AN OFFICIAL PUBLICATION OF RICE EXPORTERS ASSOCIATION OF PAKISTAN (REAP)

REAP JOURNAL

EDITION SEPTEMBER 2022

PAKISTAN BASMATI HERITAGE

SUSTAINABLE RICE FARMING IN PAKISTAN

"CONGRATULATION TO ALL MEMBERS OF REAP FOR ACHIEVING LANDMARK OF US$2.5 BILLION RICE EXPORT"

CHAIRMAN REAP ALI HUSSAM ASGHAR

CHAIRMAN'S MESSAGE
ALI HUSSAM ASGHAR

I feel honor to congratulate all of my fellow exporters for achieving ever highest rice export bench mark of US$2.5 billion.

I also congratulate my brother Chief Editor ex Capt. (r) Taimoor Ahmed and his team on Printing and Publishing for bringing out the much desired second issue of 'REAP Journal', which will highlight the accomplishments and achievements of the organization and its members. A platform was direly needed to pinpoint the issues and convey those to the concerned stakeholders, especially to the Government, in detail and suggesting remedial measures to these. Though print and electronic media can be used for this purpose too, our own journal is highlighting the issues prudently and in a better way .

REAP is very active and conscientious regarding issues that might impede rice exports. Action plans were proposed on various issues that were causing a problem in rice exports. Some of the problems were milling machinery import problems, rice research, new rice varieties in the country, competitive marketing and so on and so forth. REAP through its managing committee had always been pivotal in resolving all issues facing exporters and this newsletter would further strengthen our efforts. Ever since exports were allowed to the private sector, REAP members, starting from mere 300 million dollars in 1998-99, managed to export above 4 Million Tons of rice amounting to over 2.5 billion US dollars from Pakistan in 2021-22.

REAP has accomplished the creditable task of bringing growers, millers and traders of rice crop on one platform and has created mutual harmony, understanding and affection among each other. We hope that this magazine will also help in our efforts and future vision of taking the rice export trade to US$5 billion.

CHIEF EDITOR'S MESSAGE
EX CAPT (r) TAIMOOR AHMED (advocate)

Executive member corporate class MBCCI SC
Member NAB punjab region FPCCI
Ex member BOM TEVTA
Ex managing committee member REAP

Rice is critical to global food security as more than three billion people across the globe eat rice every day. The grain makes up to 20 percent of the world's dietary energy supply which is more than wheat (19 percent) and maize (5 percent) and is the number one Staple food for the world's poorest and undernourished people.

Rice trade is very important as we are not only serving the taste buds of rice lovers across the globe but also fetching precious foreign exchange for our beloved country. The journal in your hands, is an effort on the part of Rice Exporters Association of Pakistan (REAP) to keep our producers, our worthy customers and other stakeholders of the food supply chain aware about latest happenings in the country and research going on within Pakistan and abroad. We have made our effort to make it a top class journal but room for improvement will always exist.

I am also thankful for leaderships of NZ and SZ for having confidence on me in order to accomplish this sensitive task of publishing journal.

We have done our best and now looking forward to your response to our hard work. At the same time we will welcome your ideas, your articles and your other contributes to make this process continuous and a thundering success.

CONVENER PUBLICATION COMMITTEE
PIR SYED NAZIM HUSSAIN SHAH

Congratulations from the core of my heart to Capt (r) Taimoor Ahmad and his team for doing an excellent job by bringing out the second publication of REAP Journal, a wonderful combo of thought-provoking and information articles. Hope this magazine will guide our fellow rice exporters into new horizons, new openings and new opportunities of our trade pushing it to enhance the rice exports.

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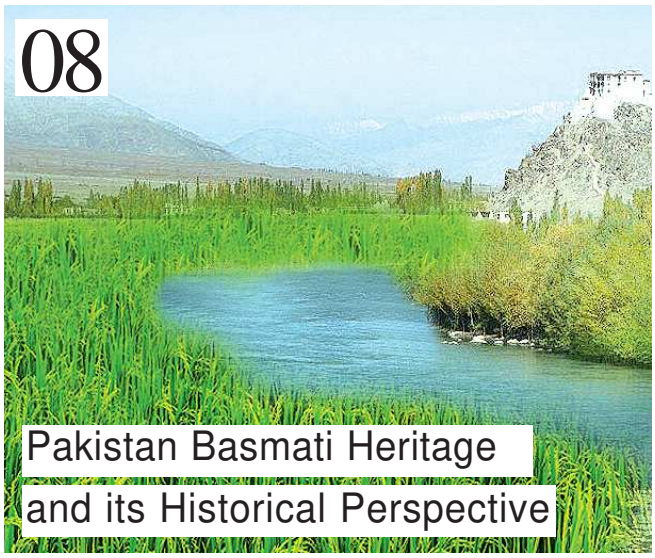


GUARD
BASMATI
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PAKISTAN'S
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BRAND
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Nature's Longest
Basmati Rice
RIZ * REIS * RIJST
ARROZ * RISO *
5kg
30 سال کے اعتماد کے ساتھ
GUARD
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BASMATI
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GUARD
AWAMI
GUARD
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Exports of Basmati Rice

Year	QTY. (MT)	FOB VALUE ($)	AVG UNIT PRICE ($)
2010-11	1,137,943	952,694,304	837
2011-12	968,941	844,216,280	871
2012-13	630,036	626,691,715	995
2013-14	733,860	846,240,671	1153
2014-15	676,630	681,548,911	1007
2015-16	503,037	455,249,000	905
2016-17	480,340	426,539,000	888
2017-18	501,233	524,699,649	1,047
2018-19	659,571	634,532,000	962
2019-20	890,207	790,792,000	888
2020-21	734,343	705,550,000	961
2021-22	768,401	728,258,000	948

Exports of Non Basmati Rice

YEAR	QTY. (MT)	FOB VALUE ($)	AVG UNIT PRICE ($)
2010-11	2,563,664	1,138,453,132	444
2011-12	2,755,904	1,237,022,174	449
2012-13	2,858,978	1,210,894,760	424
2013-14	2,627,899	1,051,579,599	400
2014-15	3,054,680	1,167,152,157	382
2015-16	3,759,179	1,405,068,000	374
2016-17	3,104,518	1,180,530,000	380
2017-18	3,522,288	1,475,891,318	419
2018-19	3,460,566	1,435,086,000	414
2019-20	3,275,923	1,384,701,000	422
2020-21	2,910,944	1,335,666,000	459
2021-22	3,919,525	1,783,568,000	455

Farm mechanization

MR. ALI HUSSAM ASGHAR
CHAIRMAN REAP

Use of quality inputs, latest technology and adopting best farming practices are the key to achieve food security and ensure availability of excess produce for exports.

Agriculture and halal food sector have the potential to take the country out of the prevailing crises. Import substitution, diversification of products, value addition and exploring new destinations are the key for the revival and sustainable growth of the economy. Only pragmatic approach can be to take measures to enhance yield and to feed an increasing population and increase exports.

The farmers could get 20 to 30 per cent more yield by using certified seeds, quality inputs and adopting best farming practices. There are enormous opportunities to substitute imports in oilseed, pulses, beans and grams through promoting cultivation and use of modern technology. Through diversification and investment in the value-added sectors, Pakistan can increase exports of fruits, vegetables and processed food items.

I believe in growing more, exporting more. It is making sincere efforts to improve the yield, product quality and exports of the country. Our members are doing contract farming to promote modern agricultural practices like the use of certified seeds, European Union-compliant pesticides, transplanters and harvesters. Our members are doing a sustainable rice project as contract farming on 7,000 acres of land in Kamoke, core basmati grown area.

Processing, value-addition and adoption of quality systems can increase exports to the high-end markets. We need to mobilize investment in value-addition, increase access to information, finance and support services.

Mechanical nursery sowing and transplantation is expected to increase plant population to 100,000 plants per acre compared to manual nursery raising and transplantation, which only achieves about 55,000-65,000 plants per acre at scale. This leads to yield increase of 15-20 %. Nursery raising is done using seeding machines and trays and transplantation is done using mechanical transplanters.

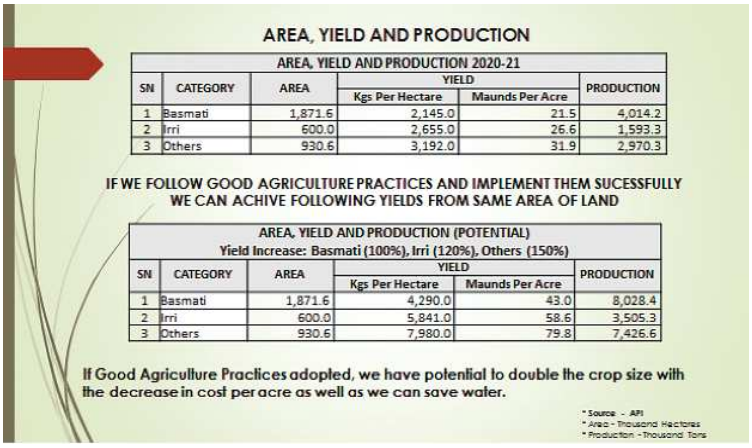
Mechanical Harvesting: Mechanical harvesting through rice-specific harvesters decreases paddy breakage by up to 10% and reduces shattering with an overall reduction in harvesting losses of 5-7 maunds per acre, compared to harvesting using traditional combine harvesters (which are meant

The farmers could get 20 to 30 per cent more yield by using certified seeds, quality inputs and adopting best farming practices. There are enormous opportunities to substitute imports in oilseed, pulses, beans and grams through promoting cultivation and use of modern technology. Through diversification and investment in the value-added sectors, Pakistan can increase exports of fruits, vegetables and processed food items

Agriculture, engineering and services sectors should be given due attention instead of continuing the decades-old practice of only focusing on large-scale manufacturing and that too the textile sector. The SMEs and the cottage industry should be supported, as these are the backbone of any economy

for wheat, not rice). Harvesting is done using combined harvesters dedicated for rice harvesting as well as threshing.

Farm mechanization in rice crop ultimately is the future for Basmati sustainability and exports to compete with our major competitor India. Rice Transplanters and Paddy Specific Harvesters are best solution for Growers to increase plant population per acre which will ultimately increase yield. Paddy specific harvesters are best solution for the millers and exporters to purchase crop with less broken or cracked grain, moisture and other inert matters.



Farm Mechanization and BMR in milling can improve yields by 50% hence add cost effectiveness as well as excess grain to export. The Farm Mechanization is key to success. Farm mechanization will add 30% additional crop outputs from same land and area hence, trade becomes cost effective with farmers sustainability assured. The indigenous Paddy Transplantors & Paddy Harvestors productions can act as substitute to imported machinery worth USD-500 Million Per Anum.

I am optimistic about the future of the country due to enormous natural resources and talented manpower. There is a need to take measures for tapping resources and providing a conducive atmosphere, guidance and training to the entrepreneurs and human resources. Agriculture, engineering and services sectors should be given due attention instead of continuing the decades-old practice of only focusing on large-scale manufacturing and that too the textile sector. The SMEs and the cottage industry should be supported, as these are the backbone of any economy.

Pakistan Basmati Heritage and its Historical Perspective

EX CAPT (r) TAIMOOR AHMED
(Advocate)
Executive member corporate class MBCCI
SC Member NAB punjab region FPCCI
Ex member BOM TEVTA
The author is Ex managing committee member of REAP and is one of the leading exporters of Rice from the country.
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This is the land of the ancient Indus Valley Civilization, one of the three old world civilizations other than Egypt and Mesopotamia. Man has lived here since antiquity and that civilization then reached a high point about 5000 years back

Pakistan is the finest combination of nature with the ingenuity of man. We have the largest number of the highest mountains on Earth. Within these are the largest glaciers of the world outside the polar region that store a huge quantity of fresh water as snow and ice since time immemorial. Our rivers, such as Indus, were formed 50 million years ago, continue to roar even today. We have time proven reliable ample water supplies from snow melt and catchment area rain collection.

In the north we have the Himalayas, Karakoram and Hindu Kush, world's highest mountains. Then we have the unique flora and fauna of the foothills of these mountain ranges crisscrossed by thousands of mountain streams. Going towards the sea the mountains give way to the vast plains of the Punjab and Sindh through which flow the mighty rivers.

Rich alluvial natural mineral and nutrient rich soil gets washed down through myriads of pristine mountain rivulets that flow down into mountain streams that merge into mighty rivers. Punjab means in Persian "Five Waters" or the land of Five Rivers, Punjab. The high quality unique soil washed down through snow fed rivers has been deposited in between the rivers since millions of years and continues even today. These formed the deltas or Doabas where rice is grown since ancient times and continues even today. Further down, in the fertile lands of Sindh, the Indus River that in local language means "Darya-e-Sindh" spreads its life giving functions till it reaches the Arabian Sea.

This is the land of the ancient Indus Valley Civilization, one of the three old world civilizations other than Egypt and Mesopotamia. Man has lived here since antiquity and that civilization then reached a high point about 5000 years back. This is where Harappa and Moenjodaro are located.

The enterprising inhabitants of the ancient Indus Valley Civilization developed new techniques in handicraft, metallurgy, settled farming and agriculture. Their innovativeness can be observed from their exceptionally modern urban planning, baked brick houses, elaborate drainage systems, water supply systems, clusters of large non-residential buildings and wide variety of crops that they produced.

Pakistan today continues proudly combining modern science with its time tested empirical knowledge and heritage of thousands of years of agronomic practices for food production, setting of traditions, natural selection of the best seed, understanding and extracting the best this unique land could offer. The lively population that loved good food, good clothes, good music, peace and harmony with all, retained only the best of the best and rejected the rest.

From the Punjab, Karachi port was then a 2 month journey. There was no market access for excess grain production. The British Empire needed food. Punjab and Sindh could produce it if transport to market or export port was there. The British started building railways in the mid 19th century to transport extra grain and other produce to Karachi port and military material and troops if needed rapidly upcountry to face Czarist Russia. Lahore was to

Towards the end of Mughal Emperor Akbar's rule, Basmati became so well appreciated by this land of lively people who love good food, that it became common enough for its name to first appear in the epic love poem "Heer" by Syed Waris Shah (1725-1798) of Jandiala Sher Khan, now District Sheikhupura, Punjab, Pakistan. This is the first documented evidence of the word "Basmati" anywhere

the east and Karachi port to the west of River Indus. Then the world's longest steel bridge was constructed in Sindh. The 2 month journey got reduced to 24 hours. Punjab and Sindh could supply grain to the world. This game changing dynamic changed forever.

Large tracts of land in the Punjab were far away from the river banks and had no water. To address this issue, we built the world's largest man made contiguous irrigation system that interconnected the rivers with a vast network of canal system bringing water to even the remotest lands. The length of the canals is 56,073 kilometers and length of water courses is 1.6 million kilometers and growing every year. (http://idap.pk/sectors/irrigation.html)

As a comparison the circumference of the earth at the equator is about 40,070 kilometer. Grain production exploded. Punjab became the granary not only of British India but was a major supplier also to the British Empire. No surprise that we still continue as a food surplus area of the world.

Let us go back a little. Sindh produced Sugdasi, considered the finest quality rice during times of Mughal Emperor Akbar (1556-1605 CE). Around this time, in the Punjab and some foothills of the Himalayas a unique type of rice started growing in the wild created through natural processes. The unique combination of the mountain silt based lands, snow fed river water, thousands of years of empirical knowledge in agriculture, photoperiod that only this unique land could meet as the days are warm but progressively become shorter and nights are cool but become longer as the rice crop ripens. This one-of-a-kind combination of land, water, weather crossing with the localities unique flora naturally created the world's finest exquisitely flavored Basmati rice with its unique sweet nutty taste, that is world over considered as the King of all Rice that cannot be grown anywhere else.

When Akbar was a child, his father Emperor Humayun took refuge with the King of Persia. He took with him a large entourage of skilled people, artisans and a lot of local seed and expertise. Among these he also took Basmati seeds to Persia that eventually got localized as Iranian aromatic rice varieties Dom Siah and Sadri etc. growing near the Caspian Sea in Mazandaran and Gilan provinces of Iran.

Towards the end of Mughal Emperor Akbar's rule, Basmati became so well appreciated by this land of lively people who love good food, that it became common enough for its name to first appear in the epic love poem "Heer" by Syed Waris Shah (1725-1798) of Jandiala Sher Khan, now District Sheikhupura, Punjab, Pakistan. This is the first documented evidence of the word "Basmati" anywhere.

The British India authorities conducted a survey of the then Punjab (1926-33) wherein they found a wild landrace Basmati-370 growing at Kolhu Tarrar, District Hafizabad, Punjab, now Pakistan. This is today considered as the mother of all Basmati rice varieties in the world. Therefore, Pakistan is the actual home of the original Basmati rice while all others are either evolved or extensions of Pakistan's ancient traditions.

The most interesting thing is that while we produce the world's best original Basmati rice, we find it so unique that we use it only on special occasions while our staple grain is wheat. Were this not true, the world would not get Basmati rice and we would not export rice because we would consume it all.

In 2008, the rice market went berserk. India, Vietnam, Egypt and Brazil restricted rice exports. Pakistan did not restrict exports and honored all supply contracts to the entire world. That is why Pakistan has proven track record as the most reliable and consistent supplier of rice including original Basmati rice.

The ancient rooted resourcefulness of the people of

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Pakistan continues even today. Infrastructure improvements are being done across the land. 6 lane Motorways. Modern Farm to Market roads. Railways being taken to the next level of high speed high capacity with lowering of cost of transport from Punjab to the sea ports of Karachi or Port Qasim or the finest deep sea port of Gwadar. Electricity generation improvements to point of almost no blackouts. Improved security. Vastly improved connectivity. Actively reducing cost of doing business. Multiple training institutes churning out trained and skilled workforce. State of the art demand driven research and development activity with all stakeholders on board. Modern world class Sanitary & Phyto Sanitary facilities. Good manufacturing practices. HACCP. ISO. Etc.

The progeny of the ancient masters of this civilization still continue with time tested agronomic practices that is part of their culture and tradition. They still prefer to use the age old farm manure as fertilizer than chemical fertilizers. Integrated Pest Management is the preferred choice rather than excess pesticide / fungicide use. We have the lowest almost negligible violation of pesticide / fungicide residue limits and that is proven by the results by EU based testing facilities year in year out. While we conduct cutting edge research on development of rice varieties but at same time we ensure that no GMO products enter our systems by any means whatsoever at all.

The smartness of the people continues. Rice milling machinery that is top of the world class and state of the art has been employed to achieve top of the world class milling. Latest technology if not locally available is imported from the best producers of the world. The local milling machinery industry has come of age since private sector exports were allowed in the 1980s. Starting from rudimentary equipment and parts production, today Pakistan rice milling machinery companies produce state of the art rice milling machinery that is as good as the best of the world. The fact that we export rice milling machinery to a large number of countries is proof. Our ingenuity refuses to die rather overwhelms all odds.

The people who had elaborate drainage systems 5000 years back, today have the region's most advanced 4G high bandwidth high speed internet connectivity and now the first in the region to start testing 5G technology. Rapid dissemination of crucial information is fact of life, such as real time weather monitoring, pest monitoring, market information and a detailed portfolio of services at the finger tips of the farmers 24/7/365.

Finally Pakistan is a land of peace, love and harmony. It is a growing democracy. It is the modern forward looking version of an ancient land of pluralities. It is a multi religion, multi cultural society with tolerance for each other. It is also a land that is legendary in its hospitality for all people. While we have Masjids, we also have a huge number of Churches, Hindu temples, Sikh gurdwaras and other places of worship. We also have proud Pakistanis in the shape of pagan Kailash people, descendants of Alexander the Great, living peacefully in co-existence with their Muslim majority compatriots.

We invite you to this ancient land of love, peace and harmony, a kaleidoscope of colors of culture, flavors that dwell with you for a lifetime, hospitality that is legendary. And yes, do taste our wide variety of foods, especially the world famous unique Basmati rice as well as all rice that is cooked with so much of love as our mothers and their mothers and their mothers taught us from deep back in our history.

Pakistan is YOUR best and proven reliable partner and rice supply source in the world.

We are happy when it means your profit today, tomorrow and in the future.

Welcome to Pakistan.

DR. WERNER NADER
Senior Consultant Eurofins Global Control (Retired Managing Director) Food Safety Management Systems

Impacts of food safety regulations on Basmati rice exports

INTRODUCTION:

Safety of food is getting increasing attention worldwide and more and more countries establish import restrictions. The European Union was the frontrunner with the basic food law of 2002 (EU regulation (EC) No. 178/2002), which was the beginning of a series of regulations covering all aspects of the integrity of food with regard to safety, authenticity and quality (Nader et al., 2016, Morin and Lees, 2018). This is also affecting the international rice trade, as big importers like the Iran and Iraq, the GCC states, USA, Australia, New Zealand China etc. followed this line and established tough restrictions in particular for pesticide residues. These import restrictions might have significant impacts on the business, as can be shown exemplarily for the rice trade, which experienced several severe disruptions during the last 15 years.

Food safety issues observed by the food control authorities of the member states are reported in a central internet based system, which is open to the public and therefore to all stakeholders in the supply chain

RICE IN THE RASFF

The Rapid Alert System for Food and Feed, RASFF, was established by the basic EU food law as a network for the notification of a direct or indirect risk to human health. Food safety issues observed by the food control authorities of the member states are reported in a central internet based system, which is open to the public and therefore to all stakeholders in the supply chain. As food business operators are responsible for the safety of their products, they have to guide their controls and buying decisions based on these alerts. Accordingly, the frequency and gravity of these alerts might affect the business severely. RASFF notifications are therefore only the peak of the iceberg, as importers try to avoid such alerts by stricter controls and purchase in countries, which are less noticeable in the system.

RICE AND GMOS

Figure 1 shows the rapid alerts for rice since 2005 with regard to genetically modified organisms (GMOs), mycotoxins (aflatoxins and ochratoxin A), pesticides, inorganic arsenic and mineral oils. In the years before 2006 rice was a rather easy going product and the few notifications were primarily related to insect infestation, foreign bodies and bad smell. In 2006 traces of genetically modified LibertyLinkTM rice varieties were detected in US imports. Because the EU had implemented zero tolerance for genetically modified rice, imports of US rice dropped from over 300,000 metric tons annually to less than 40,000 and caused a damage to the US rice industry estimated between 741 to 1,285 million US $ (Nader et al., 2016). The problem has been fixed by US rice exporters since then and most rapid alerts on GMOs thereafter are

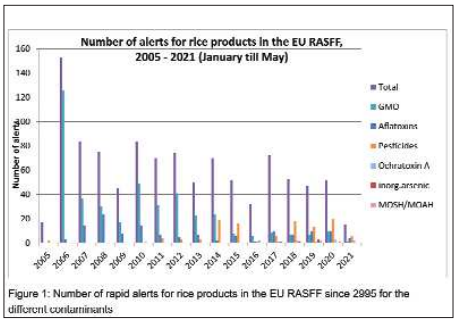


Figure 1: Number of rapid alerts for rice products in the EU RASFF since 2995 for the different contaminants

EU had implemented zero tolerance for genetically modified rice, imports of US rice dropped from over 300,000 metric tons annually to less than 40,000 and caused a damage to the US rice industry estimated between 741 to 1,285 million US $ (Nader et al., 2016)

due to imports of Chinese rice products like noodles, protein, flours and crackers.

MYCOTOXINS

In 2006 the EU defined new limits for aflatoxins and ochratoxin A for food in the contaminant regulation (EC) 1881/2006 and as a consequence the EU intensified its controls for these mycotoxins thereafter. Rapid alerts appeared since then regularly in the RASFF (fig. 1) and primarily Basmati rice was affected. The EU commission SANTE responded with an increased frequency of controls on aflatoxins covered by the provisions of Regulation (EC) 669/2009 till 2011. Fifty percent of all consignments from Pakistan and 10 % from India with Basmati for direct human consumption had to be controlled by the authorities of the member states prior entering the Union. This significantly hindered the trade, as shipments were delayed or rejected in the import harbours. As a consequence, EU buyers started to prefer Indian over Pakistani Basmati, which lasted until notifications of pesticides in Indian rice above the EU maximum residue levels (MRLs) became too frequent. Aflatoxins are still a problem, as is shown in table 1 with 16 alerts in the RASFF during the last 3 years for Pakistani Basmati rice in comparison to 7 alerts for rice from other source countries.

Table 1: Rapid alerts for rice in the EU RASFF by country and contaminant (?: the MOAH alert from 2020 was reported for Basmati rice without mentioning the country of origin)

Rapid alerts in the RASFF, 2019/2020/2021 (January till May)						
Country	Total alerts	Pesticides	Aflatoxins	Ochratoxin A	GMO	MOSH/MOAH
Bangladesh	0/1/1	0/1/1	0/0/0	0/0/0	0/0/0	0/0/0
Brazil	0/1/0	0/1/0	0/0/0	0/0/0	0/0/0	0/0/0
Cambodia	0/0/0	0/0/0	0/1/0	0/0/0	0/0/0	0/0/0
China	7/10/1	0/0/0	0/0/0	0/0/0	7/10/1	0/0/0
India	7/15/5	7/11/4	0/1/0	1/2/1	0/0/0	2/?/0
Italy	0/1/0	0/1/0	0/0/0	0/0/0	0/0/0	0/0/0
Myanmar	3/0/0	0/0/0	3/0/0	0/0/0	0/0/0	0/0/0
Pakistan	6/10/6	0/4/1	6/6/4	0/?/1	0/0/0	0/?/1
Sri Lanka	0/2/0	0/0/0	0/2/0	0/1/0	0/0/0	0/0/0
Thailand	0/2/0	0/1/0	0/0/0	0/0/0	0/0/0	0/1/0
Vietnam	2/2/0	2/2/0	0/0/0	0/0/0	0/0/0	0/0/0

PESTICIDES

Pesticide residues in rice became of major concern by EU authorities in 2011 and since then rapid alerts increased steadily and reached a peak last year with 21 notifications (table 1). Eleven alerts were related to Indian rice, but also 4 to Pakistani Basmati. Effects on the trade are severe. Findings of isoprothiolane led to a drop Indian Basmati rice exports to the EU in 2010 by 22 %, as a default maximum residue level (MRL) of 0.01 mg/kg was in place till July 2012. Nader et al. (2020) estimate the damage to Indian rice exporters to 38 million US $. In 2017 the EU decreased the maximum residue level for tricyclazole, another fungicide frequently used in rice cultivation against the blast, from 2 to 0.01 mg/kg. As a consequence, the Indian market share for Basmati rice in the EU decreased from 73 to 28 % and Pakistan took over. The loss in revenue for India rice exporters is estimated to 232 million US $ for the period from January 2018 to August 2019 (Nader et al., 2020). Pesticides, which triggered a rapid alert from 2020 till April 2021, are still tricyclazole followed by the insecticides thiomethoxam and buprofezin, primarily found in Basmati from India (table 2). For Pakistan most alerts were caused by carbendazim, a degradation compound of the fungicide thiophanate-methyl. But not only the export to the EU was affected by pesticide residue legislations. The import tolerance level for tricyclazole in the USA was 0.01 mg/kg for rice, which significantly damaged the import of Indian Basmati till 2014, when finally the level was increased to 3 mg/kg. Still today the FDA alerts frequently about findings of other pesticide residues in rice imports, in particular of chlorpyrifos, carbendazim, tebuconazole or isoprothiolane. Tebuconazole and tricyclazole are good examples for the diversity of international MRL regulations. Rice with levels of tricyclazole up to 3 mg/kg is still compliant with US law, but illegal in the EU. The EU tolerates tebuconazole in concentrations up to 1.5 mg/kg, whereas zero tolerance applies in the USA. Many other countries worldwide have established strict pesticide residue

Table 2: Findings of specific pesticides reported in the RASFF for rice by chemical and by country

Pesticide findings in the RASFF, 2020/2021 (January till May)								
Country	Total pesticides found by country	Tricyclazole	Carbendazim	Thiomethoxam	Buprofezim	Methamidophos	Amitraz	Tetramethrin
India	29	12	4	8	3	1	1	
Pakistan	7	2	5					
Bangladesh	2	1	1					
Vietnam	2	2						
Brazil	1	1						
Italy	1							1
Thailand	1	1						
Total by chemical	43	19	10	8	3	1	1	1

Climate conditions during harvest like foggy and humid weather in the Punjab contribute significantly. The only way to prevent these toxins under these conditions is to dry the paddy as fast as possible to bring the moisture levels down to less than 15 %

regulations as well, such as schedule 20 under the Australia New Zealand Food Standards Code or the MRL Code 382:2019 of the Saudi Food and Drug Authority.

MOSH AND MOAH

Since 2019 five alerts related to mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH) in rice appeared in the RASFF, four of them for Basmati rice imports. This is a new topic and maximum limits for MOSH and MOAH (mineral oil saturated and aromatic hydrocarbons) are currently under discussion in the EU. But food control authorities already raise complaints based on potential health risks for the consumer.

How to avoid contaminants and residues?

In order to prevent these severe disruptions of their trade rice exporters must control contaminants and residues in their products. Aflatoxins are among the most dangerous natural toxins. They are potent carcinogens and cause even at lower concentrations a variety of diseases like immune depression, cirrhosis and stunted growth and delayed development of children. They mainly occur in the bran, which is removed by milling and used for animal feed. Dairy cattle metabolize aflatoxin B1, the most potent and dominant aflatoxin in rice, to aflatoxin M1. The milk containing this toxin threatens the health of infants and small children. Therefore, aflatoxins are not only a threat for the consumers of rice, but also for the health of infants, in particular in the source countries, where most of the bran ends up in animal feed. Aflatoxins in rice are an avoidable problem, as these are produced by moulds, if paddy is stored at too high moisture levels. Climate conditions during harvest like foggy and humid weather in the Punjab contribute significantly. The only way to prevent these toxins under these conditions is to dry the paddy as fast as possible to bring the moisture levels down to less than 15 %. This is only feasible in high capacity industrial scale dryers, which have been installed in the recent years by Pakistani rice mills exporting to the EU. But still paddy is purchased from farms by investors without proper drying and storage under sub-optimal conditions. This is a possible explanation for the high levels of aflatoxins still found by EU food control authorities (table 1). Avoidance of non-compliant levels of pesticide residues is a more complex challenge, as it involves training and awareness building at farm level in addition to the control of these chemicals by government authorities. Maximum residue levels for pesticides are defined by the import countries based on safety evaluations of their national food safety authorities and are subject to dynamic and frequent changes. This diversity of MRLs challenges the international rice trade and causes disruptions of supply chains, as described above for the import of Basmati rice into the EU and the USA and in more detail by Nader et al. (2020). Despite of all these complications one has to keep in mind that potentially hazardous chemicals not only threaten the health of the consumers, but to a much greater extent the farmers, their families and the environment, if they are not used in a rational and careful manner. Therefore, the control of pesticides in agriculture is not only important for the export, but essential for the health of the environment and the population in the source countries. Together with the rice exporter associations of India and Pakistan the Federation of European Rice Millers, FERM, has launched the app Appryza to support farmers in these countries to meet the legal requirements for the export of their products to major international markets. Farmers get access to an up-to-date data base with information to choose proper plant protection products including the MRLs in the main export markets. Notwithstanding the app is only available in English and needs to be offered in the locally spoken languages as well.

Recently the International Rice Research Institute (IRRI), the United Nations Environment Programme (UNEP) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) have launched the Sustainable Rice Platform, SRP, an alliance of over 100 members from public, private, research, civil society and the financial sector. Its goals are the transformation of the global rice sector by improving smallholder livelihoods and reducing the social, environmental and climate footprint of rice production. The rational use of pesticides is

an important element of this transformation process.

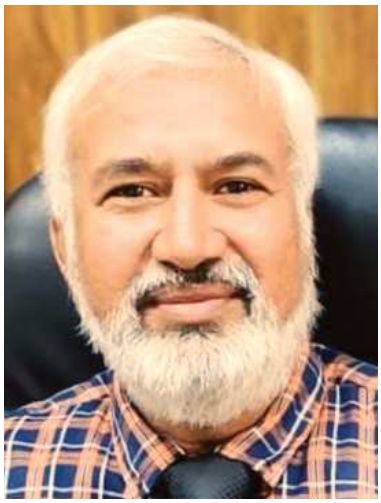
Rice from organic agriculture is becoming increasingly popular due to consumer concerns regarding pesticide residues. Under the EU organic agriculture certification (Bio) and the US national organic program (NOP) the use of synthetic plant protection agents and growth regulators is restricted to exceptional cases only. Agrochemicals detected by analysis in organic products are always an indication that these rules have been broken. Despite of that, residues of agrochemicals might occur also in organic rice at minute levels due to cross contaminations, e.g. by drifts from conventional farms or from irrigation water. It is difficult to define tolerance levels and - as a consequence - these differ not only internationally e.g. between the USA and the EU, but also among the EU member states. Whereas in Germany the members of the German Association of Organic Processors, Wholesalers and Retailers, BNN, accept a maximum of 2 different chemicals up to an orientation value of 0.01 mg/kg, control authorities in most member states are far stricter and do not tolerate even minute traces (Nader et al., 2020).

Certain chemicals like bromide or phosphonate in food are often interpreted as residues from fumigation with methyl bromide and phosphonate fungicides, respectively. As these compounds also occur in water and soil by nature, tolerance levels have to be defined to account for these natural sources. Typically, 5 mg/kg is the limit for bromide accepted by the members of the BNN. Similar to the orientation value of 0.01 mentioned above this level is only an interpretation guide from the private association BNN and is not legally binding and not generally accepted by control bodies in the EU. Due to their low toxicity phosphonates are popular agrochemicals, which enhance the natural defence of the plant against fungal infections. The EU MRL for rice is high with 2 mg/kg. But the use of these chemicals is not permitted for organic agriculture under EU rules and the BNN has defined an orientation value of 0.05 mg/kg. Nader et al. reported in 2020 that phosphonates are also produced by micro-organisms, in particular under anaerobic conditions. These conditions are typical for the root area in a flooded paddy field and accordingly phosphonate is found frequently in rice (Nader et al., 2020). Similar to bromide practical tolerance levels have to be defined for phosphonate as well.

Migration from packaging materials is the major cause for mineral oil contaminations in food. Today carton made from virgin fibre and polypropylene (PP) bags are mainly used to package rice. Recycled paper and carton is avoided, as they might contain high concentrations of MOSH and MOAH mainly from newspaper printing ink. The four rapid alerts for Basmati rice since 2019 were most probably caused by packaging of the rice at earlier processing stages in jute bags. Jute batching oil (JBO-P) is a mineral oil fraction used in the processing of jute fibres and consists of MOSH and MOAH. Once these oils migrate into the rice, they cannot be removed anymore. Such risks are avoidable by using woven PP bags instead of jute. But more research is necessary to evaluate all possible causes for these contaminations and further alternatives for packaging of rice from the paddy to the final product.

RESUME

The international rice trade is challenged by food safety regulations with maximum levels defined for a variety of contaminants and residues from agrochemicals. Impacts on the business are significant. Particularly exports of Basmati to the EU and the USA suffered multi-million dollar losses due to strict pesticide MRLs. On the other hand, these risks can be avoided by good agricultural and production practice at farm level and during further storage, processing and transport of the rice. Rational pesticide use, rapid drying of paddy after harvest and proper packaging of the paddy, cargo and milled rice not only reduce export risks, but are also of benefit for the environment and the health of the population in the source countries. It therefore creates a win-win-win situation for the farmers, the industry and the consumers.



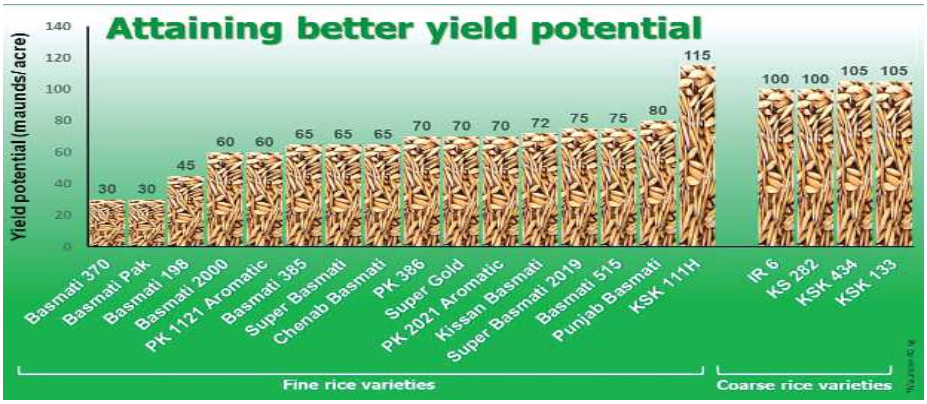
SYED SULTAN ALI
Chief Scientist,
Rice Research Institute,
Kala Shah Kaku

Rice Research Institute, Kala Shah Kaku

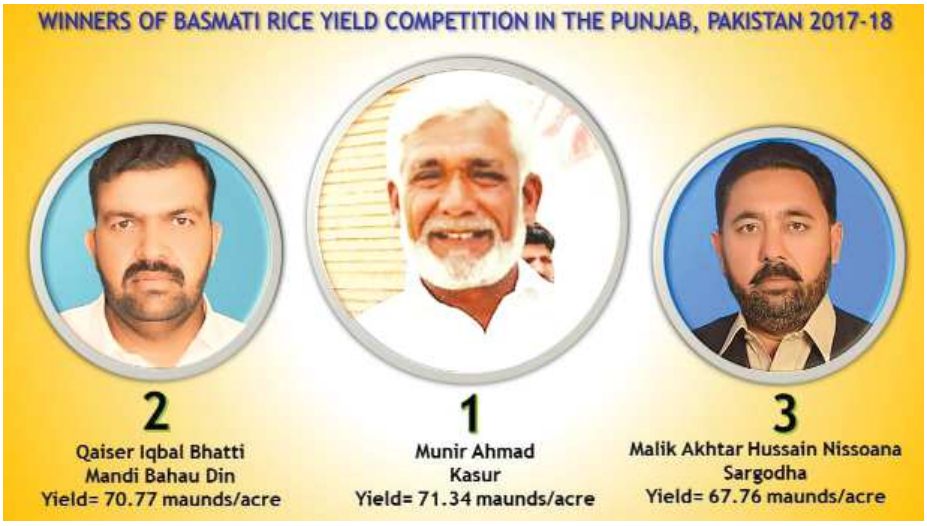
Work on varietal improvement in rice started in 1926 in an area called Kallar Tract with the establishment of Rice Farm at Kala Shah Kaku in the famous rice bowl called "Kalar tract" of the Punjab. Rice Farm was elevated to the level of Rice Research Station in 1965 and later on upgraded to the status of full-fledged Rice Research Institute during 1970 with eight research disciplines i.e., Plant Breeding, Agronomy, Soil Chemistry, Entomology, Plant Pathology, Agricultural Engineering, Rice Technology and Economics & Statistics. Up till now, this institute being the pioneer in developing extra- long, delicious and aromatic rice (Basmati 370), developed and released 29 rice varieties for general cultivation.

SALIENT ACHIEVEMENTS

- The per acre yield potential of fine varieties increased to 283 percent.



- It is quite evident that rice varieties developed by the institute sustain their luster keeping in view yield. The winner (Mr. Munir Ahmad, District Kasur) of basmati rice yield competition in the Punjab during 2017-18 harvested 71.34 maunds/

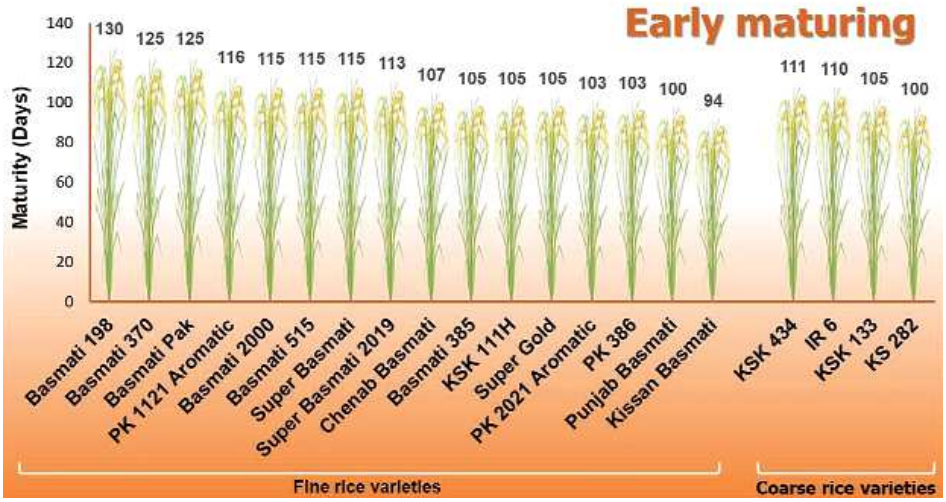


The winner (Mr. Munir Ahmad, District Kasur) of basmati rice yield competition in the Punjab during 2017-18 harvested 71.34 maunds/ acre Super Basmati. Such increase in yield has ultimately uplifted the socio-economic status of the farming community on one-hand and foreign exchange earnings on the other

Short stature of rice varieties was attained and rice plant height dropped 42 percent to mitigate the mature crop lodging

acre Super Basmati. Such increase in yield has ultimately uplifted the socio-economic status of the farming community on one-hand and foreign exchange earnings on the other.

- Crop maturity period after transplanting in fine varieties dropped to 28 percent to best suit the different crop rotations, worth mentioning rice- wheat- rice which not only increased the crop diversification for sustainable agriculture but also increased the income of farming community to many folds.



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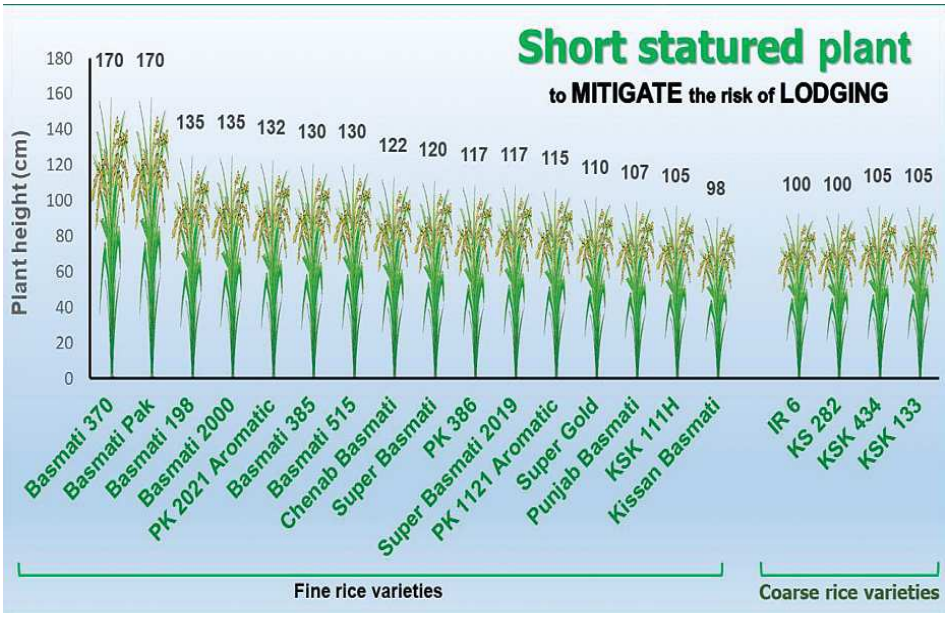
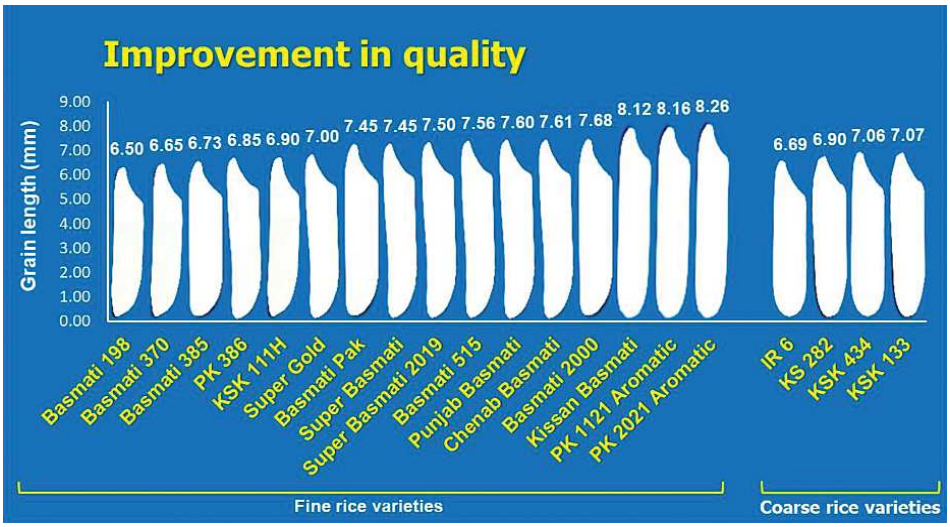


- As per market demand, average grain length in fine rice has been increased 27 percent. The longest ever PK 2021 Aromatic (8.26mm grain length) was approved for general cultivation in 28th January, 2021.
- The per capita availability of rice increased many folds (1125 percent) from 04 to 49Kg.

Basmati is premium rice that fetches about US$ 1000 per ton as compared to US$ 450 per ton of coarse rice from international market. The share of Pakistan in total world rice trade is around 9.10% by value



- Basmati is premium rice that fetches about US$ 1000 per ton as compared to US$ 450 per ton of coarse rice from international market. The share of Pakistan in total world rice trade is around 9.10% by value.
- Rice is responsible to earn more than US$ 2 billion foreign exchange annually. First time ever in history of rice export, the country first time earned US$2.5 billion foreign exchange earnings during fiscal year 2021-22, and similarly ever highest volume of 4.9 million Tons during the same period.

- The impact of rice research is quite evident from the fact that varieties developed by the institute adds a benefit of Rs. 25 billion annually to the economy and the cost- benefits analysis sums the potential reward as 1:4.72.
- Crop maximization achieved by efficient use of irrigation water by decreasing puddling duration to 3-4 as compared to 30- 40 days. Similarly, after transplanting, by maintaining standing water at the level of 1-1.5 inches for 21 days despite 30-40 days at the level of three inches, conserve the precious irrigation water without affecting the yield.
- During the success story of direct seeding of rice seed through broadcast, the dire need of drill was noted. As rice seed broken in available conventional wheat drills so necessary amendments were suggested to a private firm during 2009 and after necessary field trials first drill was successfully

Introgression of BLB resistant genes in present (Basmati Gold) and promising varieties will not only decrease per acre cost but also helps in harvesting pesticide residue free produce

introduced with public private initiative. The DSR drill further improved in 2017 in such a way that now it is able to sow seed at 4-5 inches apart. This technology in addition to saving 15- 20% irrigation water and labour also enables the farmers to achieve the required plant population of 80,000/ acre. As a result, farmers get 20- 25% increase in rice yield.

- In alternate wetting and drying (AWD) resource conservation technique, 15cm water depth in tube is observed better to irrigate the paddy yield without sacrificing the rice production and quality which also conserve water 15-20 percent.
- Mechanical transplanting reduces drudgery on one hand and enables timely transplanting of rice nursery on the other, resulting increase in the production. This method further saves time and farmers can transplant 6- 8 acres/ day. Because of the motivation encouragement and capacity building, mechanized transplanted area now increase day by day owing to public- private initiatives for its expansion.
- Avoided injudicious use of pesticides by devising integrated pest, disease and weed management strategies ensuring pesticide residue free rice production.
- Introgression of BLB resistant genes in present (Basmati Gold) and promising varieties will not only decrease per acre cost but also helps in harvesting pesticide residue free produce.
- Notorious white and yellow stem borers of rice are controlled well owing to the development of short duration rice varieties resulting in onset of Rice-Wheat- Rice crop rotation that destroyed their overwintering larval population during cultural practices for wheat.
- Recorded first time small brown planthopper from rice crop and Strepsiptern parasitoid of Whitbacked planthopper.
- Ghora Grass, Maina, Khabal Grass, Sunflower, Sorghum, Berseem and Maize were recorded first time as host of planthoppers.
- Use of nitrogen (split application as a basal, 30- 35 DAS and 45- 50 DAS), potash, phosphorous, zinc sulphate and boron increase the crop profitability.
- By using rice combine harvester, generally problem of crop residue not occurs but wheat combines with necessary alterations for rice, generate problem of rice crop residue which can be minimized by using rice shredder which was developed with technical assistance of the institute from a private firm. Rice shredder cut the rice residues in to 2-3 inch pieces, which can easily be mixed with rotavator or disc plough in the soil and by irrigating the field and application of half bag urea increase the soil fertility.
- After rice harvest, wheat can be successfully grown in standing stubbles or crop residue by using happy seeder drill, which not only mulch the field to save soil moisture but suppresses the weeds on the other, resultantly environment pollution (smog) can be avoided.
- Parboiling techniques have been standardized to check the inconsistent production of parboiled rice such as colour variation, off- odour and less milling recovery. To address these problems parboiling technology for new lines/ varieties (extra-long grain) is determined for standardization.
- Bran is a bye- product of rice milling and is generally used for poultry feed in the country. It contains 15- 20% nutraceutical oil that is excellent for heart patients. The stabilization techniques were developed to get bran oil for human consumption.
- It is estimated that the area, production and yield increased 850, 2179 and 302 percent, respectively, since inception of Pakistan.

SHAHID HUSSAIN TARAR

Sustainable Rice Platform In Pakistan

IMPACT OF CHANGING CLIMATE ON PAKISTAN

We are in August 2021 and a third of the land of Pakistan is engulfed in the most severe floods in its history. The environment minister of Pakistan, Sheerin Rehman, has said that Pakistan is Ground Zero of the climate crisis. So far over 1100 people have lost their lives more than a million homes damaged and Billions of dollars loss to agriculture. This has been the result of an extra monsoon cycles, normally there are 3-4 this year we've had 8 so far. We don't know the full extent of the damage but people are already asking the question what if it's this bad or worst next year? Instinctively and factually people know this is the result of the changing climate. We're all reading how Pakistan contributes only 1% of carbon emissions yet it's still amongst the top ten countries most vulnerable to climate change. So how can the rice industry contribute positively to the changing environment?

IMPORTANCE OF RICE AS AN EXPORT COMMODITY

This crisis has come on top of a political and economic crisis this year in Pakistan. Leaving the political crisis to one side, this particular round of economic crisis (Pakistan has had many before) has the Current Account Deficit (CAD) at its centre. Although the Pakistani economy has several other deep structural problems the CAD is a perennial one and keeps forcing any new government into very restrictive and politically unpopular IMF programmes. The main reason being we haven't been able to grow exports beyond $30 billion while imports keep growing, of which the major part is fulfilling the energy needs of 220 million people. The last few years have seen a growing share of food imports too.

Looking at exports, rice this year has reached a record $2.5Bn, which is a great achievement all things considered. The sector was privatized in the early 90s and at the time export were under $300m. Members of the Rice Export Association of Pakistan (REAP) have invested billions of rupees in infrastructure which matches the best global standards. In terms of supply, Pakistani exporters can match the best in the world. Rice is the second largest export to textile (although the software is on par with this and likely to take over soon) it has remained stagnant for the best part of a decade due to the inability to either grow the size of the crop or value add. If we split the rice exports into Basmati and Non-Basmati, Non-Basmati has flourished due to the introduction of hybrid seed (by companies such as Guard rice) which resulted in much bigger production per acre. The larger crop meant more income for farmers and more rice could be exported at competitive prices. Unfortunately, similar gains in Basmati could not be made due to various reasons including the intrinsic nature of Basmati, slow research, smaller landholding etc.

Over the last 5 years, exports of both types of rice have been range bound. To increase exports beyond these levels and reach the target of $5Bn, which is a target that REAP, has set we need both more crop and value addition. More crop can be obtained by either increasing the area or increasing the production per acre at the farm level. Increasing acreage is not easy, although one of the strengths of the rice sector has been that it is free of any kind of Government intervention and the growth we have seen since its privatization is

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not only a testament to the rice exporters but also to the free market. Although rice competes with other cash crops for the area which increases/decreases slightly with prices, in the case of Basmati it is also limited by geography. In the case of Basmati it can only be grown in areas that have suitable soil and climate. To achieve the targets set by REAP just through the increasing area would put unsustainable pressure on water and land resources as well as potentially taking land away from other locally consumes crops. Pakistan has one of the lowest rice yields in the region (1.1mt/acre) and has huge potential (over 2mt/acre) to increase yields per acre by adopting modern farming and providing resources and technology at the farm level. We must also bear in mind that within agriculture rice is the second largest contributor to greenhouse gas emissions after livestock. Rice also requires a huge amount of water to grow and we all know the need to use our water resources efficiently. So, what can we do as an industry?

POTENTIAL OF SUSTAINABLE RICE IN PAKISTAN

This is where I think the future of Pakistani rice industry can be and should be to grow rice under the Sustainable Rice Platform (SRP). This is a global standard which aims to promote resource efficiency and sustainability within the rice sector through Research, Production, Policy making and Consumption. SRP was established in 2011 co convened by United Nations Environment Program (UNEP) and International Rice Research Institute (IRRI) to promote resource efficiency and sustainability within the global rice sector. SRP standards was first introduced and implemented at farm level in 2015 in many countries of Asia under the assurance guidance of Global GAP. The standard contains 8 themes and 12 indicators which are monitored and evaluated in 3 levels. These are Profitability and Income of Farms, Labour Productivity, Productivity of grain yield, Food Safety, Water efficiency, Nutrient-

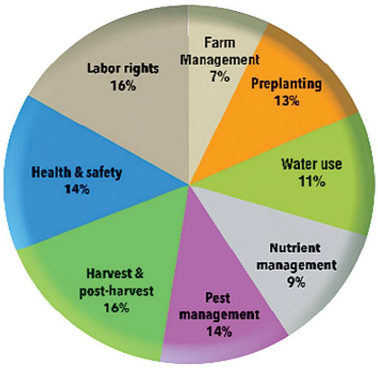


Figure #1 SRP Standard Weighting by Theme

efficiency for both Nitrogen and Phosphorus, Pesticide use efficiency, Greenhouse Gas Emissions (GHG), Health and Safety, Child labour, and Women's empowerment. More details of the standard can be accessed at www.sustainable.org. Through monitoring the indicators a score is derived for each metric which can be used for evaluation and certification. If we focus just on a few of the indicators, we can see how the standard incentivises practices which are simultaneously commercially, environmentally and socially beneficial. For instance by measuring and focusing on improving yields farmer incomes improve, and we get more crop to export. It doesn't take much imagination to see the positive impact on the livelihood of millions of farmers. Of course, the indicators that reduce water and pesticides also contribute to reducing costs and improving farmer income. The judicious use of pesticides means a safer product which is more compliant for the export markets, which is increasingly restrictive in terms of pesticide use and residue limits allowed. Lest we forget that most of the rice produced in Pakistan is for Global production as we have the highest ratio of rice export to production in the world (we're fundamentally a wheat consuming nation) so we always have to keep an eye on Global standards.

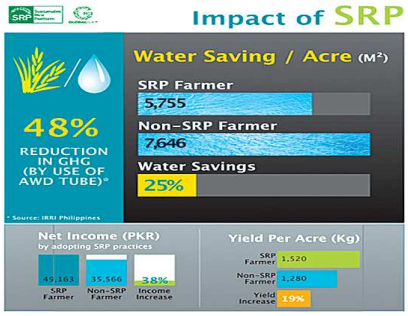
For the last few years, some companies have already been working with local farmers to grow and promote sustainable rice. Here we must credit the companies such as Mars and Westmill

The data collected shows that these SRP practices have resulted on average 20% increase in farmer incomes (ceteris paribus) 25% reduction in water usage and 48% reduction in Greenhouse Gas Emissions and a 20% increase in per acre yields. These are initial results and certainly can improve with more resources and technology

foods for working with their national supply chain partners, who committed very early to moving towards sourcing sustainable rice and have been instrumental in supporting the nascent SRP ecosystem within Pakistan. Other exporters have also started working with local farmers to grow SRP rice as the demand is increasing post Covid. Local organisations such as Pakistan Basmati Heritage Foundation which was formed in 2019 to promote and preserve the heritage of Basmati rice within Pakistan, have been working with the Punjab Agri. department under the leadership of Dr Anjum Butter to promote SRP farming in Pakistan. Regardless of the SRP standard and certification itself, it must be stressed that the metrics contained within the standard should be areas of focus for any modern agricultural department. Basmati, in particular, can benefit from the standards. Being unique to Pakistan and India its crop size is limited by its nature as it requires a particular climate and soil so cultivated area is not determined by demand but by suitability of Geography. Hence using SRP techniques can help to maximise the potential of our current area and available seed varieties. Although new varieties have been developed to provide higher per acre yields, it is imperative that sustainable practices are used to maximise resource efficiency and value.

CURRENT SRP PRACTICES IN PAKISTAN

Currently, there are just over 20,000 metric tonnes of sustainable Basmati rice being produced and exported from Pakistan. The data collected shows that these SRP practices have resulted on average 20% increase in farmer incomes (ceteris paribus) 25% reduction in water usage and 48% reduction in Greenhouse Gas Emissions and a 20% increase in per acre yields. These are initial results and certainly can improve with more resources and technology. There are of course many other direct and indirect benefits, such as improvement of soil health, regeneration of local ecosystems better labour rights and empowerment of



women. Just a few months ago with the support of the SRP secretariat from the National chapter for SRP was announced in Pakistan.

National chapter of SRP will develop 5 years road map and helps in building capacity within the major stakeholders of rice sector including industry. Most of the practices within the standards are generic and common sense but having a framework of a specific standard will allow the industry to measure progress and move towards a wider goal of implementing the practices and of course, it is an internationally recognized standard. The lack of intervention and support from the government has meant that the rice sector is very resilient and very dynamic and has the capability to step forward and take on the challenge to solve its own problems as well as contribute toward solving the wider problems we face as a country, both economic and environmental.

Agriculture is often talked about as the backbone of the Pakistan economy and a sector that has the potential to transform Pakistan's economy. However part of the pressure on CAD is food import, this is where we need to substitute imports to achieve self-sufficiency (Pakistan is one of the countries which can achieve this) but it doesn't have to be at the cost of reducing areas of crops that are exported. Most of the problems in agriculture have common roots and if rice can be shown as an example of improving farmer incomes, productivity, export and food security, certainly these lessons can be applied to other crops and perhaps act as a positive impetus to Agriculture in Pakistan.

SHAHZAD ALI MALIK (SI)
CHIEF EXECUTIVE
GUARD AGRICULTURAL
RESEARCH & SRVICES
(PVT.) LTD

Revolution in rice production through use of Hi-Tech Hybrid seed

Rice has special significance in Asia, about 90% of rice produced and consumed in Asia and China and remains largest producing countries among the World. Pakistan is the world's 11th biggest producer of rice, after China, India, Indonesia, Bangladesh, Vietnam, Thailand and Burma. Each year, it produces an average of 8 million tones and together with the rest of the South Asia, the country is responsible for providing 30% of the paddy grain output. In Pakistan it is the second most favorite food after wheat, even then increasing mouths to feed in the country and decreasing land and water resources available for rice cultivation needs serious and concrete efforts through research & development to come up with such rice technologies that will result in higher yields.

Pakistan's total population is slightly over 220 million and at current growth rate of over 2.1 percent it is expected to become the 4th most populous country of the world in 2050. To feed the growing population, the improvement of rice cultivars is important Involvement of seed companies from private sector is crucial to meet the increased demand for hybrid seed.

Realizing the importance of private seed research, Guard Agricultural Research & Services (GUARD) established in 1989 launched research to develop new hybrid seed in collaboration with Hunan Rice Research Institute (HRRI) Hunan, China in 1999. Later on for commercialization of hybrid rice we made joint venture with Yuan LongPing High-Tech Agriculture Co., Ltd, China which is off shoot of HRRI, having share holding of eminent scientist and breeder, Professor Yuan Longping who is inventor of hybrid rice technology and is also known as "father of hybrid rice", with special focus on looming water scarcity and climate change threats which are posing serious threat to national food security.

So far, Guard alone has introduced 11 new hybrid varieties for general cultivation all over Pakistan. These all are coarse varieties generally sown in Sindh and South Punjab having tolerance against heat and water scarcity. The company is also on the way to introduce a basmati hybrid having an average yield up to 80 mounds per acre with an average grain length of 8 mm. We are very near to achieving this target after hard work of five to six years; our scientists in collaboration with our Chinese partners have developed basmati hybrids out of which one variety is giving 75 mounds per acres and average grain length of 7.4 mm, slightly short of the target of 80 mounds per acre. Our scientists have been tasked to develop heat, drought tolerant and salinity resistant varieties.

Guard commercialized Super Basmati in 1991, which was eventually approved by Government in 1997 for commercial cultivation after 40 per cent of Punjab area came under its cultivation. The Company after introduction of coarse hybrid has also started local production of hybrid rice seed. We are the leading company by developing such a large number of

Guard commercialized Super Basmati in 1991, which was eventually approved by Government in 1997 for commercial cultivation after 40 per cent of Punjab area came under its cultivation. The Company after introduction of coarse hybrid has also started local production of hybrid rice seed. We are the leading company by developing such a large number of hybrids and starting local commercial hybrid rice seed production

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The need to bring new hybrids of rice is because the yield of rice varieties is low and stagnant. Low rice yields do not match with increasing cost of inputs; due to increase in cost of production Pakistan is becoming un-competitive in international market. Land resources are declining, water shortage is becoming a problem, solution is adoption of hybrid rice.

Since the introduction of hybrid rice in Sindh, income of rice farmers has doubled due to double yield of hybrid rice as compared to IRRI varieties, doubled income of farmers, resulted in poverty alleviation, socio-economic changes in rural areas of Sind and South Punjab. Due to early maturing hybrid rice crop, timely sowing of Rabi crops is ensured. Timely sown Rabi crops give positive and significant increase in per unit production / per acre yield which consequently increase farmer income. Due to shorter maturity period, hybrid rice crop can be planted in late season. Further to shorter maturity period, hybrid rice crop consumes less irrigation as compared to traditional rice varieties. Hybrid rice crop can be successfully grown in stress areas like saline, drought and waterlogged as compared to inbred.

Success in getting more per acre yield has paved the way for producing more non-basmati rice and increasing its exports thus fetching more revenue for the cash strapped country. There is also a need of more production and supply to explore new markets and achieve the target of US 5 billion dollars export in the next five years, hybrid seeds can make this possible. High yielding hybrid rice area is going to cross 50 per cent in three years from present 25 to 30 per cent paddy coverage, yielding additional two million tons output.

All efforts of introducing hybrid rice seed in Pakistan is being commanded by national seed companies mainly in collaboration of Chinese leadership in research & development with 'Guard Agri' having the lion's share. Several multinational seed companies did try to introduce hybrid rice seed but could not outperform national seed companies. Their varieties were less rewarding for farmers due to lack of jump in production while seed cost was also high when compared to what local seed companies were offering.

Being founding chairman of Seed Association of Pakistan (SAP) and Rice Exporters Association of Pakistan (REAP) and former President of Lahore Chamber of Commerce & Industry (LCCI), I believe with untiring efforts of local scientists, the role of private sector in seed research and development is increasing day by day, as I have closely worked with Government and Private researchers.

With doubling of hybrid rice seed coverage from present 25-30 per cent to over 50 per cent in next three years, national rice production is potentially expected to be increased by hefty two million tons. During the last few years, production of long grain (coarse types) is increasing as the farmers are bringing more areas under coarse hybrid types. During 2021-22, the crop was sown on 3,537 thousand hectares, showing an increase of 6.1 percent as against 3,335 thousand hectares last year. The record high output of rice stood at 9.323 million tonnes during 2021-22, higher by 10.7 percent than last year's production of 8.420 million tonnes.

In total rice hybridization, around 90 per cent area of long-grain paddy is in Sindh province while 10 per cent in South Punjab. As aromatic basmati rice is first choice for farmers in Punjab, coarse varieties area is still low. However, with production of hybrid rice seed in central Punjab, paddy area in Punjab is likely to increase significantly in coming years, he observed.

The major factor behind success of national seed companies in large-scale acceptance of rice hybrid seed has been development of heat-resistance and drought-tolerant varieties. Multinational seed companies had varieties that could not perform well in harsh summer weather of Sindh and Southern Punjab. Long grain hybrid rice that substituted IRRI-6 in the coastal belt and central Sindh is a major success as its export market is rapidly evolving in the favor of farmers and exporters.

Consequently, our long grain rice is gaining grounds globally with much ease by competing major producers and exporting countries of the world like Vietnam and Thailand. Our company has emerged as a leader in demand-driven research in agriculture, challenging the monopoly of public sector institutions and multinationals.

With great passion to increase productivity of farming sector, we are actively striving to achieve food security in an untiring effort spanning over past 30 years. We successfully pioneered the introduction of hybrid rice seed in Pakistan with collaboration of Chinese scientists for which Government of Pakistan honoured me Sitara-e-Imtiaz for contribution in revolution of rice production which doubled the income of farmers, resulting in changing socio-economic conditions and poverty alleviation in rural Sindh. The surplus rice production resulted in increased rice (non-basmati) exports bringing in valuable foreign exchange.

ABDUL RAHIM JANOO
Chairman South Zone Group
Ex-Chairman REAP
Ex-Senior Vice President,
FPCCI

Importance of food safety and strict compliance of standards in Pakistan

Food is one of the most important commodity for human being to survive. Further, healthy food is preferred everywhere keeping in view their nutritious ingredients. It is also one of the mostly traded products around the globe and its volume is continuously increasing. Food safety has become the main priority of consumers all around the world. It refers to the complete process of manufacturing any food product from raw material till the stage of Finished Good ensuring free from any contaminant causing health risk. A common man even prefers the food items that are compliant with complete hygienic conditions. As far as export of food product is concerned, many countries have implemented strict checks and balance on import of food items. They have specific regulatory department to monitor the process on regular basis.

Pakistan is primarily an agricultural country, our food processing industry is country's 2nd largest industry, accounting for 27% of the value-added production and 16% of employment in the manufacturing sector. Pakistan is ranked among world's top 15 countries for production

Pakistan is 4th largest rice exporting country in the world. Keeping in view the demand of importing countries, Pakistani rice exporters are following international standards and installing most modern equipment and machineries in their rice processing mills

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of major food-related crops. A variety of food crops, rice, fruits, vegetables etc are produced in the country, which are not only sufficient for domestic consumption besides surplus available for exports. Despite the obstacles, the industry comprises thousands of food processing units, generating millions of job opportunities in the country.

As far as rice export is concerned, Pakistan is 4th largest rice exporting country in the world. Keeping in view the demand of importing countries, Pakistani rice exporters are following international standards and installing most modern equipment and machineries in their rice processing mills.. Many Pakistani rice exporters are aggressively working towards establishing their brands in international markets, they have to make themselves compliant international standards and are getting Food Safety Certification to meet the importing countries requirements, as they require various Food Safety Certification from suppliers companies.

The International Organization for Standardization (ISO) is an international body based in Geneva, Switzerland and branches in more than 100 countries. It was one of the first organizations granted general consultative status with the United Nations Economic and Social Council. In

Various Certifications, such as ISO 22000, HACCP - Hazard Analysis and Critical Control Points, GMP - Good Manufacturing Practices etc. by renowned companies which are accredited worldwide, who provide comprehensive guidelines about the whole process of food manufacturing on the basis of hygiene as well as food safety.

many countries to import or export any food item, the food safety certification is must for e.g. USA, EU and majority of Gulf countries.

Various Certifications, such as ISO 22000, HACCP - Hazard Analysis and Critical Control Points, GMP - Good Manufacturing Practices etc. by renowned companies which are accredited worldwide, who provide comprehensive guidelines about the whole process of food manufacturing on the basis of hygiene as well as food safety. They do regular audits of the manufacturing facilities from time to time to validate their Certifications. They extend support to food industry to ensure the food quality keeping in view the safety of human being and free from any hazardous to health.

China is approving only those rice mills, who are compliant and fulfilled the International SOPs and protocols. Further, in the recent past, some countries such as Mexico and Russia had imposed ban on exports from Pakistan. In this regard, role of Department of Plant Protection (DPP), Ministry of National Food Security & Research (MNSFR) is very important

For instance, China is approving only those rice mills, who are compliant and fulfilled the International SOPs and protocols. Further, in the recent past, some countries such as Mexico and Russia had imposed ban on exports from Pakistan. In this regard, role of Department of Plant Protection (DPP), Ministry of National Food Security & Research (MNSFR) is very important. DPP Officials are working day and night to inspect the rice mills of Pakistani exporters and providing them guidelines to upgrade their rice mills as per International Standards. More than 50 rice processing units all over Pakistan are registered for rice exports to China, whereas registration for Russia is under process and DPP Officials are putting extra efforts to make this happened at the earliest. Therefore, it is important to ensure that rice mills comply with food safety and hygiene legislation by implementing and maintaining strong food safety and hygiene procedures.

Climate change and its impact on rice production

MUHAMMAD RAZA
The author is Ex-Senior Vice Chairman of Rice Exporters Association of Pakistan and is one of the leading exporters of Rice from the country.
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Climate change encompasses continuous shift in temperatures over the world. This phenomenon usually occurs naturally. However human interventions are now considered the main cause of climate change. Climate change is usually considered synonymous with Global Warming. While the latter is focused on rising temperatures only due to green house gases, climate change is a long-term phenomenon.

Rice is the backbone of global food security. Almost half of humanity eats rice as their staple diet. It also has broader implications on the animal feed industry. Its biproducts are now also used in a variety of applications for human and animal use. Rice is a water intensive crop and impact of climate change on rice is considered to have long term repercussions for its growth and prosperity.

Climate change encompasses increase and decrease in water reservoirs, precipitation, and overall temperatures. The bulk of global rice supply originates from irrigated systems which are to some extent shielded from immediate drought effects. However, in Pakistan that is not the case. Pakistan is one of the top countries to be impacted by climate change and rice will be one of the most adversely affected crops.

One needs to take sustainable measures with regards to controlling the impact of climate change on rice. Example can be taken from a study conducted in Thailand. In the northeast region of Thailand, farmers faced both floods and drought and low soil fertility, leading the low rate of food self-sufficiency. Based on the questionnaire survey conducted in eleven districts of KhonKaen Province as the Mid-Northeast, the study aimed to analyze the impacts of climate change on rice production, profitability of rice farming, and adaptation practices to climate change for rice farmers. Many rice varieties were grown in different paddy soil series of KhonKaen Province. Impact assessment of climate change revealed production of major rice varieties in different paddy soil series under levels of XX fertilizer application. The study concluded that rice crop although very averse to negative impacts of climate change, was one of the crops where adaptation techniques along with new research of varieties that can adapt to climate change is the only way forward.

Trend of climate change in the future will affect rice yields. The

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Today if you attach a dollar or rs value to the rice crop or consider opportunity cost of water, then the impact on prices or the impact on the crop in pakistan is unimaginable

results of the study in Thailand highlights the need to implement adaptation to climate change strategies for rice farmers, which are as follows: 1) develop rice growing techniques by using appropriate local rice varieties with higher yield under water shortage; 2) improvement of soil fertility by using crop residues from farms and green manure for farm environment and reducing CO2 emissions; 3) operation and maintenance of irrigation systems for enough allocation of water demand in the dry season and water storage in the rainy season; and 4) insure crop yield for small farmers.

Moreover, there are considerable risks for rice production stemming from climate change, but that the development of necessary adaptation options can capitalize on an enormous variety of rice production systems in very different climates and on encouraging progress in recent research.

Overall, Higher temperatures can adversely affect rice yields through two principal pathways, namely (i) high maximum temperatures that cause-in combination with high humidity-spikelet sterility and adversely affect grain quality and (ii) increased nighttime temperatures that may reduce assimilate accumulation. This phenomenon is very true for Pakistan and has impacted rice and other crops in the past in many areas. On the other hand, some rice cultivars are grown in extremely hot environments, so that the development of rice germplasm with improved heat resistance can capture an enormous genetic pool for this trait. Likewise, drought is a common phenomenon in many rice growing environments, and agriculture research has achieved considerable progress in terms of germplasm improvement and crop management (i.e., water saving techniques) to cope with the complexity of the drought syndrome.

The government of Pakistan along with the rice industry needs to work towards future sustainability of the rice crop. It is very important to note that the water usage for rice in Pakistan is very high. This all due to old methods of farming, wastage of water in the canals, lack of laser levelling and lack of technology. The world is now moving towards rice seeds that are even drought resistant

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In conclusion, climate change is here to stay. Pakistan is least prepared for this phenomenon. The recent floods of 2022 indicate the impact climate change can have on Pakistan. Today's too many rains can also lead to NO RAINS in future. Either ways preparation and planning for climate change impact is necessary for sustainability and livelihoods of the rice sector and the agricultural sector in general.

FAISAL ANIS MAJEED
Member REAP, General Secretary YREP, Deputy Convener, Rice Committee FPCCI

REAP's Effort towards Efficient Rice Farming

Rice is the Second largest foreign exchange earner for Pakistan. Well know across the globe for its Quality, Commitment and a reliable origin source for Rice. Our exporters have worked very hard to market Rice as well as Pakistan across the Globe, without which 2.5 Billion export mark would not have been achieved.

Pakistan harvested a record rice crop of 8.9 million tonnes in the 2021-22 marketing year, up from 8.4 million tonnes the prior year, according to a Global Agricultural Information Network report from the Foreign Agricultural Service of the US Department of Agriculture (USDA).

This improvement in production is mainly because of New higher-yielding hybrid rice varieties, improved agronomic practices and increased planting area. In this effort Rice Exporters Association of Pakistan (REAP) has played a major role by

REAP invited Rice Growers, Progressive farmers, Processors, seed development companies, fertilizer and pesticide companies, research and development institutes specifically for rice in Pakistan

Organizing First REAP Rice Conference, Larkana in November 2018, under the leadership of Mr Safder Mekhri, Chairman REAP and Covenor, Mr Ashfaq Ghaffar and Deputy Convener, Mr Faisal Anis Majeed.

This initiative brought a shift in

Pakistan harvested a record rice crop of 8.9 million tonnes in the 2021-22 marketing year, up from 8.4 million tonnes the prior year, according to a Global Agricultural Information Network report from the Foreign Agricultural Service of the US Department of Agriculture (USDA)

mindsets of Farmers, Millers, processors and exporters and played as an ice breaker for the whole supply Chain. Mr Safder Mekhri's vision was to bring all Stake Holders of Rice Industry under one roof and discuss, understand and try to address issues faced by different stake holders in different stages of this chain to make a Win-Win Situation.

REAP invited Rice Growers, Progressive farmers, Processors, seed development companies, fertilizer and pesticide companies, research and development institutes specifically for rice in Pakistan, Agriculture ministry, Extension Department, water and relevant Departments, Sindh Chamber of Agriculture, Inspection agencies, State Bank officials, SEDF, Plant protection department, Pakistan Agriculture Coalition, most importantly Brokers and Traders of Rice and our honorable exporters of Rice to be part of this auspicious events.

The two days discussion not only brought this whole value chain closer but also generated many ideas on how we can collaborate with each other to improve our efficiencies in Seed development, implement better farming practices, reduce loss of grains in the process, produce better Rice, usage of mechanized farming, laser levelers, paddy drying facilities and other opportunities which can be explored with all relevant department.

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REAP did not sleep after this successful event, the leadership motivated top exporters to vertically integrate and invest towards development of seed, introduction of lazer levelers, Mechanized Seed Planters and harvesters, Drying Facilities, develop model farms for quick adaptation by farmers. These exporters for the betterment of Rice Trade and Industry invested and Alhamdulilah have been successful after trial and error in developing a success story for others to follow.

Hence it is our responsibility to create awareness and model farms to establish fact that in which area, which seed is performing the best, what are the inputs, arrange timely water availability and then insure them that we will buy back your product in good rates so that they give focus on quality of production, reduce early harvest so better seed maturation, reduce loss of grain in field, easy and subsidized availability of Mechanized farming instruments are all required to achieve economies of scale

Farmers are the lowest earners in our supply chain with a huge responsibility of growing the crop, most farmers have to borrow money to buy seed, fertilizers, pesticides and other inputs to produce their products, during this process if they are not guided properly they may loose everything if the crop fails. Hence it is our responsibility to create awareness and model farms to establish fact that in which area, which seed is performing the best, what are the inputs, arrange timely water availability and then insure them that we will buy back your product in good rates so that they give focus on quality of production, reduce early harvest so better seed maturation, reduce loss of grain in field, easy and subsidized availability of Mechanized farming instruments are all required to achieve economies of scale.

Reap has recently been working on enhancing research capacity and introduction of modernized equipment's for our Rice Research Institutes with the help of government, to optimized Rice Seed Development, high yielding seeds, quick adaptation of international requirements of Rice. In this manner we will be able to achieve our export target of USD 5 Billion mark in coming years.

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REAP ACTIVITIES

REAP striving hard to serve export rice industry

REAP NORTH ZONE ACTIVITIES

Emergent meeting of Chairman REAP All Hussarn Asghar with Federal Minister Food Security Tariq Bashir Cheema Sb. It was agreed that all Brown Rice Export cargo will be released on urgent basis and any future change inspection procedure will first be discussed with Chairman REAP and stakeholders. Ali Hussam, we, the Brown Rice Exporters of Pakistan, are very thankful to you for your urgent intervention in this matter for Brown Rice Trade. We are also very thankful to Minister Sb for his prornpt orders. Love you Ali, always leading frorn front for Trade.

Chairman REAP Ali Hussam Asghar, Founder Chairman REAP Shahzad Ali Malik & Ch Sami Former Chairman REAP met with Speaker National Assembly Raja Pervez Ashraf Sb. It was agreed that Chairman REAP and REAP Stakeholders will be invited in Standing Committee Department meetings like S/c on Commerce, Finance & Food Security for Stakeholder Input in the National Assembly Sessions. This is Positive Development by the Present Government to take REAP input in law making.

Discussion of Mr. Ali Hussam Asghar, Chairman REAP with Prime Minister of Pakistan Mian Muhammad Shahbaz Sharif during Post Budget Session held at Islamabad.

REAP NORTH ZONE ACTIVITIES

Mr. Ali Hussam Asghar, Chairman REAP, Mr. Samee Ullah Naeem, Ex-Chairman REAP and Mr. Haseeb Ali Khan, Member REAP participating in Agri Expo 2022 at Expo Center, Lahore.

Mr. Ali Hussam Asghar, Chairman REAP is presenting shield to Dr. Werner Nadir, Senior Consultant Eurofins Global Control during a briefing session at LCCI, Lahore on Import of Food & Feed in Europe.

Mr. Ali Hussam Asghar, Chairman REAP, Pir Syed Nazim Hussain Shah presenting REAP Diary 2022 to Mr. Rafeo Bashir, Chairman TCP during a meeting to discuss various issues to enhance rice exports.

REAP NORTH ZONE ACTIVITIES

Mr. Ali Hussam Asghar, Chairman REAP alongwith Ch. Samee Ullah Naeem, Ex-Chairman REAP hosted a dinner function at PC Lahore in honor of foreign delegates partici-pated in Agri Expo 2022 at Expo Center, Lahore.

A REAP delegation led by Mr. Ali Hussam Asghar, Chairman REAP has visited Soil Salinity Research Institute, Pindi Bhattian. Malik Muhammad Jahangir, Ex-Chairman REAP, Ch. Muhammad Shafique, Ex-Chairman REAP, Mr. Toufiq Ahmed Khan, Member REAP and Mr. Muhammad Kashif ur Rehman, Secretary General REAP were also the part of delegation.

Mr. All Hussarn Asghar, Chairman REAP had a meeting with Honorable Mr. Abdul Razzak Dawood, Advisor to Prime Minister alongwith Pir Syed Nazim Hussain Shah, Mr. Rafique Suleman, Ex-Chairman REAP and Mr. Muhammad Kashif ur Rehman, Secretary General REAP to discuss issues regarding G.I case and Inclusion of 1121 rice variety in EU abatement scheme.

REAP NORTH ZONE ACTIVITIES

Mr. Ali Hussam Asghar, Chairman REAP had a meeting with newly appointed Trade & Investment Officers who are going to take charge in various Pakistani Missions abroad to promote Pakistan's exports.

Mr. Ali Hussam Asghar, Chairman REAP presenting shield to Mr. Imdaullah Bosal, Federal Secretary, Ministry of Industries & Production, Govt. of Pakistan during his Meeting to discuss issues being faced by rice exporters and to discuss the current status to declare rice as an industry.

Mr. Ali Hussam Asghar, Chairman REAP presenting shield to Excellency Mr. Baligh ur Rehman, Governor Punjab alongwith Mr. Shahzad Ali Malik (SI), Pir Syed Nazim Hussain Shah and other REAP members during his meeting with Governor Punjab.

REAP NORTH ZONE ACTIVITIES

Mr. Ali Hussam Asghar, Chairman REAP presenting shield to Mr. Muhammad Sualeh Ahmed Farooqi, Federal Secretary, Ministry of Commerce, Islamabad during his meeting to discuss various issues being faced by rice exporters.

Mr. Ali Hussam Asghar, Chairman REAP had a meeting with Honorable Mr. Bilawal Bhutto Zardari, Foreign Minister, Ministry of Foreign Affairs, Govt. of Pakistan.

Mr. Ali Hussam Asghar, Chairman REAP had a meeting with newly appointed Counsellor General China in Lahore and discuss the modalities in order to enhance rice exports.

REAP NORTH ZONE ACTIVITIES





First ever Pakistani Biryani Festival organized by Embassy of Pakistan, Tehran and Rice Exporters Association of Pakistan to promote Pakistani Rice Exports to Iran.

Mr. Ali Hussam Asghar, Chairman REAP and Mr. Shahzad Ali Malik (SI) had a meeting with Honorable Mr. Murtaza Mahmud, Federal Minister Industries to discuss granting Industry status to rice sector.

REAP NORTH ZONE ACTIVITIES

Rice Exporter Association Of Pakistan (REAP) has despatched 12 trucks of Rice to flood affected areas in sindh, Reap is very thankful to its following members who have contributed one truck of each. 1.Shahzad Ali Malik (SI) ex-chairman Reap 2. Ali Hussam Asghar Chairman Reap 3. Ch Shafiq Ex- Chairman 4. Sameeullah Naeem Ex-Chairman Reap 5. Taufiq Ahmad Khan Ex-Vice Chairman 6. Haseeb Ali Khan Ex-Treasure 7. Ch Zulfiq Ali MC Member 8. Jahanzaib Javed MC Member 9. Asim Siddiqui 10. Usama Tariq 11. Tariq Mehmood 12. Adnan Sheikh.

Ali Hussam Asghar Chairman Reap with Ambassador of UAE H.E Al Zaabi.

Ali Hussam Asghar Chairman Reap with Ambassador of Kingdom of Saudi Arabia.

REAP NORTH ZONE ACTIVITIES

Mr. Ali Hussam Asghar, Chairman REAP alongwith Managing Committee Members of REAP had a meeting with Cheif Secretary Punjab Mr Kamran Afzal to discuss proposals to enhance rice exports through Farm Mechanization and Close liason of Market Committee to improve Moisture level in paddy and modernization of local rice mandees.

Chairman REAP Ali Hussam Asghar with H.E Bilal Hayee Pakistan Ambassador to Azerbaijan while leading REAP delegation to Baku

Mr. Ali Hussam Asghar, Chairman REAP and Mr. Muhammad Kashif ur Rehman, Secretary General REAP with Secretary TDAP Mr. Ahsan Mangi at his office.

REAP NORTH ZONE ACTIVITIES

Ali Hussam Asghar with CEO Salic in Riyadh at sidelines of PM Visit to Saudi Arabia in October 2021.

Meteting with Deputy Agriculture Minister of Iran to discuss barter trade in Tehran.

Meteting with Deputy Agriculture Minister of Iran to discuss barter trade in Tehran.

REAP SOUTH ZONE ACTIVITIES

30th September 2021: REAP's 23rd Annual General Meeting at PC Hotel Karachi.

5th October 2021: Visit of Delegation of Young Rice Exporters of Pakistan (YREP) Team.

11th October 2021: Meeting of REAP Delegation with Syed Mumtaz Ali Shah, Chief Secretary Sindh. REAP Team has given a Brief Presentation to Chief Secretary and his Team regarding issues and challenges being faced by Rice export sector. The Chief Secretary assured to extend his full cooperation to this very important sector of Pakistan.

REAP SOUTH ZONE ACTIVITIES

19th November, 2021: Visit of REAP Delegation led by Mr. Muhammad Anwar Mianoor, SVC REAP to Rice Research Institute, Dokri, Sindh. Sindh Agriculture Department has arranged a Conference at RRI, Dokri as well as visit of Rice Fields was also arranged to show the research work of Sindh Agriculture Department.

2nd December 2021: Awareness / Briefing Session by Mr. Muhammad Sohail Shahzad, Director Technical (Quarantine), Department of Plant Protection. Officials of DPP has given comprehensive presentation for the training of rice exporters to upgrade their rice processing mills as per the international standards / SOPs.

3rd December 2021: REAP Delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP had meeting with Ms. Sima Kamil Deputy Governor, State Bank of Pakistan. REAP has requested SBP support to resolve pending issues of stuck up payment of rice exporters at Yemen as well as Other issues of ERF schemes to rice exporters.

REAP SOUTH ZONE ACTIVITIES

6th December 2021: Meeting of REAP Delegation with Mr. Mahmood Baqi Moulvi, Special Assistant to Prime Minister on Maritime Affairs at KPT Head Office Karachi to discuss various issues and challenges being faced by Rice Exporters. Mr. Mahmood Moulvi assured his every possible support to resolve the issues related to ports and shipping matters.

22nd December 2021: Visit of H.E. Madam Amna Baloch, High Commissioner of Pakistan in Malaysia to REAP House, Karachi. Mr. Shafqat Niazi also attended the session through Zoom Video Link. Various matters related to increase the rice export trade between both the brotherly and friendly countries were discussed.

29th December 2021: Meeting of REAP Delegation led by Chairman REAP with Hon. Governor Sindh at Sindh Governor House, Karachi. Chairman REAP seek the support of Sindh Governor House for the betterment of rice export trade of Pakistan, whereas Hon. Governor Sindh has assured full support to 2nd largest earner of valueable foreign exchange for Pakistan.

REAP SOUTH ZONE ACTIVITIES

11th January 2022: Press Conference at REAP House, Karachi regarding issues and challenged being faced by rice exporters of Pakistan, such as severe fluctuation in Dollar Exchange rate, non availability of empty Containers, very high and unjustified freight rates of shipping companies etc.

11th January 2022: Meeting of REAP Delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP with Mr. Munawar Ali Mahesar, Managing Director, S.I.T.E. Limited. Various matters related to plots allocated to REAP Members in Noriabad SITE area for the establishment of rice export zone.

22nd February 2022: REAP's Dinner Function in honor of visiting Sri Lankan Delegation led by Trade Minister at Beach Luxury Hotel, Karachi. Exclusive meeting of REAP's Office Bearers & Leading Rice exporters was arranged with Sri Lankan delegation to seek the opportunities and possibilities to increase the rice export trade between both the countries.

REAP SOUTH ZONE ACTIVITIES

7th March 2022: REAP Delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP had meeting with Syed Rafeo Bashir Shah, Chairman, Trading Corporation of Pakistan. matters related to export of Brown rice from Pakistan to European countries were discussed.

8th March 2022: REAP Delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP had meeting with Dr. Kamran Fazal, PSP, Inspector General of Police Sindh and his team. Various matters related to law & order situation in Karachi and other cities of Sindh province. Hon. IG Police has kindly assured full support of Sindh Police for rice exporters of Pakistan.

11th March 2022: REAP Delegation led by Mr. Muhammad Anwar Mianoor, Acting Chairman REAP had meeting with H.E. Jagath Abeywarna, Consul General of Sri Lanka. This meeting was arranged on the request of Sri Lankan Consul General to seek the opportunities to increase the export of Pakistani rice to Sri Lanka.

REAP SOUTH ZONE ACTIVITIES

15th March 2022: REAP Delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP had meeting with Mr. Aijaz Ahmed Mahesar, Secretary Agriculture Sindh. Various matters related to agricultural sector as well as rice export were discussed.

24th March 2022: Briefing Session of Pakistan Single Widow (PSW) at REAP House Karachi. PSW Team has given comprehensive presentation and training to switch from WEBOC to Single Window System. The PSW Team also arranged Q/A Session for the participants to respond the queries from REAP members.

30th March, 2022: Visit of Mr. Aijaz Ahmed Mahesar, Secretary Agriculture Sindh along with Mr. Shakeel Ahmed Rahmoon, Additional Secretary Agriculture Sindh at REAP House, Karachi.

REAP SOUTH ZONE ACTIVITIES

12th May 2022: Meeting of REAP Delegation with H.E. Consul General of Oman at Consulate General of Oman. Various matters related to rice export trade & investment opportunities in Oman were discussed to increase the bilateral trade between both the brotherly and friendly countries.

27th May 2022: REAP's Eid Milan Dinner Function at PC Hotel Karachi. All stakeholders of rice trade in Pakistan, Office Bearers of All Trade Bodies of Pakistan, Diplomats appointed in Karachi as well as Top Government Officials of various Departments were invited to attend this Grand Eid Milan Program by REAP.

2nd June 2022: Visit of Newly Appointed Trade Investment Officers who are going to take charge in Pakistani Missions in (14) different countries to look after the mattes of trade with respective countries and promote Pakistan's exports in these countries and extend their support to increase the market share of Pakistan in these countries.

REAP SOUTH ZONE ACTIVITIES

8th June 2022: REAP Organizes Lunch in honor of Dr. Muhammad Sohail Rajput, Chief Secretary Sindh at PC Hotel, Karachi. Various matters of rice exports related to Sindh Government were discussed in detail. The Chief Secretary Sindh has assured full support of Sindh Government for the betterment of rice export trade.

14th - 15th June 2022: Pakistan Agriculture Research Councl (PARC) has Organised Conference & Training Workshop on Food Safety and Quality of Rice at Muhammad Ali Jinnah University (MAJU). This Session was attended by prominent delegates from Research & Development organizations, industry, grower, academia, regulatory & trade bodies as well as international experts through ZOOM video link.

15th June, 2022: Meeting at REAP House, Karachi with Syed Sultan Ali, Director / Chief Scientist, Rice Research Institute, Kala Shah Kaku & Mr. Nqabi Bux Jamro, Director Technical, Tandojam. REAP Team has requested Director, RRI Kala Shah Kaku for his technical support to Sindh Government for preparation of feasibility report for the installation of Phytotron Tunnels in Rice Research Centre in Sindh province.

REAP SOUTH ZONE ACTIVITIES

16th June, 2022: Briefing Session followed by Lunch at REAP House, Karachi. Dr. Werner, Senior Consultant IRCA Lead Auditor FSSC/ISO 22000, Food Safety Management Systems has given comprehensive presentation on the issues related to Opportunities & Challenges on Import of Food and Feed into Europe.

22nd June 2022: Meeting of REAP delegation led by Mr. Muhammad Anwar Mianoor, Senior Vice Chairman REAP with Dr. Muhammad Sohail Rajput, Chief Secretary Sindh along with Secretary Food, Secretary Agriculture, Secretary Irrigation & Other Officials of Sindh Government. Various matters of rice exports related to Sindh Government were discussed in detail. The Chief Secretary Sindh has assured full support of Sindh Government for the betterment of rice export trade.

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