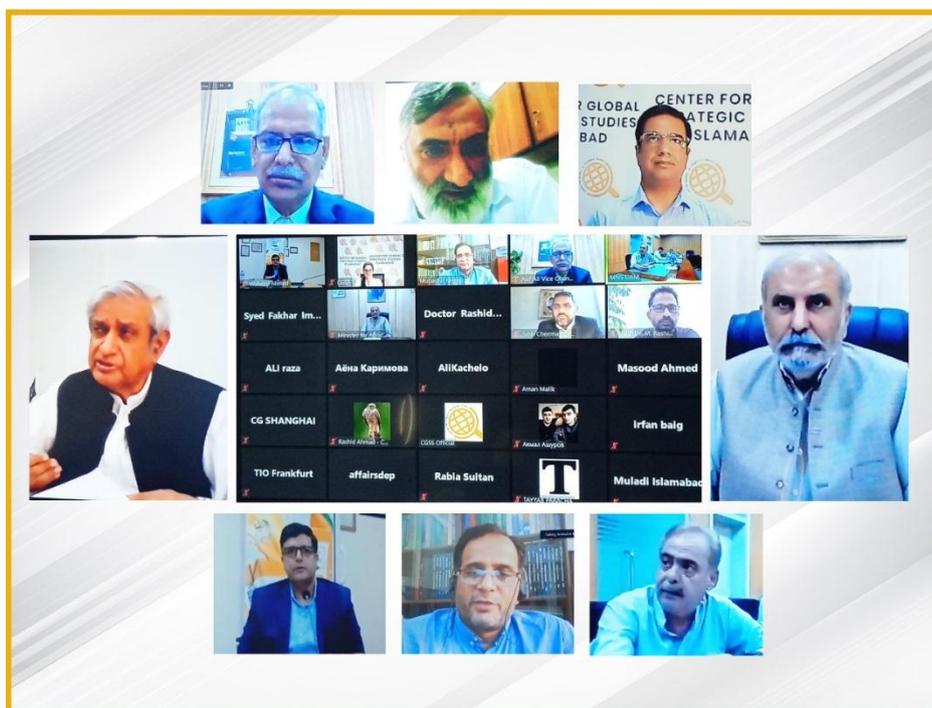




Online Conference

“DYNAMICS OF POTENTIAL MANGO VALUE CHAIN IN PAKISTAN: BENEFITS FOR EXPLORING NEW MARKETS”



Jointly organized by
Center for Global & Strategic Studies (CGSS) , Islamabad,
Muhammad Nawaz Shareef (MNS) University of Agriculture,
Multan & Mango Research Institute, Multan
on 17th June 2021



“CGSS is a Public Policy Institute with a mission to help improve policy and decision-making through analysis and research”

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BIREF OF THE EVENT

On 17th June 2021 an online conference on the topic, “ Dynamics of Potential Mango Value Chain in Pakistan: Benefits for Exploring New Markets”, was jointly organized by Center for Global & Strategic Studies (CGSS) , Islamabad, Muhammad Nawaz Shareef (MNS) University of Agriculture, Multan and Mango Research Institute, Multan.

The aim of the conference was to explore new potential markets for mango trade between Pakistan and various countries. Furthermore, the trading purpose envisaged discovering new overtures such as; post-harvest mango technology, enhancing Pakistan's mango trade and production, to understand emerging trade-market trends in Central Asia, Asia Pacific and beyond. Various experts were invited to suggest policy guidelines to enhance trade linkages and curtail market-business challenges regarding the mango supply chain.

Syed Fakher Imam, Federal Minister for Food Security & Research, Government of Pakistan was the Chief Guest of the Conference.

The Conference was attended by the diplomats from various countries including Azerbaijan, Bangladesh, Canada, China, Germany, Indonesia, Japan, Malaysia, Oman Russia, Tajikistan, Ukraine, and Uzbekistan and was attended by 100 participants on Zoom and 150 people from across the world watched the Conference live on Facebook.

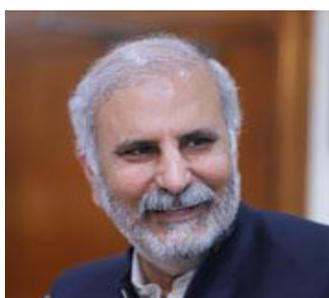
PROFILES OF SPEAKERS

Syed Fakhar Imam, Federal Minister for Food Security & Research, Government of Pakistan - Chief Guest



Syed Fakhar Imam is a Pakistani politician who is currently serving as Federal Minister for National Food Security and Research, in office since April 2020. He also served as the 11th Speaker of National Assembly of Pakistan from 1985 to 1986. He has previously worked as the Chairman of Pakistan's Parliamentary Special Committee on Kashmir. He was educated at Clifton College in England. On 6 April 2020 he was appointed as Federal Minister for National Food Security and Research.

Syed Hussain Jahania Gardezi, Provincial Minister for Agriculture Punjab, Government of Pakistan - Guest of Honor



Mr Hussain Jahania Gardezi obtained the degree of M.Sc(Hons) in 1980 from University of Agriculture, Faisalabad; and Diploma (L.G) in 1993 from Foreign Ministry Institute, Denmark. An agriculturist, who served as Leader of Opposition in Zila Council, Khanewal during 1991-93. He was first elected as Member, Provincial Assembly of the Punjab during 1993-96 and performed the duties of Minister for Cooperatives. He was again elected as Member Punjab Assembly during 2002-07 and functioned as Minister for Food and Literacy & Non-Formal Basic Education. He was again elected as Member Punjab Assembly for the third term in general elections 2013.

Prof. Dr. Asif Ali, Vice-Chancellor, MNS University of Agriculture, Multan



Prof. Dr. Asif Ali is the Vice-Chancellor of MNS University of Agriculture, Multan which is a chartered and fast growing agriculture University, envisioned to "provide systems and leadership in professional learning, research and outreach. Dr. Asif area of expertise include Genomics and Plant Breeding. He has 145 number of publications to his credit.



Maj. Tariq Khan, Progressive Mango Growers Association, (Lutfabad Mango Farms Multan)



Maj. Tariq Khan is from Progressive Mango Growers Association, (Lutfabad Mango Farms Multan). He is an experienced Managing Director with a demonstrated history of working in the farming industry. Skilled in Negotiation, Food Security, Food & Beverage, Budgeting, and Sustainable Development. Strong business development professional with a Graduation focused in English from Pakistan Military Academy.

Prof. DrAmanullah Malik Group Leader, Postharvest Research and Training Center, University of Agriculture, Faisalabad



Prof. DrAmanullah Malik is Group Leader from Postharvest Research and Training Center, University of Agriculture, Faisalabad. He is an HEC approved supervisor. His research interest includes Postharvest physiology and Technology of Horticultural Crops.

Mr. Waheed Ahmad, Leading fruit exporter and President of the Pakistan Fruit Exporters Association



Mr. Waheed Ahmad is a Leading fruit exporter and President of the Pakistan Fruit Exporters Association. He is Former Vice President at FPCCI - Federation of Pakistan Chambers of Commerce & Industry



Mr. Khalid Taimur Akram, Executive Director, Center for Global & Strategic Studies (CGSS), Islamabad



Mr. Khalid Taimur Akram is the Executive Director of Center for Global & Strategic Studies (CGSS), Islamabad since September 2016 where he is responsible for implementing and developing plans, leading projects, and working with collaborators to achieve mission of CGSS of finding solutions for sustainable objective policies for regional, extra-regional and beyond. He continues to contribute his influential expertise to regional connectivity. He is an eminent expert on geo-strategic affairs with special emphasis on the Central Asian and Euro Asian region amid to enhance the prospects for regional connectivity and socio-economic linkages among the regional players.

Dr. Mubashir Mehdi, Assistant Professor Institute of Business Management Sciences, University of Agriculture Faisalabad



Dr. Mubashir Mehdi is the Assistant Professor Institute of Business Management Sciences, University of Agriculture Faisalabad. He is an HEC approved supervisor. His research interests include Supply chain management, Entrepreneurship, Marketing and Agribusiness.



Transcripts of the Speeches by the Speakers



Opening Remarks

Mr. Khalid Taimur Akram, Executive Director, Center for Global & Strategic Studies (CGSS), Islamabad

Good evening to all of you. My name is Khalid Taimur Akram and I am the Executive Director for the Center for Global and strategic Studies. It's an Islamabad based think tank in Pakistan and I would like to welcome all the participants who have joined and hopefully more people will be joining us in due course of time. I would like to welcome especially all the foreign embassies, which are participating in today's event and also to all the Pakistani embassies abroad who are participating in this event. Welcome to you all. The subject of today's conference is dynamics of a potential mango value chain in Pakistan and benefits for exploring the new markets. As all of you know that Pakistan mango is one of the most main fruits in Pakistan in which we are exporting to almost every part of the world. Pakistani mangoes are famous for their taste around the world and they are very well known around the world. In 2019, Pakistan exported almost 130,000 tons of mangoes to all over the world including Middle East, Europe and United States. So, the purpose that we are holding this online conference today is one to acquaint all of you with the supply value chain too. If you have any questions at the end regarding the qualities of mangoes, regarding that what kind of processes these mangoes go through in Pakistan? What kind of once they are taken out of the trees, what kind of processes are being done and what is the export procedures and how can you import mangoes from Pakistan? So for this conference, our partners are Muhammad Nawaz Sharif (MNS), University of Agriculture (Multan). This university is located in South Punjab in Multan, which is the hub of the mangoes and also the Mango Research Institute in Multan. Mango Institute is a specialized Institute which only deals where the mango research. So today, rightnow, we will formally begin the conference and I will hand you over to the moderator of today's conference. His name is Dr. Mubashir Mehdi. He is the Assistant Professor in the Institute of business sciences, and the University of Agriculture in Faislabad. So, Dr. Mubashir, you can please start the conference. Thank you.



**DR MUBASHIR MEHDI (ASSISTANT PROFESSOR OF AGRICULTURE IN
FAISALABAD)**

Dear participants, respectable dignitaries and collaborators, this webinar is all about knowing the facts about a king which is known as a king of the fruit, I mean mango so being a Pakistani we should feel proud that the king of the our fruit has not only loved within the country but also across the world, so the webinar will move forward with the few presentations in which we shall found opportunity to listen about the mango kingdom of Pakistan both from the commercial perspective as well as from the technical perspectives, we shall also provide 20-30 mins to participants to ask questions from the presenters but after presentations so however you may put your questions if you come up during the presentations if some questions come up in your minds and you can put your questions in the chat box which is reflecting on the bottom of your screen, so we shall address all those questions after the technical sessions or if we may not be able to address those questions we will definitely follow up after the webinar so before I go to the technical presentations I am highly thankful to Syed Hussain JahaniaGardezi (the provincial minister for agriculture) who has joined us and he is also our guest of honor today in this webinar. I just want to introduce Syed JahaniaGardezi, he is not only the seasons politicians but also a learned Agro-economist as well as a progressive mango grower in this Southern Punjab and his whole land belongs to the Multan region which is the hub of the mango production, since took the charge of the agriculture portfolio he has got marvelous recognition from the stakeholder in the agriculture sector particularly in Punjab so it is an honor for me to invite Syed Hussein JahaniaGardezi (provincial minister of Agriculture) please share the vision of Punjab government on Agriculture in general and mango business in particular.



Speaker 1

Syed Hussain Jahania Gardezi, Provincial Minister for Agriculture Punjab, Govt of Pakistan – Guest of Honor

Bismillah R Rahman Rahim. I want to thank Doctor, global strategies studies think tank and university of agriculture and of course mango research institute for organizing this seminar of mango because mango is one of the most important high value crops grown in Pakistan. Pakistan is very lucky country that it has various weathers and various types of soils which can produce a large variety of fruits and not only the large varieties produced but the quality of the food produced in Pakistan is excellent and it is always appreciated all over the world then and but in among all this attains the central position. Mango is always called as the king of the fruits and it is also called as a national fruit because mango has a special status and its status is linked to very old traditions we have here in Pakistan. People normally, whenever they want to send some gifts to their friends they prefer to send mangoes to their friends and it's a great tradition which is continuing for the many years and now this tradition of sending gifts, mango as a gift has been adopted by corporate factory and now even the corporate gifts are packs are made of mango and it's of course very delicious fruit and in fact Pakistan is ranked at number four as far as mango production is concerned but the taste and aroma of Pakistani mango has its unmatched and we can very confidently say that the quality of the mango is much above than the quality of mango produced in other countries and I have witnessed when I was in England I used to witness that there was a very small quantity of mango which was imported to England but those mangoes imported from Pakistan were pre booked and they could not be seen on the shop shelves for more than one to two hours and so which indicates that there is such a high demand of mangoes in and across the world so but we produce about 1.8 million tons of mangoes in our country but as concerned to the high demand we export only as the figure was quoted in the beginning that the maximum we could afford was 130 000 tons per year and that is the upper limit we have exploited so that's why I am thankful to these organizations for organizing this webinar and providing opportunities for mango growers and producers exporters to have access to the international market and I am sure that this webinar will ultimately benefit the mango growers, the other point I want to make is that the mango which is produced since it has a very good aroma and the taste so we have not been able



to develop preservation industry we should develop preservation and canning industry so that it's preserves that it's the pulp cans can be imported and other than that pulp making industry has not flourished as well which has great scope internationally for making juice and other drinks and so many other desserts that can be use multiple for the pulp which can be produced not only supplied to the local market but exported to the various countries, as a table fruit I think the mango is very important and internationally it has a large demand what we need is that we need to improve our sanitation conditions in the production process because some of the countries have stringent quarantine loss and those quarantine loss at times become impediment for the export of the mangoes so we can adopt the technology for its sanitation then I think our mangoes can be exported in a much greater quantity and I am of the opinion that if we match up with the international standard of the harvesting, packing and again the hygienic value chain, I think we may not be even be able to go meet the demand of laws internationally because not only countries around us our neighboring countries have a Lot of demand and apart from our neighboring countries the world over there is a high demand of Pakistani mangoes so today as we have some mango growers attending this webinar we have mango exporters attending this webinar so my message to growers is that they should adopt hygienic and healthier practices for mango growing and I would also recommend here that some we should also try to produce organic mangoes which are free from chemical sprays and other things then we should also preserve them in a way that they don't carry the fruit flies with them and they are absolutely cleaned to be exported and so these are the issues which our growers and importers can emphasize on and ultimately adopt healthier production practices and again safe value chain should also be developed for its transportation so once when now the technology has developed that its shelf life can be increased manifold previously the shelf life of the mango was not more than five to six days but now with modern technology its shelf life can be extended up to 20 to 25 days and once we are able to adopt the modern technology to increase the mango shelf life then I think then we'll have a lot of opportunity for the farmers who export and normal as today we are emphasizing to improve its exports, I think mango can be one of the important products which can be imported and it can easily cross \$1 billion in an export bill. So, these are my few suggestions which I wanted to get across to my fellow farmers and my friends as exporters. I think with the improvement of the value chain and ultimately the control



practices, we can then look for an international market. Countries like Japan are important mango countries and where the maximum price mangoes get internationally I think there are in Japan the mango is sold at the highest price. So, we can capture the Japanese market which will give us better foreign exchange and not only Japanese, but even the European and American market where we can supply these mangoes. So, the quality of mango which nature has given to us should be fully exploited, so that we can take real benefit from it for the farmer as well as for the nation. With this, I thank the organizers once again. And I think today's seminar will have a lot of useful information. Thank you very much.

Speaker 2

**Maj. Tariq Khan, Progressive Mango Growers Association, (Lutfabad Mango Farms),
Multan**

Topic: Welcome Address and Objectives of the Conference

Thank you very much, doctor. It is an honor being with Dr. Asif Ali and team at the University and yourself always. We have been inspired by your work and a compliment for today's event you have organized. We fully stand with the industry and today I would rather prefer myself to be a grower instead of an exporter. Exporters have been exporting mangoes for so many years is a compulsion which was trusted upon us due to the environment. We wanted to add value, we wanted to empower our people in villages. We wanted to give work and that's why we became the exporters and probably the low response from the local market added this value with us and we feel pride in it. As a grower, what I would like to apprise the honorable people on this forum is that we have 1.8 million tons of production every year or around a plus minus are always there due to climate change. So out of this only five to 6% was exported last year due to certain intervention brought about by the present government. The export was increased and it was One lac forty thousand tones and mostly it was to the neighboring countries by road and the sea freight export. But we also should explain that we suffered reverses due to COVID. The less airlines were operating and they were high in charges which are still continuing. But yet we exported a very good amount of mangoes, which is an example from the last five, six years. And it is the collaboration between the exporters and the growers itself. The Growers Association and the fruit and vegetable



Association collaboration has paid us well. Well, if we talk of the growing technologies here we are having the old system of freezing which is being replaced in light of division 2030 given by the industry that we will increase our production by 2030 to almost 30 lac tons. It will be not 1.7, it will be 30 and we are likely to jump up with the export by 20% of the production with this vision and talking of today. If we export mangoes to the high end supermarkets, there are the companies within Pakistan under the growth circle. We are global gap certified, we are socially accountable and part of the system as all got our farms audited or for the social accountability then we have the food experts in place which keeps guiding and we are registered with them to have the minimum residue analysis. If we talk of the safe product, the safest product among the mangoes goes from Pakistan and I'm very happy to say if there were interventions on fruit fly the Pakistan mangoes remain safe and even United Kingdom has removed the fruit fly embargoes they had a for retreatment previously now it has been removed this is one of the biggest market here from mangoes. We have the United Kingdom and then there are European markets. Maybe the German ambassador is here and Central Asian states. The Consulate generals are here. They must be happy to hear that we have been exporting by road to Tajikistan. We have been linking with Uzbekistan as well as other countries. We have been flying mangoes around the country under the COVID environment in facing the difficult tariffs regimes from the airline. We have successfully air flown the mangoes to Central Asia and Europe. Uprising you further I have already explained the safest product the MRLs are in control. Then we have the global gap certifications and social accountability in place with this regime. This is the desire of the buyer to have the best products for the supermarket retailers. Besides this, we have very close borders and very less distances to cover for Iran and Afghanistan. Last year it was a trend that we exported the mangoes to Iran successfully in high volumes. Due to COVID, where there are restrictions of air freight and other things, we were able to utilize the road lanes to our neighboring countries. This is a very positive sign and with the help of our government and our people who are looking after the umbrella as a whole in this present regime, they helped us a lot. Secondly, the sea freight, we have a technology as the worthy, honorable minister has appraised, we can increase shelf life. We can increase by the latest technology adaptation with the help of academia and research people who are educating the growers and the exporters. With this, we also were able to increase our sea freight export to the Middle Eastern countries, Far East Singapore



linking with Malaysia, then this is also a positive sign. If we go on to talk about air freight, we also successfully air freight mangoes to the very long haul flights to Canada and to the USA. Of course, we keep facing problems but we haven't left the markets alone. During the COVID days our customers have been eating the mangoes. They have been smelling the aroma and have tasted the best of the mangoes we could supply. We have also successfully exported the mangoes to Australia which is again a difficult market to read. They desire very high quality standards. So if we can reach the USA, we can work with the EU countries in the United Kingdom. We are still very comfortable exporting that means our product has a taste. It has an aroma and it has a strength to work with. This was all I could explain. Besides this, I feel pleased to inform the audience that our companies, not my or somebody else but Pakistan, have exported to 38 heads of state the gifts from the President of Pakistan were packed, processed and successfully implemented through the TDAP and Foreign Office program. This was handled by our company. And now this year, we are also looking to have these orders to be replicated again. So, we have the best of the growing technologies, we have the best of the forms available in Pakistan. We have the best of facilities extended by the government still we look forward to as it grows and exporters to help us out. There are many challenges which we face and keep discussing and getting requests. Then we request it further to the government circles to get these remedies done. Besides, I assure you that we have the best of the product and we offer you in Best of the challenging environments. We offer you to have it and have a very safe product from Pakistan. Thank you very much.

Speaker 3

Syed Fakhar Imam, Federal Minister for Food Security & Research, Government of Pakistan – Chief Guest

Topic: Mango production: Current Trends and Future Prospect

Thank you very much. Sorry, sorry that I have come in between because our National Assembly session has just started. I always like to just attend the National Assembly session being a former speaker and member several times. I take great pride in the Multan Agricultural University with its honorable Vice Chancellor Dr Asif Ali with whom all of us have worked from time to time. From day one, their outlook to the agro



economy of Pakistan has been of a strategic outlook. And tactically, they have always tried to improve and upgrade Pakistan's productivity, as you know, five major crops of cotton wheat, maize, rice and sugarcane have grown reasonably well this year. Cotton, unfortunately, is the only one which was not done up to it. As far as the fruit industry is concerned, in the last year, we've had the honor and privilege and pride again, where last year despite COVID-19 of mango exports went up from 110,000 to 142,000, despite the fact that the exporters, I remember in a meeting in Islamabad were very pessimistic that they would not even hit the mark of maybe 80,000 but we were very fortunate the law of nature helped us and there was diligence, commitment, duty, and most of all, a sense of purpose of achievement, and from different departments of both the provincial governments of Punjab, Sindh. Now the ministries coordinated to push 110,000 up to 142,000. So far this year, the exports are still holding out at 35,000 tones as of the 15th of June as opposed to 18,900 tones last year. So that's nearly 90%, more production and exports, which have gone and increased so far. But we'll have to wait and see because as you know, there are many elements which I'm sure some of our colleagues will be making presentations on in the export sector. There's always limited space in aircraft because of COVID-19 there are all kinds of p hitches, hurdles, obstacles, impediments that come up, but by and large, we are very hopeful that we will surpass this thing but we are holding back a little till we actually do it. But we are on route to try and make our achievements. The total production of Pakistan's mango industry is about 1.8 million tones, approximately 66% of that is grown in the province of Punjab 82.5%, approximately in the province of Sindh and Baluchistan and Khyber Pakhtunkhwa One and a half to 2%. There are four different types of treatment which are given to mango crops, depending on where they are going. Because by carrying out these different treatments. We can export more to the high end markets of the world's mango industry rather than the lower end markets. At the moment, most of our mango goes to the low end markets. Our neighbors primarily Afghanistan, Iran, the UAE and the other Gulf states are looking more in terms of how we can get to high end markets. There are four types of treatments that are now going to be available. There is a hot water treatment for which there are 32 plants. There's heat treatment and we have two plants, primarily for the Japanese market. We have one radiation plant that would go to China, Japan, and the United States. The fourth is the electronic game facility subject to play preclearance of the United States government. If we get that then at the moment, we can only enter



the Houston airport in the US. Once this is established, then we'll be able to go to most of the American airports. Up till now most of our mangoes have been going to 42 countries with different facilities in position. We are hoping to reach out to about 60 countries. So our whole area of outreach hopefully will change for the better. We are looking at how to improve our overall production of mangoes because given the areas we have three major clusters in Pakistan. We have a major cluster in Sindh, one in South Punjab near Rahimyar Khan, and the third major cluster in Multan, Muzaffargarh, Khanewal. So how do we start mango production? It starts with the nurseries. Unfortunately in Pakistan, we still don't have a DNA test Mango nursery. This is something which is a major challenge to our specialists, geneticists and our large readers. We need to bring in DNA tested varieties in our nursery that's the Real Start and then the number of plants per acre or per hectare. In Pakistan, traditionally it is between 40 to 60. But as we have seen, globally in countries like Australia, they can grow to anywhere from 600 to 1000 draft varieties as they call them. But those draft varieties are totally on a different system because they mechanize their systems where they can go and prune them, harvest them through machines. But those are the kinds of things futuristic for Pakistan, a few of our farmers have gone into it. They are putting in a high density, few acres in certain of the farms and it's good that we are looking at that and these are again challenges for those who breed our varieties. Now the kind of varieties which have an international taste. Three or four of our varieties have an international taste which they have developed for its odor and for its taste and so on. So, we need to look at those kinds of varieties. We have several 100 varieties coming from several centuries because the mango varieties of the subcontinent and now particularly in Pakistan, the Sindhri and Chaunsa varieties have a global outlook wherever they are. Now once we have produced them then how do we treat them? Very few of our farms unfortunately have pack houses to process them but they really do a great job as far as sorting, sizing, grading uniformity, both in size and color, and in age. These are the factors which will actually make our value of our mango industry grow. Then we have to pack them in a way that packages are globally acceptable. Locally we use these wooden boxes. Now that's not an acceptable norm worldwide. So we have to go towards cardboard packaging and that also the cardboard must be of a certain quality.

So these are the kinds of things which will bring about a complete change. These challenges must be met. We need to also create, perhaps over a period of time, organic



farming which we will now be supporting at the state and government level. So we can then have pest and fertilizer free zones. We have to evolve so we can't do it overnight. A few people will have to start these experiments, a few people are only doing it because globally at the high end markets of the world North America, European Union, China, Japan and others Australia, Canada. They want less residue of pesticide for health reasons. Now the world is much more interested in turning over the health markets. We are exploring as I said the newer high end markets. Australia used to recognize two of our hot water plants now they have recognized four of them and if anybody else can reach their standards, I'm sure they will even recognize those online. The United States I mentioned earlier, Japan has a very sophisticated market, possibly the most sophisticated market in the world. They have also allowed some of our products to go in the past. We hope that we will add more markets to the Japanese who value this fruit a great deal. Similarly, in Europe we already have a market in the United Kingdom of nearly 7,000 to 8000 tons, we would like to double-triple that. The other countries in Europe, several of them get a few tons we need to add to that, maximum few 100. China is our friend at the highest level. We need to explore the Chinese market, because the Chinese themselves grow mangoes, but we need to go into the high end markets in China. We want to go to Shanghai and to Beijing. We would like to go into their other major cities where one mango can sell as high as \$5. So these are the kinds of markets these are the kinds of things we need to look to the future. For that we need, of course, airspace and as we know, as you know that airspace is now limited due to Covid 19. Hence, these are the kinds of challenges we need to bring about and change. Our production levels have not always been high. We need to bring in newer and higher yielding varieties. We need to bring about that for which we need specialized research institutions. I was just telling my colleagues here in the ministry that we need perhaps to bring in specialized research institutions. We will add more markets to the Japanese who value this fruit a great deal similarly the European we already have a market in United kingdom of the tune of the nearly seven to eight thousand tons we would like to double triple that and then there are other European Unions. 26 other countries on the Europe several of them get a few tons of us at the maximum few hundred but we need to add so that China which is a friend at the highest level we need to explore the Chinese market because the Chinese themselves also grow mango but we need to go into high end markets in China we want to go to in Shanghai we want to go in Beijing and we



would like to go into their other major cities where one mango can sell as high as five dollars but to get to that to deliver that maybe the cost would be three and a half of four dollars so these are the kind of the markets these are the kind of the things we need to look to the future for that we need of course airspace and as we know as you know that airspace is now limited due to Covid-19, hence these are the kind of challenges we need to bring about and change. Our production levels have not always been high we need to bring in higher yielding varieties from the same acreage hectare rich, we need to bring about that for that we need specialized research institution and I was just telling my colleagues here in the ministry that we need perhaps to bring in specialized research institutions not for improvement but maybe specifically for separate fruits that let's have a improved exports like 100 000 tons of citrus as opposed to this is a great tribute to our department of personnel, the due diligence was done and in fact markets in the UK and the Norway which were not taking for seven years opened up because our Phyto-sanitary systems work that much better. So these specialized research institutions because mango is not grown normally in the high value markets. They do a lot of research as they do and everything else but mango we have to build up our own inherent research systems based on our own experiences and I think we have hundreds of years of having grown mango but now with grafted mango we need to look at a whole new vista of research area which we need to explore as far as marketing is concerned we are handicapped in the sense that we don't have cold storages. We have a very few pack houses but we need more and more storages which would have cold storages and chain of things then the refrigerated trucks which would carry them. We have a minimum number of trucks. We need to increase them, we need to because the shelf life improves but even along with that we need to process them. We only have one mango pulp plant in Multan, you should have several of them then this is where the private entrepreneurs can come on board, we hope that they come on board and mango pulp. We can go into other sorts of the elements as far as these issues are concerned and that would open up new vistas for investment for people. We can go for mango leather processing through vacuum drying. We can have mango slices which are canned, we have mango candies specifically with no sugar in them, just mango candies for children; we also still have mango juice. Many of our plants are reproducing them, we have mango jellies, and we have mango jams and jellies. We can have dehydrated fruit of mango as they do in the Philippines, Indonesia and Thailand. We should emulate what



many of those countries have done. So with that in mind I am a strong believer that the mango industry from the growers to the processors to those who pack them and export them. It has a great future but the challenges are there most of all for the plant breeders and secondly we need to have processing plants. We need to perhaps have core storage facilities for the exporters at our airports. We would, we are putting some of them in position or asking the private sector to come and do it so if we can add value, starting with DNA nurseries they will add value specifically and at the end of the market if we want to go to the high end markets of the world. We need to have quality above all consistency, uniformity and once quality, consistency and uniformity are cheap our mango exports one day can double or triple in the next three or five years. Thank you very much Indeed!

Speaker 4

Professor Dr. Amanullah Malik Group leader, postharvest research and training center, (University of Agriculture, Faisalabad, Pakistan)

Topic: Post- harvest mango technology and recent developments to enhance mango trade

Thank you DrMubashirsb and I am grateful to professor Dr Asif my colleague (Vice chancellor) who really always did a great job in organizing such industry events also very grateful to minister for the culture of Punjab and as well as Federal minister of Raymond and a lot of international and local delegates who are certainly all probably here to promote our mango or learn something for this industry but I would like to because there's a lot of international participants I have organized a presentation in way that it can give some idea what we have achieved over the last 10-15 years.

POSTHARVEST TECHNOLOGY & RECENT DEVELOPMENTS IN MANGO INDUSTRY

Prof. Aman Ullah Malik
Group Leader Postharvest & Director
Institute of Horticultural Sciences,
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malikaman1@uaf.edu.pk

Post-harvest technology and recent developments in mango industry.

Pak Mango Industry Brief

- Area: Approx. 159 000 ha
- Production: Approx. 1,723,000 tonnes
- Main growing area: Punjab and Sindh provinces
- Pakistani mangoes highly delicious, sweet, rich flavored
- Main Export markets: Middle East , UK/EU, Iran, SE Asia, Afghanistan, etc
- Industry has been in transformation during last 10-15 years from traditional to internationally competitive
- On-farm modern processing units
- Successfully meeting phytosanitary protocols for export to Australia (HWT), China (HWT), USA (Irradiation), Japan (VHT) etc
- Successfully performed under Covid-19 (vibrant and responsive)

I will not go into detail of this introduction because it has been covered by my friend Minister sb as well as Major Tariq sb.



MAJOR EXPORT CULTIVARS



Sindhri



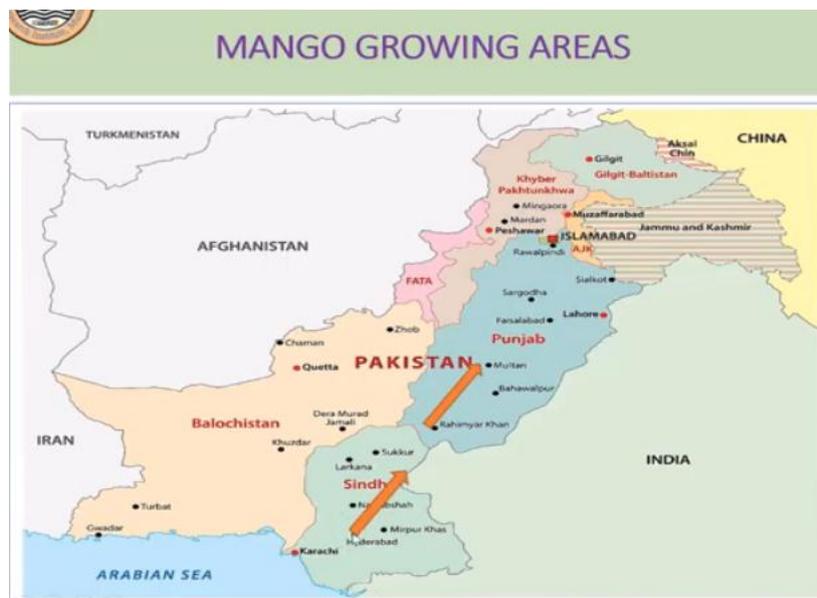
Sammar Bahisht
Chaunsa



Sufaid Chaunsa

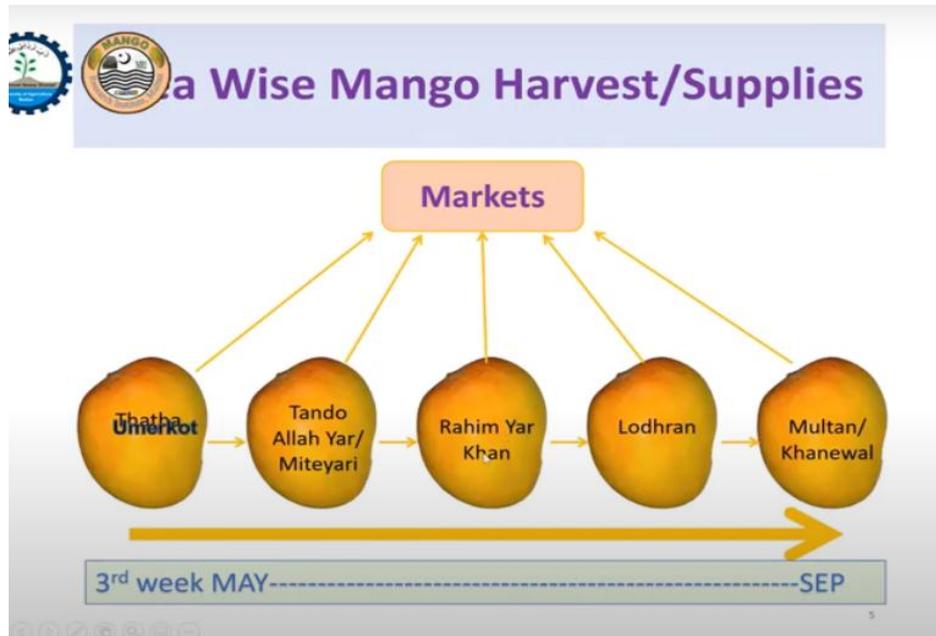
Note: Over a dozen commercial cultivars are produced

But I would like to introduce that there are over a dozen commercial varieties in Pakistan which are being grown and being traded but major volume which are produced and especially which are exported, these are three varieties. On the left side is Sindhi very popular and predominant variety of Sindh then we have this Samar bahishtChaunsa which is we can say king of mango fruit if it is mango with the king of fruits, that is the major variety in Punjab and then this is a premium late Chaunsa another variety.



So just to give you an idea specially to international participants that this is the map of Punjab and minister sb already mentioned that there are three major clusters so we

start from Sindh which is near, we can say there are again pockets in Sindh from where it come first and second and follow up I will show you next. We have a cluster here in Rahim yar khan and the third one in Multan and Khanewal. So this mango is almost one month older than in Punjab.



If we look at area wise mango harvest our supplies so from an export perspective I can say that usually its third week of May from where our mango export is started and it starts like area extreme area in Sindh like Umerkot, Rahim yar khan, Lodhran.

MANGO POSTHARVEST SUPPLYCHAIN CHALLENGES

- **Mango Maturity Assessment**
- **Sap Management**
- **Phytosanitary Treatments (for fruit fly) for Market Access**
- **Packaging**
- **Limited Shelf life**



Okay, technically, because my role is actually to give you some idea that what are the major critical issues in mango, I would say the post-harvest perspective. One is certainly maturity assessment. What is the time to harvest the mango so that you have the best quality? And this is really a very important decision, then is Sap management because that is the whole thing which normally destroys cosmetics and if anyone can manage it professionally and commercially then he is definitely going to succeed, then there are market access issues certainly and where we need to have Phyto sanitary treatments. minister sir already explained that we have hot water treatment facilities there are two vapor heat treatment facilities, there is a radiation facility and there is E-beam technology coming up. Then again particularly in terms of logistics and export, packaging is very important and mango has always a challenge that it is a perishable item. It is a very limited shelf life.



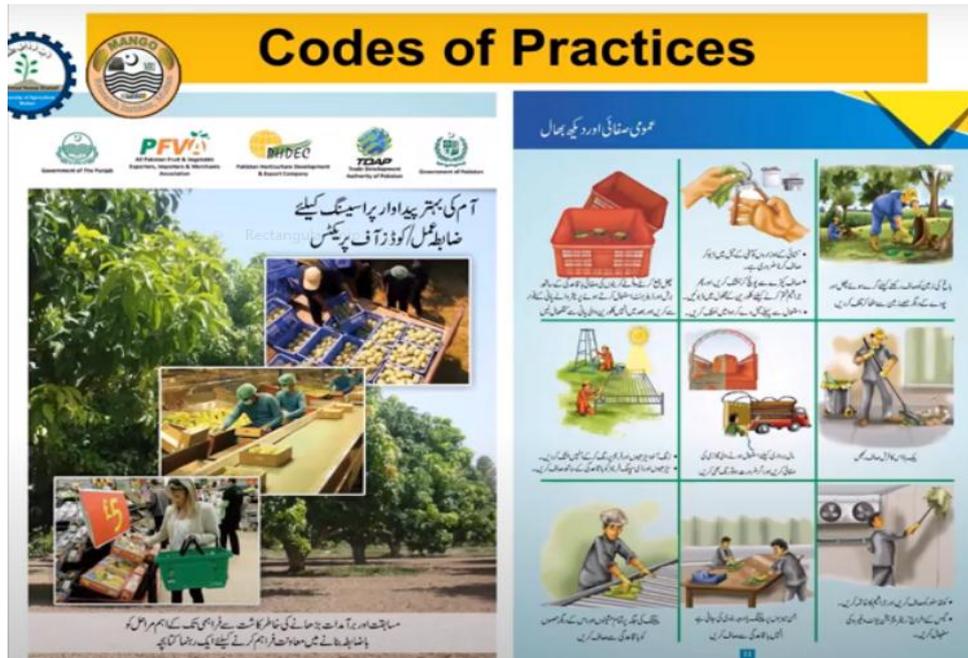
How to maintain quality and reduce losses? If we look at the modern, I would say transformation of our mango industry so this was the first project we can certainly give credit to Australian colleague and a center of international agriculture research because that is from where this whole quality consciousness, quality farming and post-harvest technology research , development and capacity building started



All of this work certainly it was not done without support from these postgraduate students who MA SHAA ALLAH now many of them are serving industries in different institutions and some of them certainly are even working internationally in different organization so I can really acknowledge their great contribution, without their support and hard work it was impossible to develop those much needed standard operating procedure which we developed over years of research.

The next I think big project was codes of practice these are funded by EU and it was implemented by UNIDO in which we commercially tested those SOPs which were developed actually with the help of ASLP Australian project at that time there was another project which was infrastructure development funded by USAID that also

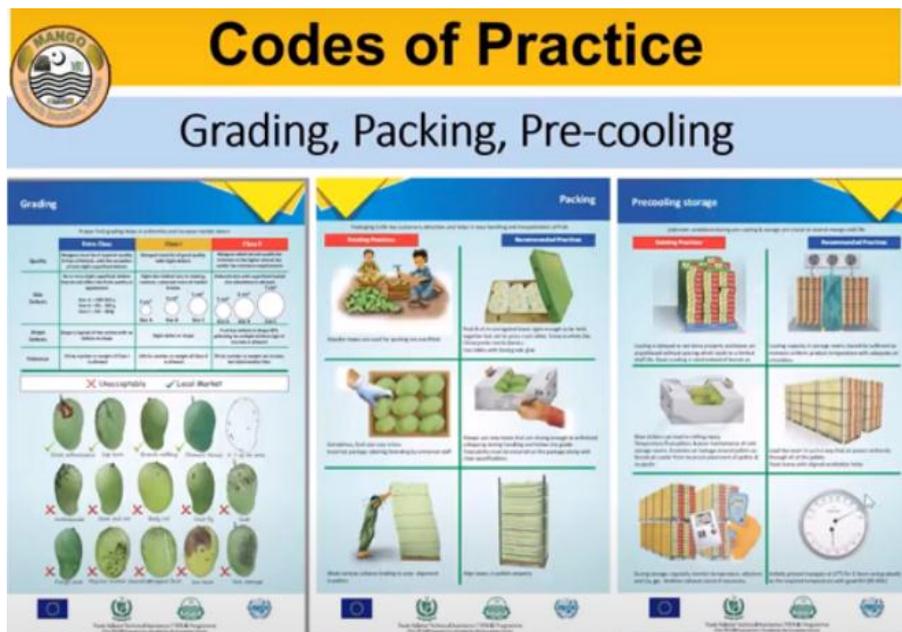
contributed in capacity building on-farm infrastructure development so that certainly contributed in promoting our industry.



Just to mention that I will show you all of these codes of practices are available now and English version is available also Urdu version is available. So these are standard operating procedures which have been developed for our varieties and we over time we have trained our staff and each season actually the processors and the staff of the agriculture they can help and from university they can help actually to train their workers in processing units how to these are available in English but this is certainly the slides in Urdu anyway you can see the pictures.



Even just to hygiene transport them grading, packing, pre-cooling all those SOPs, they are available.



Ripening SOPs are also available for these particularly these varieties and also for shipping there are recipes which are available.

Codes of Practice

Ripening, Loading and Transport

Ripening

1. Recommended practice

BANNED

Caution should be exercised against using heat based ripening methods due to health hazards (cancerogenic effects)

2. Recommended Practice

Use ripening gas (ethylene) in a controlled atmosphere (CA) ripening chamber. The ripening chamber should be well ventilated and should be kept at a constant temperature of 20-22°C. The ripening chamber should be well ventilated and should be kept at a constant temperature of 20-22°C.

3. Recommended Ripening Temperature

Loading and reefer transport

1. Loading Practice

Proper loading techniques in an outdoor or semi-outdoor environment is essential for consistent ripening of fruit.

2. Recommended Practice

Use container/reefer units should be closed off during loading to avoid loss of the ripening gas and ensure loading is the fastest and most efficient method. The containers should be checked, certified and pre-cooled to the desired shipping temperature (12-14°C recommended) prior to loading up to the boat.

Stack on the container - 4 layers

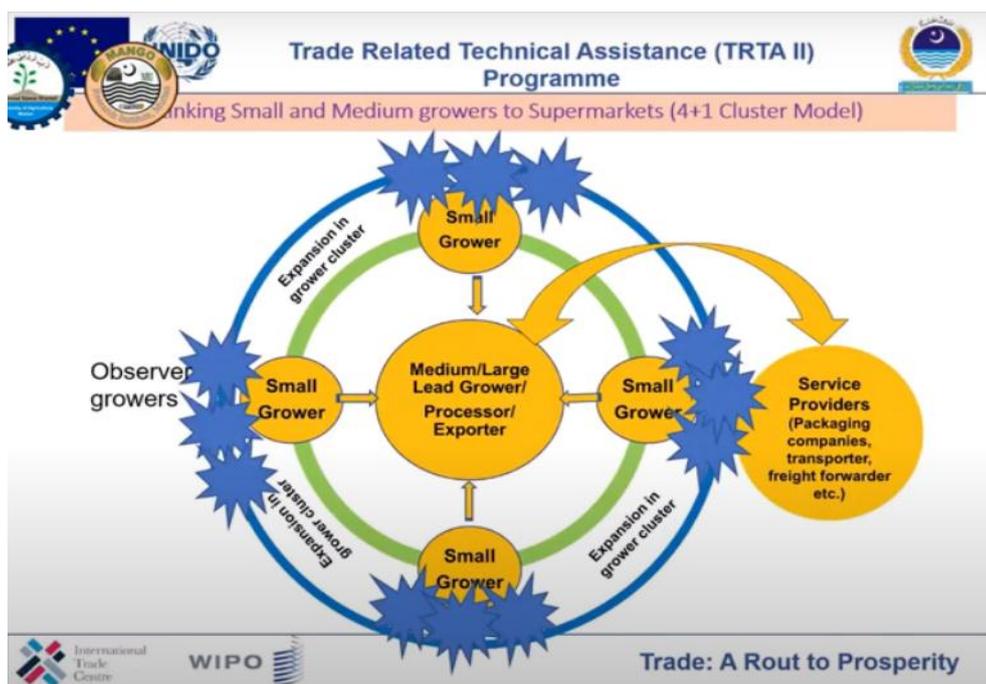
Internal Height - 11.00 m
Door opening - 2.20m x 2.20m
Reefer container - 40

Stack 40' High - 11.00 m
Door opening - 2.20m x 2.20m
Reefer container - 40

Stacking transport (loading) container in a 40' reefer container should be specific to a 20' reefer container. It should be 20' x 20'.

Stacking transport (loading) container in a 40' reefer container should be specific to a 20' reefer container. It should be 20' x 20'.

Within this UNITO project again another challenge is that the supermarkets usually want to have an interface with the less number of grower or exporter so and while the growers certainly have a limited area so this project was actually developed and implemented to have a group of growers which can supply to supermarkets. This was focused on you and some consignments also sent to Malaysia and other countries.



So you can see there was one medium grower basically large to medium grower which was then joined by small growers and then this grower was interfaced with the supermarket and they continuously supplied mangoes to a European market.



You can see these were the mango actually which were airfreight during the whole season in three years, it is a three year project actually and this particular shipment was to ASDA and you can see this one cluster was in Multan so there are a lot of learning from these projects which and growers successfully did supply to EU supermarket.

Mango Sea Freight Technology for cv Sindhri

Postharvest life: Farm to distribution: 35+ days
using integrated postharvest management and CA- technology

(Potential for CPEC route supplies)

Air vs sea/land route: freight charges 6-8 times diff

Developed under PARB-ASLP Projects & Commercially Tested with SMGE

Then another major I think achievement have been in mango sea free technology which was developed for scenery mango because that is one of the robust variety which can potentially travel and can be distributed with a post-harvest life which we achieved commercially 35 plus days and I can see that if the procedures SOPs are followed so there is potential for this variety to be looked at what destination it can cover using this technology. Because that is probably the way that if we want to increase the volume and for the market which really need affordable price mango because rate certainly is going to be very high and with each year it is going to be very high.



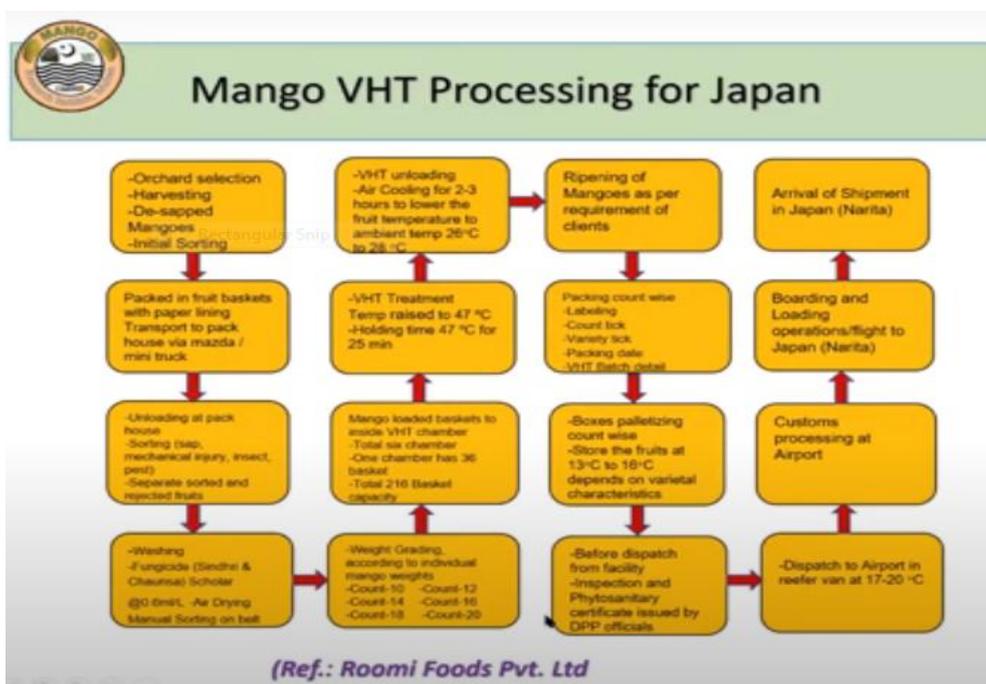
These protocol details have been already published and available. Anyone interested certainly they can get or they can contact me as well but these are available and have been distributed.



These pictures shows actually the shipments which were done from Sindh mango growers and exporters group, they are a group of growers actually working in Sindh, they are led by Mahmood Nawaz shah sir I hope he is here, I am not sure but there are a number of growers where we worked and each year we used to ship mangoes Europe.



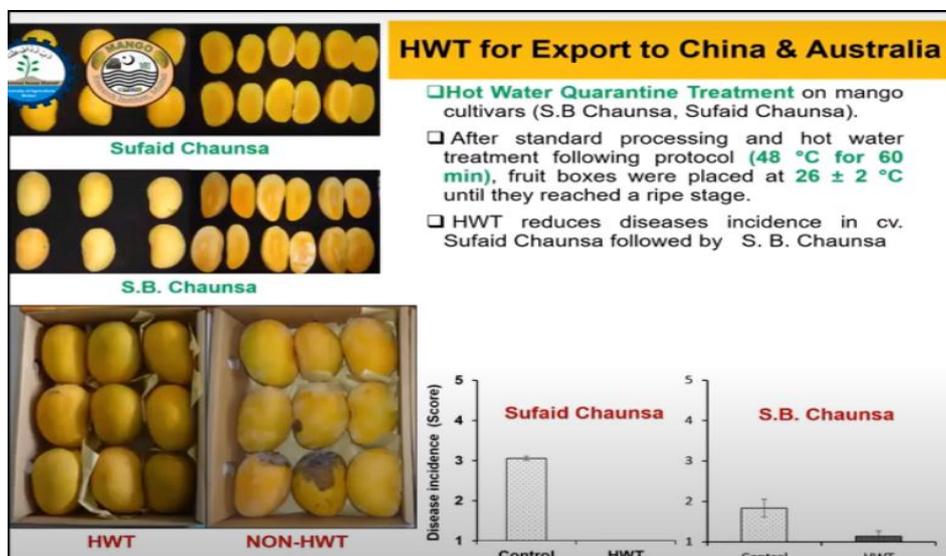
You can see these mangoes were shipped to CASCO.



Then as minister sir said Japan is certainly a very important market. It is one of the, we can say, one of the most quality cautious markets. They can really dictate you what they want. There are successful stories. This is the whole SOP which is being used for mango export to Japan.



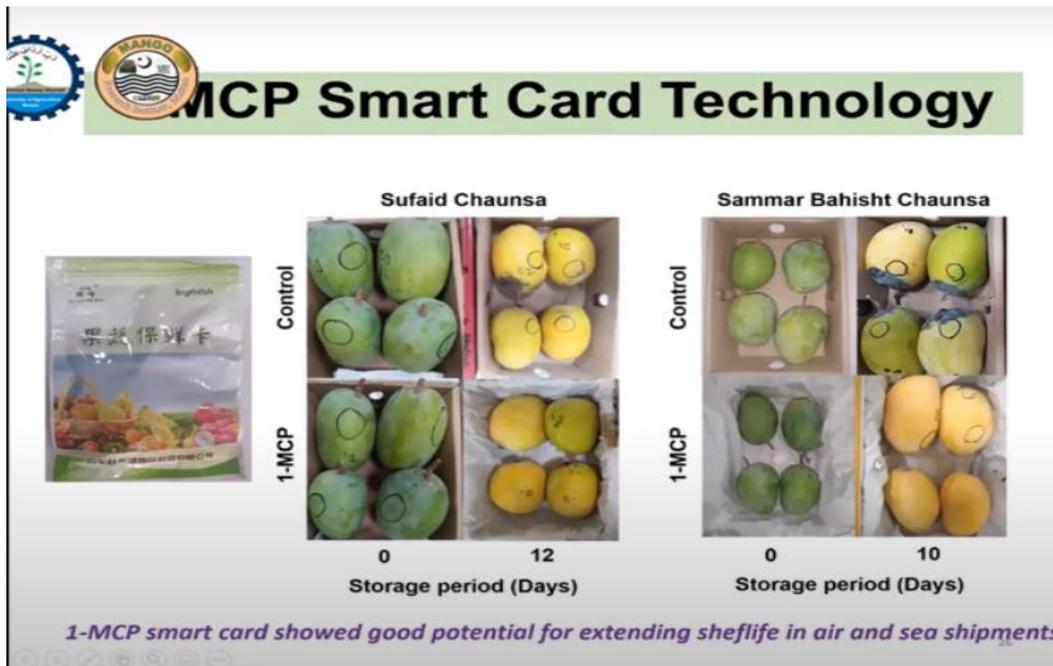
This reference is from our commercial player Rumi food private limited. These are all pictures of this flow certainly. We play our part in developing SOPs and training of the workforce in these industries so certainly but the commercial players certainly carry on and they improve the process. I can say with confidence they have been really successful in increasing volume to Japan. For another company, certainly that for the fresh and freeze, they have also been exporting to Japan.



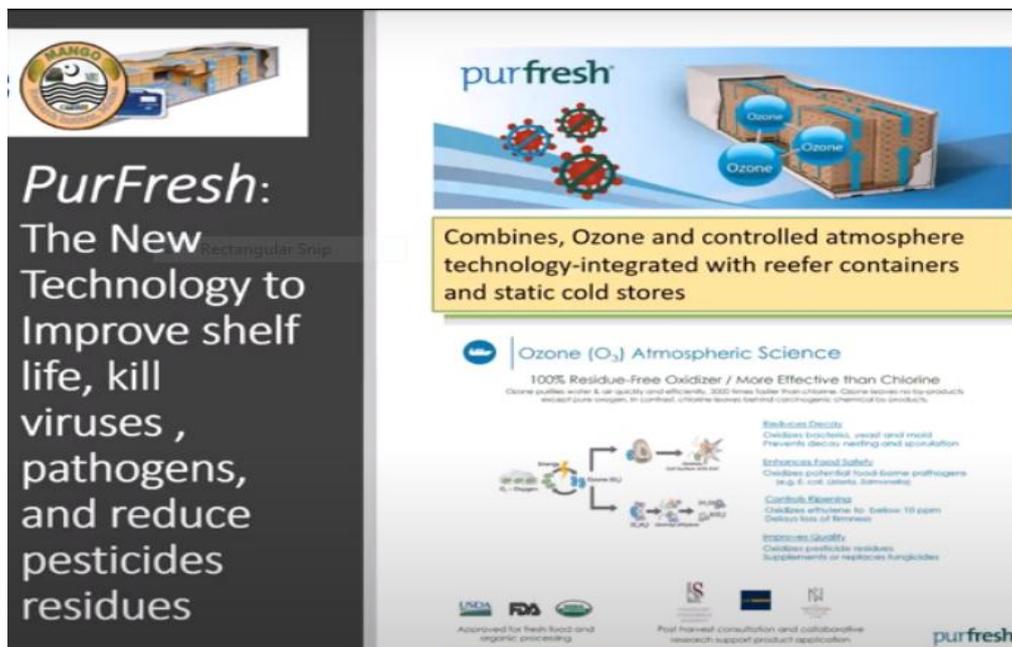
We also tested this hot water treatment system. This is required for China and Australia which is certainly and it can be used, it can rather help actually to suppress some diseases and you can see these are hot water quality and treated fruit and these are the ones still the Sidhari is not shown but that also responds similarly.



I can tell you something which will be of great interest because there are a lot of traders and one thing I want to show you is on the right side is this product which is coming from China. It has actually been developed by a university fellow researcher and we have been collaborating on the use of this in mango. This is a 1 MCP (one methyl cyclopropane) is probably one of the products which has potential. Its use previously was very difficult because it was not commercially viable in a situation like in our condition. They have patented this product, they have developed a smart card and we just need to place that card in the box after packing. 1 MCP, it was scientifically invented in the 90s and this is registered in so many countries and so many products so it is a safe product and it competitively inhibits the action of ethylene.



Now we have tested during this season very recently on sufaidchaunsa and this was also tested in last year's crop. You can see this MCP, it even inhibits disease and after ten days you can see the conditions of the fruit. So that is one of the products if somebody particularly if exported wants to try it, test it. We have some of this product available and we will be very happy to help them test it. This has certainly potential and in many crops tests. There is very good response on it.



This is another modern I would say technology. I had a meeting with the scientists and in USA actually the technology is coming from US, a company which is and the product



is for fresh. Now what is being done is that they combine ozone with controlled atmosphere technology and this can be integrated in a reefer container or even in a static storage. Now ozone is actually O₃ and if the people, who know science they can understand that this has been commercially used to reduce these bacteria's. It is for food safety also it is very important because it can destroy ethylene and also it can destroy pesticides. Ozone we have a small generator which we imported from China and we have tested it on grapes, peaches, guava and different fruits. There is a very good potential for this technology, I think in the future we can test, introduce it because what I see is. For example, this technology ozone is important even to kill viruses like we have a problem. I just learned on the internet from the news that two of the countries did not actually accept the mangoes due to Covid. Now Covid basically is a virus, so the technology is always there to kill viruses during transit. There are studies on its background so why I brought it here is because that is something which our industry probably would need to look at. You can see these stems of USDA, FDA these are actually. The ozone is already approved and with ozone then there is a combination of controlled atmosphere which we have already tested. As you can see in our shipment to Europe, if we now combine this technology and integrate it with the reefer container. I can see opportunities especially when we are looking at China and even in Central Asia or Europe the country which we can certainly target.

Conclusion

- Pakistani mango varieties are unique, sweet and juicy
- Mango industry is in transformation phase and resilient
- Modern on-farm infrastructure and logistics enable it to deliver mangoes in export markets
- Export market information, linkages and supervised pilot shipment using new technologies would be required for commercial success in new markets like China, Central Asia etc
- Use of new technologies like 1-MCP smart card technology will help improve shelflife of mangoes
- New technologies like PurFresh holds good potential especially considering covid-19 issue, reducing pesticide residues and extending shelflife during long distant sea/land route shipments
- Great potential for improving packaging
- R&D support and capacity building in new technologies is continuously required to address challenges

My conclusion, a few points certainly mango varieties, Pakistani varieties are unique, sweet and juicy .we cannot find varieties with such high bricks and excellent flavor.



Industry is in the transformation phase and really is the resilient because last year even within CovidDr Asif saab and our team certainly there who led it in a way that there was a good effort to make SOPs timely and the export rather was increased of course certainly more to Iran and Afghanistan but resilience is that people adopted actually. There is modern infrastructure logistics but we probably need market information linkages and some supervised pilot shipment. As I said, there are new technologies we can test for central Asia and China and I can say with confidence that this one MCP which we already tested and we are certainly going to. We would like to work with industry actually to test this for fresh, for some of the shipments and I see it's a great future. There is a lot of potential in improving our packaging. I still have some concern that we need to improve it and there is certainly R&D support and capacity building in new technologies would be needed.



I am grateful to all of these organizations and they certainly played a lot of part to help our industries and there has been a lot of work done by postgraduate students and of course without the actual implementer is growers, processors, exporters and importers. They did a lot certainly in implementing those SOPs to the best of their abilities and to improve quality which we certainly used to talk about decades ago but now they have proven that the Pakistan mango industry is globally competitive. Thank You very much!



Speaker 5

Mr Waheed Ahmed Leading fruit exporter and President of (Pakistan Fruits Exporters Association)

Topic: Mango export from Pakistan: opportunities and challenges

BismillahirRahma-nir Rahim. Syed Hussain Gardezi minister for agriculture Punjab, Dr Asif Ali vice chancellor, speakers, ladies and gentlemen, Aslam-o-alikum! It is an honor for me to speak at this conference and I want to thank MNS University Multan, Centre for Global and Strategic Studies and Mango Research institute. I had like to start my

Presentation includes

- An Introduction of PFVA
- Pakistan and Global Mango Industry -Statistics and Overview
- Mango Industry - Opportunities
- Mango Trade - Challenges and their Solutions
- Mango Trade - The Way Forward
- Conclusion



presentation

Presentation includes the introduction of PFVA, Pakistan and Global Mango Industry-Statistics and Overview, Mango industry-Opportunities, Mango Trade – Challenges and their solutions, Mango Trade- The way forward.



All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)

- Established in : Year 1986
- Total Members from all provinces: 200
- Head Office: Karachi
- Zonal office: Lahore & Sargodha (Bhalwal)



Association established in 1986, with total members of 200 all over Pakistan, head office in Karachi, zonal office in Lahore and Sargodha (Bhalwal).

All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)

Achievements:

- **Safeguard the national Mango export to EU in 2014-15**
- **Ban Avoided on Pakistani Fruits and Vegetables Exports to EU**
- **Setting "Start of Export Date"**

May 25 th	for Mango,
December 1 st	for <u>Kinnow</u>



Achievement of association safeguards the national mango export to Europe. You know that time India banned mangoes from European Unions but we made a strategy with the



government and we did not bend at that time. You can see we set the start of the export date also like 25th May for the mango date and for same like for the Kinnow.

All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)

Achievements:

- **Policy on Horticulture**
Coined the "Horticulture Vision 2030"
- **Exploration of new markets**
Russia, Australia, South Korea, Japan, USA, Turkey
- **Recognition of high achievers**
National awards to encourage growers, processors, & exporters.
- **Awareness campaigns**
Trainings / seminars / workshops for growers & exporters.

The policy on Horticulture also coined the Horticulture within 2030, which we will complete in 2019 already present to the ministry of commerce . I would like it if the province minister gave me the time to meet and the federal minister of national foods agreed to tell them about the Horticulture. How can we increase our export and new market Russia, Australia, South Korea, Japan, USA, Turkey and national award to encourage grower processors, awareness campaigns with training, seminars and workshops and growers.



All Pakistan Fruit & Vegetable Exporters, Importers & Merchants Association (PFVA)

Achievements:

- Offering the premium price (50%) for value product
- Ban on wooden crates for international markets
- Ban on use of carbide as ripening agent
- Collaboration with Academia, DPP, CABI, USAID-AMD through MoUs
- Despite the COVID-19 related issues Pakistan has achieved record increase (12.5%) in horticulture exports during year 2019-20.
- Pakistan earned highest \$730 Million revenue in 2019-20 by horticulture exports

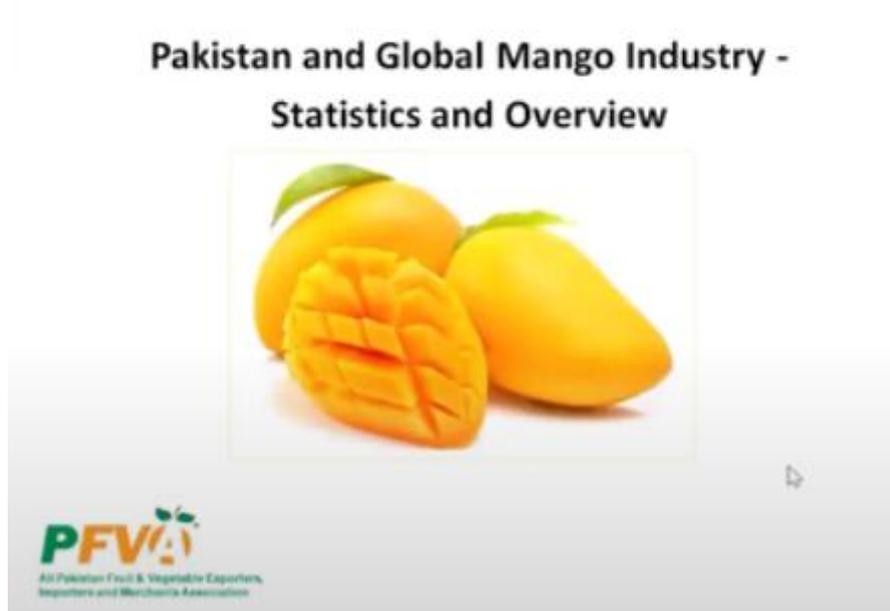
Achievements like the ban on wooden crates of the international market, I think 2015 with the government we stopped with the wooden boxes is a very bad impression in the market and with academia we have MoUs with CABI, USAID-AMD. Despite the COVID-19 related issues Pakistan has achieved record increase (12.5%) in horticulture exports during the year 2019-20. Pakistan earned the highest \$730 Million revenue in 2019-20 by horticulture exports.

Pakistan Exports Fruits & Vegetables (2019-20)



Pakistan Bureau of Statistics, 2020

If you see in 2018-19, we are \$649.407 Million 2019-20 that I hope 2020 and 2021 we increase our export In Shaa Allah.



Now I will give Pakistan and Global Mango Industry- Statistics and Overview.

Leading Mango Varieties - World		
Sr. No.	Country	Varieties
1	Pakistan	Sindhri & Chaunsa
2	India	Alphonso
3	Mexico	Tommy Atkins
4	Mali	Amelie
5	Kenya	Carabao
6	Philippines	Pico
7	West Indies	Julie
8	South Africa	Kent

Source: Courtesy Trade & Transport Facilitation Project, UNCTAD

If you see the leading mango varieties in the world Pakistan Sindhri, Mousamichaunsa and white chaunsa India, Alphonso like Mexico.



Mango Production Seasons - World

Rank	Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Pakistan					✓	✓	✓	✓	✓			
2	Philippines				✓	✓	✓	✓					
3	Mexico			✓	✓	✓	✓	✓	✓				
4	India			✓	✓	✓	✓						
5	Thailand			✓	✓	✓	✓	✓	✓	✓	✓		
6	Peru	✓	✓	✓									✓
7	Brazil	✓										✓	✓
8	Africa			✓	✓	✓	✓	✓					
9	Malaysia				✓	✓	✓	✓					
10	USA					✓	✓	✓	✓				

Source: Courtesy Trade & Transport Facilitation Project, UNCTAD

If you see the production season. Pakistan the season started in May, finishing depend on the crop, sometimes finish in September, last year finish in October.

Top Mango Producers - World

Rank	Country	Quantity (Tons)	Share (%)
1	India	18,779,000	37.1
2	China	4,771,038	9.4
3	Thailand	3,432,129	6.8
4	Mexico	2,197,313	4.3
5	Indonesia	2,184,399	4.3
6	Pakistan	1,753,686	3.6
7	Brazil	1,417,149	2.8
8	Egypt	1,277,008	2.5
9	Bangladesh	1,161,685	2.3
10	Nigeria	917,617	1.8

Source: FAOSTAT, 2017, MoNFS&R, 2017

Top mango produced- world Pakistan is number six.



Current Scenario of Pakistan

Pakistan ranks
 6th in world production of mangoes*
 5th in global export*

Other statistics
 Production: 1.8 million tones of mangoes *
 Share in Global Export volume: 4.9%*

* FAO, 2017



If you see the current scenario of Pakistan, Pakistan ranks six in mangoes and fifth in the global exports. If you see the production is 1.8 million tonnes of mangoes total and share in Global Export volume is 4.9%.

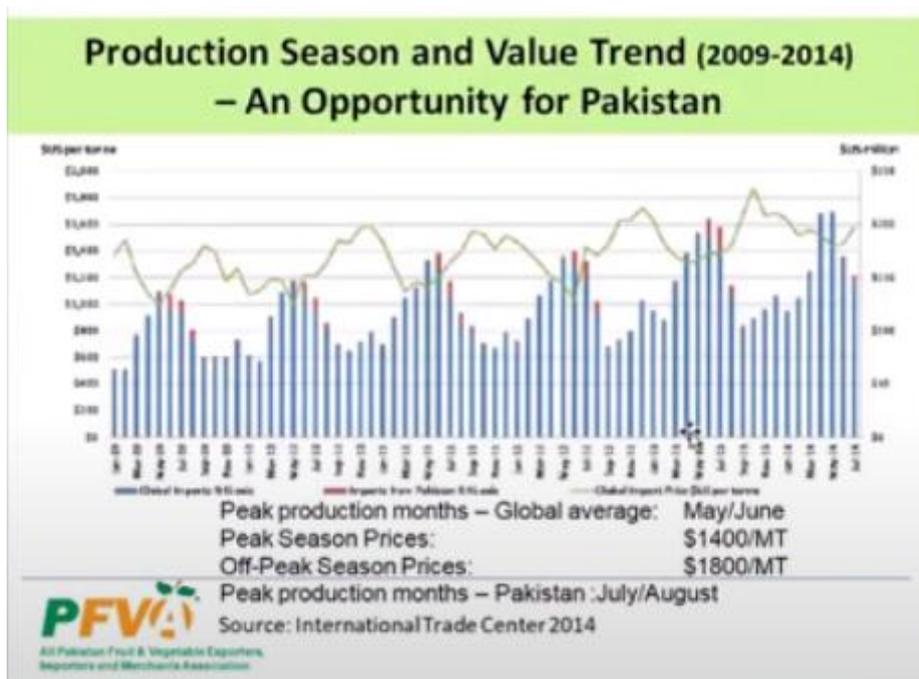
Top Mango Export Markets of Pakistan

Rank	Country
1	Afghanistan
2	United Arab Emirates
3	Iran (Islamic R.)
4	Oman
5	United Kingdom
6	Saudi Arabia
7	Qatar
8	Germany
9	Bahrain
	Rest of the world 10% Share

Source: MoNFS&R, 2019; FBR, 2019




If you see the top mango export of Pakistan. This is like nine countries that we are focusing on and ninety percent of the mango. We are focusing on nine countries and the rest of the world we are focusing on only 10% of the export volume.



Opportunity, if you see the production season and value trend (2009-2014). We are getting mango prices internationally, \$1400 per metric ton. See our opportunity for us for mango is July and August the you see the ratio the window. You see the rate is \$1800 and we have the peak season of July and August. We have an opportunity, rest of the world have not supporting mango like India already stopped, Mexico and other country are not in July and August. So we have an opportunity for this.

Potential Markets with Current Suppliers

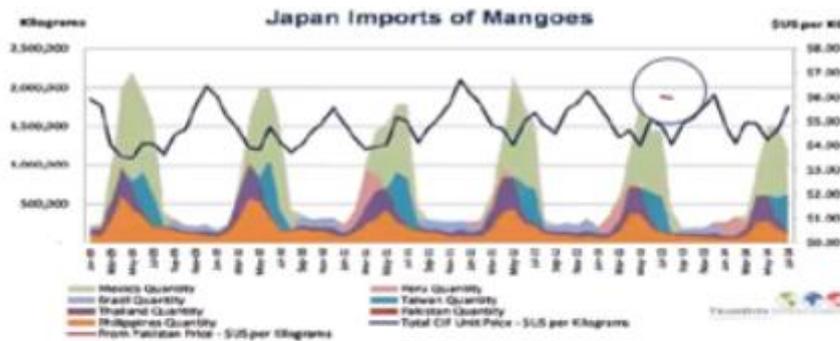
Sr. No.	Market	Current Top Suppliers
1	USA	Mexico, Peru, Ecuador, Brazil, Guatemala, Haiti
2	Japan	Mexico, Thailand, Taiwan, Brazil, Philippines, Peru
3	China	Myanmar, Taiwan, Thailand, Philippines, Australia
4	South Korea	Peru, Mexico, Thailand, Taiwan, Brazil, Philippines
5	Australia	Mexico, India, Taiwan, Philippines

All Pakistan Fruit & Vegetable Exporters, Importers and Merchants Association

If you see a potential market with current suppliers like the USA, we are not there. Japan has very small volume, China very small, South Korea and Australia. We have to focus on this market. There is a potential and a good price from this market especially with the Japan market. In The Japanese market, for like 1kg you can easily fetch one piece, three to four hundred gram. I think they are getting three to four or three to four dollars. We have to focus on this market.



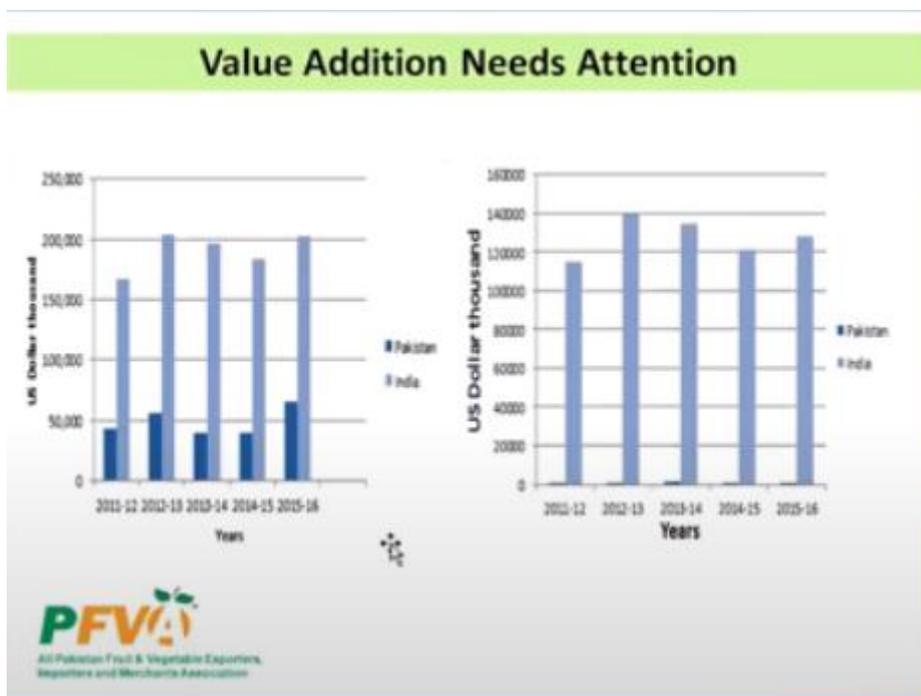
If you see China import mangoes, mostly they import from this country and the prices are like 15 per kg. This is what we are getting the figure but now the scenario has changed. We have opportunities for China but we have to do the marketing and testing because I remember in 2012 when I went to Guangzhou, we did the promotion in the supermarket because China is the second largest producer of mango but if the season is finished in the June what they are demanding in China. They need 400-500 g of mango pieces, you know, in the international market. First they see the appearance, second is the taste. I remember, I was also there in Guangzhou. People were not picking up the mangoes because they had a lot of blemish. You know we have sap, it is difficult to control sap so when we cut the mango and taste it then they start buying the mango, so we need the promotion in China for at least three to four years continuously, because of its more than one billion population. We have FTA, we have no duties there, but on the other hand we have to go by air because nowadays freight is very high 300 to 4 percent.



- Market features:** High priced market & Stagnant volumes
 Average landed price (\$4.9/Kg) in Japan at more than double other major markets.
- From Pakistan :** 1st shipment : 488 kilograms in July 2013
 In 2019 : 127 Tons
 In 2020: 134 Tons



Japan imports of mangoes, if you see in 2013 we export 127, I think in 2020 more than 134 tons we exported to Japan. I do not have the exact figure for Japan I think it is more than 134 but it is a good market. You can get best value from there.



If I talk about the value addition, I am in Pakistan, my company is growing, we are the wholesalers, processors, packers and now we are coming into the juice business. Today



I just want to share here that we launched today in Karachi, the new brand with the mango and other flavors in the tetra pack. The brand name is Fruit Nation. We have started the soft launching from Karachi and In Sha Allah next month all over Pakistan. We have two, one is nectar and one is drink. We have two brands; one is food nation and lush. What is the problem with the pulp? Basically 70 % share of the pulp is with India and we have like maybe one or two percent share with the world. What is the problem because you know the best variety in India for processing is totapuri because totapuri have a very good flavor and are good for processing? I am not talking about the table, if I talk about table mangoes our mango is the best but when we talk about the processing India are the best. So we have to focus on the new variety because the process of the raw material in India is very low. We cannot compete on the prices, we cannot compete with the quality also. I have been doing marketing for more than 15 years now all over the world. We are facing the same problem but still we are supplying but we need the help of the government to introduce new varieties. I know it is a long process but if you want to fetch this segment, we have to come with a new variety or totapuri or like they have Alphonso also. If I say Alphonso. The best part in India why they are supplying a lot of pulp in the consumer packing also because our pulp color is pale yellow color and Indian color are more orange into side when they make a milkshake and compare with us our color is very light and the Indian is very good color in the milkshake because I did this exercise 50 of 10 years before in the UK standing in the kent but what we get the feedback unfortunately we cannot succeed at that time because Indian are very good in price and the quality also.

Production & Export Volume Gap

- Global Import of Mangoes stood at 2.4 Million Tons
- Pakistan's total production of Mangoes is 1.8 Million Tons
- Out of which 0.14 Million Tons was exported in 2020
 - Export share is 7.8% of total production

**EXPORT OF MANGO IS STILL FAR BEHIND
FROM ITS EXPORT POTENTIAL**

I

The production and export volume gap, if we see the global import of mango 2.4 million metric tons and Pakistan production 1.8 million tons. But we export only 140 million metric tons. I did not mention the value here because I am not getting an exact value of the world but I will give you roughly. The price for fresh mango is 2 billion dollars and our export of 120 million is a big gap. Export of mangoes is still far behind before its export potential.

Mango Trade Challenges and their Solutions



Mango Trade challenges and their solutions.

Climate Change

Climate change is real - we are experiencing it everyday in changed weather conditions.

Pattern of rain has changed

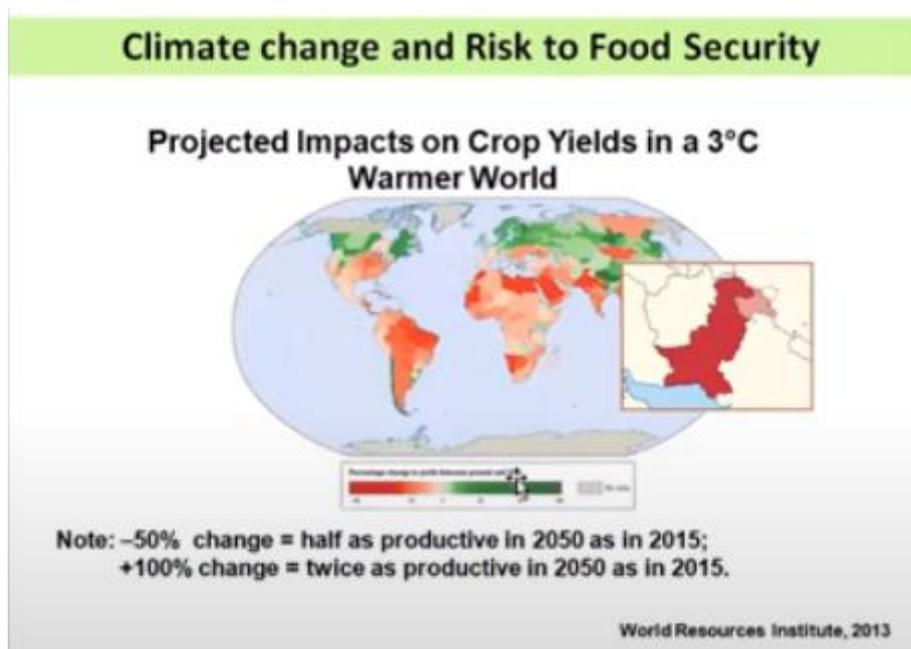
Temperature conditions / patterns have changed

Plant physiology changes with the changed weather conditions - it results in irregular fruit bearing

Pattern of pests and diseases invading the fruit trees changes - involves increased use of pesticides

Fruit physiology changes - affects postharvest handling requirements of the fruit

If you see, global warming has already been talked about. Climate change is a threat for Pakistan in agriculture. What I see in the next two or three Pakistan is going to face big threat in agriculture.



If you climate change risks to food security projected impact on crops. If the three celsius warmer world, if you see some countries are in plus, some countries have no problem but Pakistan in this map is -50. We can see maybe after 10, 15 or 20 years that Russia is going to be the biggest agriculture country.

Yield Gap

Crop	Max. Yield in World (Tonnes/ha)	Yield of Pakistan (000 Tonnes/ha) and ranking	Yield Gap (Tonnes/ha)
Mango*	47.0 (USA) 26.7 (Guatemala)	9.03 (19 th)	37.97
Date	33.77 (Egypt)	10.7 (13 th)	16.0
Apple	69.85 (Slovenia)	7.61 (4 th)	26.16
Apricot	24.35 (Slovenia)	6.94 (35 th)	62.91
Grapes	23.31 (Israel)	7.46 (18 th) 3.77 (34 th)	16.89 19.54
Peach	22.42 (Slovenia)	7.4 (26 th)	15.02
Pear	47.71 (Slovenia)	13.26 (20 th) 8.2 (26 th)	34.45 17.71
Potato	25.91 (Czech Republic) 48.39 (Belgium)	17.64 (32 nd)	30.75
Onion	55.07 (USA)	13.3 (35 th)	41.77

Source: FAO Statistics; * For countries with area over 1000 hac.

If you see the yield gap, I just compare with the mango, if you see USA and the other country having in hector 47 ton and 26 and we are sitting in 9 tons. Here we are ranking number 19 and in production we are number six. We have to address this, which is why our cost of production is very high.

What the Buyer Wants



- Bright colour
- Freedom from blemish
- Medium to large size for the variety
- Firmness
- Sweet taste



What the buyer wants? Bright color, freedom from blemish, medium to large size for the variety, firmness and sweet taste. You know it depends too sweet in Europe they don't like it. Like chaunsa is too sweet, the brix level is more than 20 bricks so we have to

introduce new varieties for the long term. Every country has a different behavior. I told you about the China is different, like if I go to Russia, it is different. Every place has different taste profile like Japan is different.

What the Importers Receives



- Poorly stacked pallets of unstrapped cartons
- Weak packaging
- Fruit of incorrect maturity, poorly graded and of low quality
- Higher rate of rots and blemishes
- Inconsistent supply

What does the importer receive? We have poorly stacked pallets of unstrapped cartons. We are facing this problem a lot.

Need to solve our problems to meet the needs of international buyers



We need to solve our problems to meet the needs of international buyers.

Challenges

International Compliances		Jelly Seed
Fruit rots		Skin browning
Sap burn		Fruit Fly
Incorrect grading		Poor Packaging
Skin Shrivelling		MRL's
Physical Injury		Mixed ripe
		Scarring / Bruising

PFV
All Pakistan Fruit & Vegetable Exporters, Importers and Merchants Association

Challenges we have are jelly seed screen, fruit fly, poor packing, MRL's, mix ripe, these are the problems we are facing.

Quality Issues

Fruit softening and injuries due to wooden crates		
Skin Blemishes		Fruit Fly

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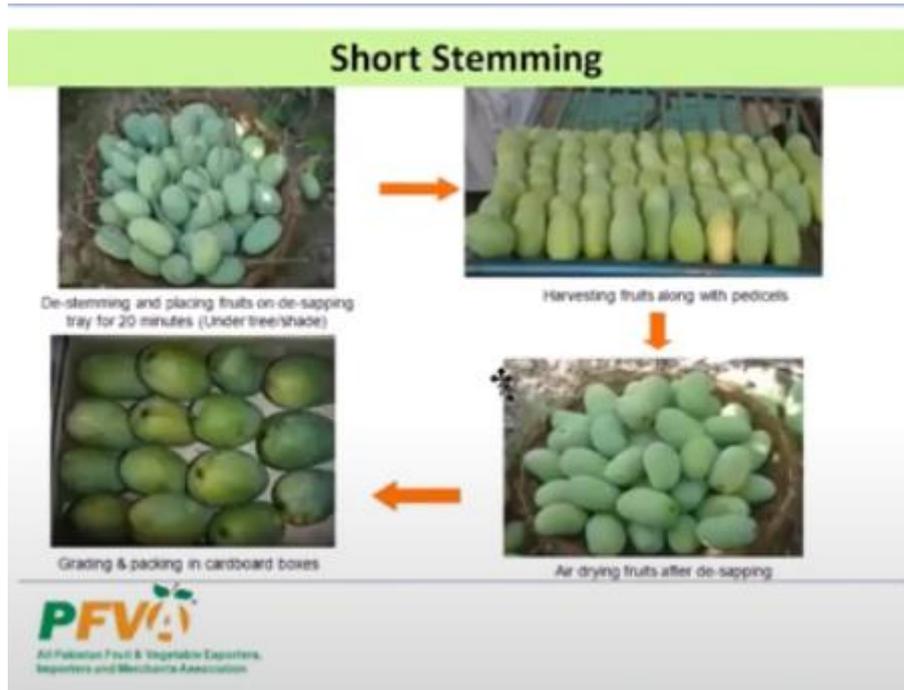
Quality issues are mentioned above.



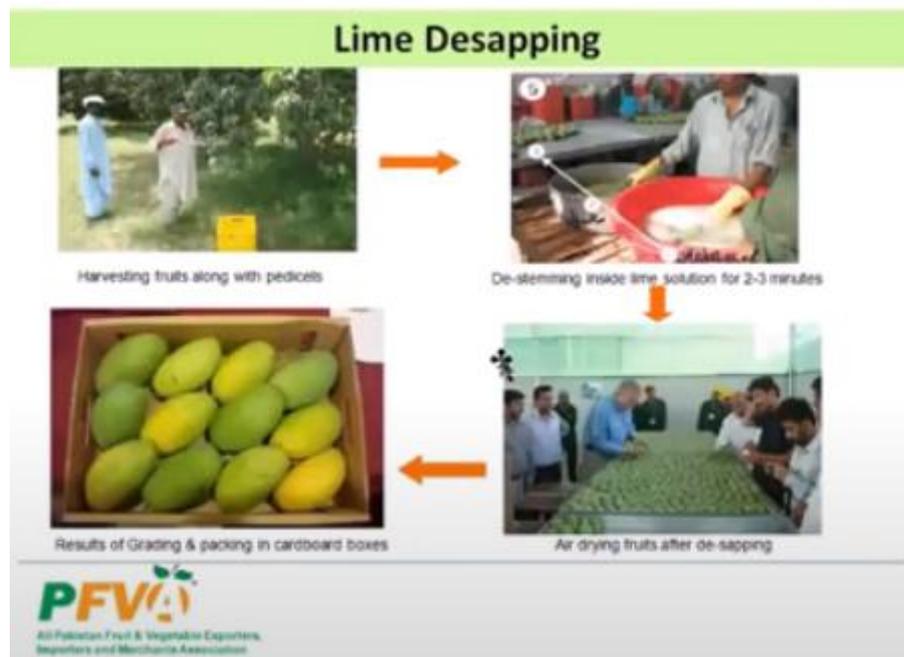
Poor post-Harvest practices, this is the worst in Pakistan. We have 40 feet of a tree, how can we harvest it? 30 percent of the harvesting is damaged and the 70 percent we make it b and c. Because of the harvesting problems in the growing area. We have to be changed. If you want to increase our exports you have to change for sure. If we get the good product, we can give the good price to the grower and we can get the good price from the international market for sure.



Improved agriculture practices.



It can be improved by short stemming.



Lime desapping is not even working 1 percent in Pakistan. It is very difficult to handle.

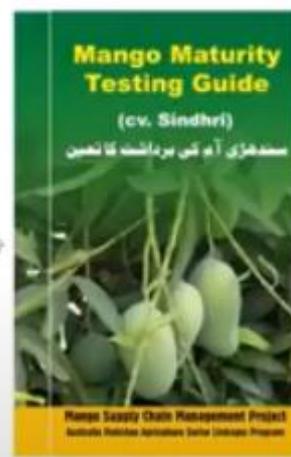


Proper packaging.



Monitoring of consignments.

Following the Guidelines



Following the guidelines.



Return of improved practices, if we are in a good practice we can get a good price.



Other General Constraints

- Postharvest Handling**
 - Untrained labor

- Infrastructure**
 - Lack of state-of-the-art infrastructure (pack-houses, cold storages, etc.)
 - Absence of cool chain system
 - Food safety issues (HACCP, BRC, Global GAP etc.)

- Marketing**
 - Unprofessional Approach (ethnic preferences)
 - Lack of effective market promotion (International Supermarkets)



Other general constraints, we have no training labor when they are doing harvesting. Lack of pack houses , absence of cool chains and food safety issues has a BRC global gap, maybe 20 growers maybe 50 I don't know how many altogether it is very less, an unprofessional approach basically our exporter in Europe only targeted our community. We have to focus on the fruit market, if we focus on the bulk community there so we can get a good response. Lack of active market promotion international supermarket. We have to focus on the international market like in the UK, in Germany not a one percent of the export we are supplying to the supermarket. I remember in 98 when I introduced mangoes in the supermarket they needed eurepgap that time and now it changed into global gap.



Cold Storage Facilities at Ports

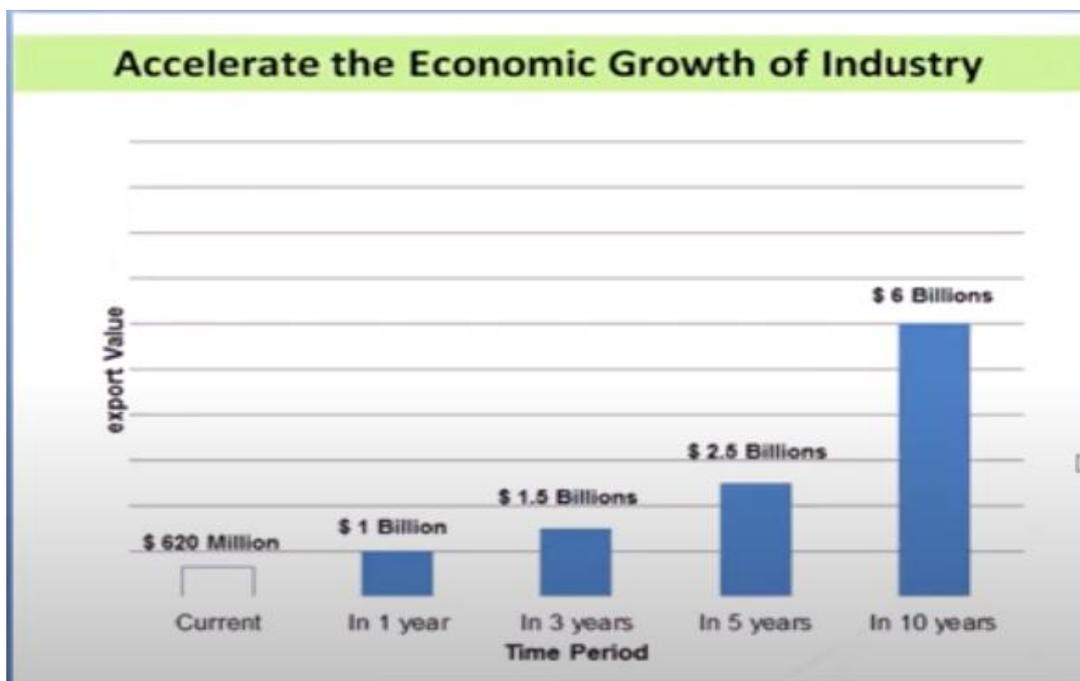
- Special holding areas with cold storages should necessarily be set up to take care of fresh produce in-the-waiting for Customs/ANF inspection.
- This year mango export heavily suffered due to non-availability of such facilities both at sea and airports.



Cold storage facilities are needed in the airports, this year mango export heavily suffered due to the non- validity of such facilities both in sea and airports. Mandatory Phyto condition should be waived where importing country does not require. Why are we giving money? Why are our costs of production increasing? The fee of Phyto should be reduced from Rs 2,500 to Rs.300. Last year they increased our Phyto price. If I give you the example of our neighboring countries India and Srilanka, the fee is one dollar. Similarly Bangladesh has low prices. Some states have no fee. MRL fee depends on what you are doing. The discharge fee by PCSIR to export to Oman or to other states because they are asking for the reports on pesticides of which 80% of the cost should be subsidized by the government of Pakistan. Replacement of the date production technology is already discussed. You can see high water like high water efficiency like drip irrigation, Pest free planting material including nursery. We do not have a single nursery. Already discussed by the Minister. Climate change innovation recycling farm based resources. So we have to be changed. Adoption of high density, i am was very proud when i visited last year in MNS Multan University. Mr Asif is the Hero of our industry. What they are doing is amazing. Training needs, skill development of farmers and on-farm labor through Global Gap and SPS protocols to brand Pakistan's produce for international markets. We already have a Horticulture vision, the best quality food, vegetable growing in Pakistan. We are among the top ten horticulture exporting nations in 10 years. The Horticulture Vision 2030 objectives include.

- Development of Rural Economy.
- Food security and job creation.
- Exports enhancement.
- Enhanced foreign exchange earnings and ultimately contribute to national security.
- Promotion of horticulture enterprises.

Major goals in 5 years to 2.5 billion USD and in 10 years to 6 billion USD and if you see the skilled and unskilled job creation for 1.3 million in 5 years and 3 millions in ten years.



If you see that now current e I export is increased to \$730 million. We can get one billion in one year InshaAllah and in three years \$1.5 billion, in five years \$2.5 billion and in 10 years up to \$ 6 billion. We have already submitted it to the horticulture ministry of commerce. They are already working on it because the Ministry of Commerce can do it in the short term. In horticulture we have short, medium and long term. I think long term and Medium term addressed by the province and national food security without that we cannot achieve this target. Our goal is exporter, economy, peace and job. Now to conclude, improvement is required in following areas such as infrastructure development, good agricultural practices at farm level. Demand driven R & D practices and collaboration between Universities, Research institutes and industry



as we know there exists this missing link in Pakistan. Now we have to become one platform. What industry is facing the problem and should be addressed to the academy and the research. Strong marketing strategies, training to the media for monetary and technical support is very necessary. Media can send the message to a lot. We have to train the media people also. So one thing I want to say is that, if the food that we eat is very good and flavored but we have to blemish to see the appearance of the mango. We have to focus on the appearance because we have to do the best harvesting practice. One thing I know is that we have already submitted the five years plan to the ministry of commerce, how to improve mango imports. I know one thing that if we get the best product we can market all over the world for sure. In five years what we give to the ministry we want to become the best three export countries in the world so we have to be there InshaAllah. Our production is 1.8 million InshaAllah we are going to increase our production with the help of the province and federal. Thank you very much for giving me the time.

Closing Remarks

Professor Dr Asif Ali, Vice Chancellor, MNS University of Agriculture, Multan

Thank You very much. I am very grateful to my team of presenters, honorable ministers for sparing their time, and interest in overall agriculture and Mango in particular. They have very wisely identified the way forward for both long and short term enhancement in mango production and export. I am grateful to WaheedSahab, I always look up to him in a way that he is a person who looks beyond borders and out of the box. You know, I remember interacting with him about 10-15 years ago. He was the one coming from export and he talked about production expansion. So, you know, he has contributed a lot to the fruits and vegetable company as a leader in the export market. We have our legendary Malik AmaanUllah who has served the industry with great zeal and he has always been there and we are friends. We learnt many things from him and DrMubasher Mehdi is an addition to my university. Thanks to Allah that this time the production of mango is good but we are struggling to enhance our exports and doing all our efforts. It's encouraging and rightly pointed out, we will reach out to DPP, direct to the DG also if there are any problems and I do believe this is my learning. that if DPP works effectively there are many hindrances that we can remove. We can enhance our exports, we need more efficiency. Although with the presence of Mr. ZakharImaam the



department has improved to a great extent but still this should be a very strong facilitator to our exporters. Madam Rabiya Sultan is always there with us. She is like a fighter for overall agriculture and mango in agriculture. Last year his efforts for reduction in freight were very good and he played a significant role. Not here with us stakeholders but at every corner to the Assembly level. I want to thank CGSS, Col. Khalid is a longtime friend. They are a very good organization. Whenever we called them, they were there and we did quite a few programs together. We took our festival to the Tashkent mango festival. We look at CGSS, with their support we have many things going on. We have a long agenda working with them. Particularly in the internationalization and this program especially is linking with the Ambassador for enhancing exports is greatly acknowledged. We are looking forward to holding the mango festival in Multan in July-April 8-10th and then in Islamabad in Centaurus mall in the first week of July or in the first week of June. We are looking forward to all these commercial counselors, Ambassadors and they will come, visit and see the strength of Mango we have. The kind of strength we can get from mango research. So I am really moved with my team, those who have worked. This is really not the end, it's just the beginning. With the production system we did many seminars on Mangoes production and disease management. So season long activities were there but now this time we go more for marketing. So we have our own kind of brand lounge for the training of the farmers for all those things which are mentioned. Then reach out to the mango smarter system which Waheedsahab has mentioned is expanding and we are providing all consultancy, support to our growers, exporters. Particularly there was mention of dry mangoes. This year the dry Mango production has already started. We are looking forward to the pulp and other value addition industry going ahead but certainly there are some points which are very important to pick up as a research organization. Those are the dimensions from the federal ministers related to mango breeding. We have to breed mangoes to create more diversity for the international market. We also have to improve our nursery system, DNA tested in production system and the overall value addition in our export chains. I am so grateful; we are looking forward to assisting the industry not only in the marketing but also in the production system. We are looking forward to the mango production being increased, and quality will be improved. And ultimately the international market will be getting the benefit out of these endeavors which we make together so thank you very much indeed.



KEY RECOMMENDATIONS/ SUGGESTIONS

- a) New technologies should be introduced to improve the quality and shelf life of the mangoes. This can be done with the help of academia and research, which plays a vital role to educate both the exporters and growers.
- b) There is a dire need to develop a DNA testing Mango nursery. This is a major challenge to our specialists and geneticists. The Government needs to make investments and develop these nurseries, which can help enhance the varieties of mango in Pakistan.
- c) Mango packaging needs to be improved in order to attract the high-end global markets. Instead of using the local wooden packaging, efforts should be made to introduce high- quality cardboard packaging globally accepted.
- d) Mango growers need to gradually shift towards organic farming techniques, which in the long-run will help create pest and fertilizer free zones. This initiative should be supported at the state and government levels. Introduction of organic farming will make our mango market more sophisticated and attractive to the purchasers.
- e) Pakistan produces wide varieties of mango. It needs to target the high ends, especially in China which is Pakistan's important exporting partner. Markets of China's prominent cities such as Shanghai and Beijing should be explored where prices of mangoes are high.
- f) The government should take private companies and entrepreneurs on board to introduce new processing and storage techniques such as mango leather processing through vacuum drying, developing pack houses with cold storage facilities, and introducing phytosanitary treatment etc. Collective efforts will make it easier for our exporters to reach targeted markets of China and Central Asia.



- g) Government and private exporters should introduce the modern Purfresh technology that uses ozone to kill viruses and pathogens, and reduce pesticides residues. Purfresh technique combined with the use of reefer containers can help improve the quality and storage life of mangoes thus making it more beneficial for exporters.
- h) To maximize mango exports, investments are required to be made to access modern infrastructure logistics. Relevant institutions must be well equipped with the required logistics to carry out efficient research, provide well-guided market information and supervise pilot shipments.
- i) Attention needs to be paid towards the overall refinement of the Post harvesting process and techniques. Nearly 30% of the mango is damaged while harvesting which greatly affects product quality and number.
- j) Training on Post harvesting techniques must be provided to growers. Moreover, practices should be introduced such as short stemming and lime desapping.
- k) Mango exporters in Pakistan usually target the local community. Pakistan should focus on international markets where demand is high such as Germany and the UK. There is a need to launch active and professional market promotion strategies which can help attract buyers to Pakistan's product.
- l) To avoid premature blemishing of mangoes, special holding areas with cold storage must be set up to take care of the fresh produce in the waiting for inspection by relevant authorities.
- m) In order to reduce the cost of production, the mandatory Phyto fee should either be waived or reduced. Regional countries such as India, Bangladesh, Sri Lanka have minimum Phyto fees. Therefore, Government should address this issue and try to minimize the Phyto fee.



- n) Certain countries demand pesticide usage reports which increase the exporting cost. The government should subsidize Pakistan Council of Scientific and Industrial Research (PCSIR) discharge fee and 80% report cost to help the exporters.

- o) Collaboration and linkage must be enhanced between universities, research institutions and industries. There exists a huge gap in industry and academia which should be decreased. Industrial problems need to be addressed by academics and research.

