal beings. The six species of seeds that are used for human consumption are: Rice, Barley, Wheat, Oat, Maize, and Rye. The principal kinds of food stored in the seeds, either inside the cotyledon or in the endosperm, are Carbohydrate-Starch, Hemicellulose, Sugar, Fats and oils, Protein, Mineral, and Vitamin.
2. **Seed supplies raw materials to industry:** Several industrial products may be extracted from seeds, i.e., mustard oil, coconut oil, etc., come from mustard and coconut oil, etc. comes from mustard and coconut seed or fruit.
3. **Seeds are the basic commodity of agriculture:** Seeds are the only commodity enabling the people to work with increased productivity in the end. Without it, the production of work wouldn't be possible.
4. **Seeds are the vehicle of life or means of propagation:** Seeds are the vehicle of propagation of new life from one place to another. Many species of plants are widely spread because their seed is easily dispersed.
5. **Seeds protect and sustain life:** Seeds carry present germplasm variously protected against heat, cold, drought, and water. The seed contains reserved food for the development of the embryo.
6. **Seeds are used for medicinal purposes:** In some cases, seeds and their products are a good source of medicine. The medicinal value has been widely recognized, such as alkaloids and other compounds. Quinine is the most effective remedy for malaria, which is extracted from the seed of cinchona.
7. **Seeds are the source of oil supply:** Seeds are the primary source of vegetable oils, supplying about 55% of the total oil.
8. **Seeds acts as a national treasury:** Seeds are the national asset and may be compared with a country's currency. It is a source of foreign currency by exporting like tea, jute, etc.

PICTORIAL TOUR OF THE SEMINAR



PICTORIAL TOUR OF THE SEMINAR

