<table>
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<th>Speaker TOPIC</th>
<th>Summary</th>
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<td>Welcome Remarks</td>
<td>In his opening speech, APSA President Tahir outlined the importance of seed in the food supply chain. “Seed is a fundamental input, link and starting point in the food chain. This chain has been put to the test in recent weeks and months,” he said. “Though governments in many countries had declared farm inputs, including seeds, as essential items and thus exempt from broader lockdown restrictions, there may be other effects on the business,” he added. He then laid out the objective of the webinar: for the industry to hear directly from stakeholders about the challenges on the ground -- as well as to share and learn about potential solutions and effective mitigation strategies.</td>
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<td>Tahir Saleemi</td>
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<td>APSA President</td>
<td>06:52 - 11:30</td>
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<td>Opening Statement</td>
<td>Further emphasizing the importance of seed trade, CNSTA President Song Weibo said that despite many countries had adopting “strict restrictions and preventative control measures to contain the spread of the [corona]virus, the epidemic has caused serious [impact] on seed trade and movement. Food security and sustainable agriculture are facing a bigger challenge than ever before he said. Weibo noted that the international seed trade had grown by a factor of ten in the past two decades. Previous international [trade] practices have shown that unrestricted international movement of seed under close bilateral and multilateral cooperation are very important to ensure food security. Hence, at this special difficult time, strengthening international cooperation and communication in the seed industry is imperative to all of us, he said.</td>
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<tr>
<td>Song Weibo</td>
<td>11:34 - 14:47</td>
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<td>CNSTA President</td>
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<td>India Report</td>
<td>Seed Trade Overview</td>
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Dr. Shivendra Bajaj
Executive Director of FSII
18:08 - 35:40

Dr Shivendra noted that Indian domestic seed industry was the sixth largest in the world, which he said was estimated to be worth $2.6 billion dollars. Recent international trade figures (2018-2019) underlined a robust sector with $122.7 million worth of exports against $119.77mn of imported seed.

Lockdown Challenges

As of March 25, India had entered its third-phase of lockdown, and many businesses had been greatly impacted, especially Micro, Small and Medium Enterprises in the non-essential sector, many of which were on the brink of insolvency.

The situation was initially concerning as businesses had little time to prepare, and adapt with only very short notice. Initially “essential activities” and businesses were not clearly defined, and agriculture and seed business activities were not considered essential.

Hence, FSII and other seed industry representatives proactively took up the matter with the Central and State governments before the lockdown was initiated, putting forward the importance of harvesting standing crops and preparing for coming kharif season sowing.

Such efforts ensured that the government finally declared agricultural related activities as essential, and thus would be permitted during the lockdown, albeit with strict safety measures. Such measures -- including the reduction of onsite staff numbers to be less than a third (30%) of normal, implementing multiple shifts, frequent site sanitization, social distancing and regular health monitoring of staff -- contributed to a reduction in productivity at seed processing plants by as much as 50%.

The first few weeks of lockdown were especially difficult, noting that the movement of goods and people domestically was challenging due to restrictions, barriers and roadblocks and the allocation of color-coded zones. With each State having its own jurisdiction to open or close borders, and many villages issuing their own lockdown measures, the movement of seeds domestically became a key challenge. In response, the government introduced a permit system for trucks transporting seeds and other essential items to cross state borders freely as well as setting up special cargo and courier services to facilitate easier seed movements.
Nonetheless, there were still delays stemming from the difficulties in accessing and moving through restricted (orange and red) zones, locating transport trucks, and procuring materials for seed packaging.

Prices of wholesale commodities, including cotton and many fruits and vegetables plunged, far below production costs in some cases. At the same time there were reports of fertilizer prices rising significantly, though Dr. Shivendra said that this was to ensure there would be significant stockpiles.

In sum, farmers have not been able to recover costs, he said, noting that the soybean sector will face the most serious shortage of quality seed this year -- not exclusively due to Covid, but rather due to late season rain crop damage last year.

Aside from this, other key challenges include the halting of most R&D activities, which were not considered essential; labor shortages have been sustained due to mass migration of laborers who had returned home during lockdown. This will impact paddy transplantation and other sowing and harvesting activities; moreover, operating with reduced staff numbers, and compliance with red tape e.g.permits, passes, etc. is also impeding productivity, increasing expenses. Another unique challenge seed exporters faced is to convince customs officials the importance of seed exports, as initially only cash crops were prioritized.

Other key challenges are those related to reduced cash flow and finance channels. For these, the government has introduced significant relief measures, including an economic relief package worth USD 270 Billion. Part of this is a comprehensive agriculture package, which includes a number of subsidy funds and acceleration schemes that look to bolster farm-gate infrastructure, micro food enterprises, deregulate agriculture production, and make more cash, credit and financing means available to farmers, including for the production, processing, marketing, transport and storage of target crops.

**Moving Forward**

As is the current trend, self reliance will be key, though, Dr Shivendra clarified that this does not mean having a "self centered" economy, and regional cooperation will be critical to assuring food and nutritional security, with an emphasis on transparency, and information sharing regarding human and plant health issues. Likewise, safety norms in post Covid trade should be harmonized across states and countries.
Dr. Shivendra proposed the establishment of “green corridors” to ensure the smooth movement of seeds, produce and processed food across intl borders. Moreover, he urged for more investment in infrastructure for the safe storage of seeds and related inputs, as well as establishing a database of national legislation and rules for Foreign Direct Investment.

Finally, he urged for seed associations to discourage governments from overreaching market intervention measures, specifically those that limit or restrict planting of a certain crop in a specific area. Citing two examples in Indian States where restrictions were put on the sowing of maize and chili due to plummeting demand, he said such regulations should be a great concern for the seed industry, suggesting that the free market would be more appropriate and practical solution.

Salman opened his presentation by highlighting that agriculture is the mainstay of Pakistan’s economy, contributing 19 per cent of the country’s GDP and employing 39 per cent of the labor force.

Highlighting “pre-pandemic” seed availability, Salman noted that Pakistan in 2018-2019 had produced 543,094 tonnes of seed, 91% of which came from the private sector. In addition, the country imported some 31,783 tonnes of seed. Pakistan's seed supply, he noted, is generally categorized into two systems: formal and informal. The former encompasses supply from both the public sector (research institutes and provincial seed corporations) and the private sector, including national seed companies, multinational companies and seed importers. Quality assurance matters in the formal seed system are overseen by the Federal Seed Certification & Registration Department. The informal system refers to conventional supply of seeds such as farmers’ own saved seed, and seed traded at farmer exchanges and procured via middlemen.

Covid lockdown was announced by the government on 22 March with strict measures that were recently eased (from 9 May). Since the start, seed business was exempted from lockdown as essential. Nonetheless, strict measures and restrictions on movement of goods and people had wide-reaching economic effects, especially for small and medium sized businesses. The IMF, World Bank and State Bank of Pakistan have forecast a negative impact on the GDP, to the tune of about 0.8-1.3%; imports are forecast to decrease by 50-60%, while exports may fall 10-20%; unemployment could rise by 20%, and overall economic negative growth is pegged to decline by 1.5%.
## Seed Supply & Demand

The import of seeds, particularly those vegetables, has severely been impacted, and may lead to a shortage that could fuel an increase in prices and thus force reduced sowing and cropping plans for upcoming seasons. Furthermore, procurement of wheat seed also has been problematic, and the situation is compounded by a shortage of labour and transport. There has not been a spike in demand and sales for home gardening kits, as reported in other countries, which is likely due to the crisis taking place during Pakistan’s “off season” for this segment.

Overall, lockdown measures have made the movement of 2019 seeds stock “extremely difficult” due to limited freight and cargo options, which may hike prices. Up until mid-May, there were restrictions on air freight, and costs for sea freight, had risen by 20%, which ultimately meant increased costs for farmers. Vegetable seeds are required to be in stock at least 30-45 days prior to the sowing, and neither exporters or importers have been able to assure adequate supplies.

Seed companies are adapting to new norms: virtual meetings (teleconference) have become more commonplace, and many offices continue to operate with reduced and minimum staff. Still, implementing social distancing guidelines and creating mutual understanding has been a challenge for some personnel, while reduced operational capacity continues to be a key challenge to overcome.

## Way Forward

To offset economic impacts, the Pakistani Government has rolled out an economic stimulus package valued at 1.13 trillion rupees or about $7 billion, which includes Rs280 billion ($1.7 billion) for wheat procurement, around Rs100 billion ($627 million) for loan deferment programs and a Rs56.6 billion fund for the agriculture sector. Relief funds will cover loan deferments, interest-free loans for farmers, crop insurance, seed distribution, as well as cash handouts.

Looking ahead, Salman said the government should engage the seed industry in progressive dialogue to “salvage the industry from deepening crisis and absorb the financial operational shock, midterm effects of which shall be apparent within six months”.

In the short term, essential seed imports should be managed for the upcoming sowing season, which starts in September. In the medium to long term, focus should be on the facilitation of seed companies to
produce quality hybrid seeds in Pakistan to decrease dependence on imports, while providing value addition for farmers, he said.

On a positive note, the crisis presents a good opportunity for Pakistan to reform its agriculture sector in a number of key areas. These include pursuing “sustainable agriculture mechanization”; education, training and capacity building in R&D, new technologies, manufacturing, engineering and ecommerce platforms; and improving water management, especially for the country’s four mainstay crops (rice, wheat, sugarcane and cotton), which utilize 80% of the country’s water resources while contributing only 5% to the GDP.

He said the government could ensure food security through price controls and direct crop purchase schemes that would remove middleman, hoarding and corruption from the equation. Tax free zones, provision of basic utilities and facilitation from setting up food SMEs to exports can attract expat investors.

To reduce food waste while improving retail and export prospects, he urged for more investment and capacity-building in packing, processing, preservation and distribution infrastructures, including refrigerated transport, cold storage, silos and granaries.

Salman anticipates for the purchase power of farmers to be greatly reduced in the short term while increased costs across the food supply chain will continue to negatively affect the market. To support farmers the government should consider extending relief in the form of tax exemptions and subsidies for seeds. Viable seed movement for food security and sustainable agriculture will be a critical factor in success. The Seed Association of Pakistan is engaging the government in this regard.

China Report
Weihong Tian
Secretary-General
China National Seed Trade Association

Mrs. Weihong opened her presentation with an overview of the Chinese seed industry. She noted that China is the leading consumer of crop seeds in the world. As for the domestic seed market she said her country represented the second most valued market in the world (after the US), in 2019 worth 123.7 billion RMB or about US$17.5 billion. China’s international seed trade in 2019 was worth about $646mn, including $435mn in imports (67%) against $211mn in exports (33%).

Sharing detailed trade data, Mrs. Weihong noted that last year, in terms of volume, seed of ryegrass topped China’s seed imports (31,110 tonnes imported) while paddy seed topped its exports (17,527 tonnes exported); in terms of value, however, vegetable seed was the top
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| category for both imports ($224mn) and exports ($116mn). China's top seed source countries of seed are the US, Japan, Denmark, Chile and Thailand, while top destination countries for Chinese seed are Pakistan, the Netherlands, South Korea, Japan and the US. |

On Covid-19, Mrs. Weihong said China had effectively brought the epidemic under control within two months thanks to strict prevention and control measures by the central government, in addition to the great efforts of front-line workers and medical personnel, consistent policy implementation by local governments, and understanding and cooperation of the general public.

Though the direct impact on grain production was limited, there was a temporary-albeit-major negative impact on the production of fresh agricultural products such as vegetables and fruits. However, due to aforementioned measures, and specifically the prioritizing by the government to ensure supply of essential agricultural and food products, stabilize prices and secure employment, the overall economy is gradually normalizing: schools are reopening, work has resumed, production has been accelerated, and supply chains are stable.

Nonetheless, the economic impact during the initial stages of the outbreak was “great” causing the GDP to fall in Quarter One by 6.8% year-on-year, with imports and exports declining by 6.4%, industrial production falling by 8.4% and service industry contracting by 9.1%.

Moreover, every part of the seed industry had been negatively affected during the initial phase of lockdown:

R&D Activity halted as breeders and staff could not visit breeding stations to observe trials due to restrictions on travel, while associated investments likely suffered; Seed Testing faced set-backs as labs were inadequately staffed; Seed Production suffered with production plans difficult to determine due to uncertainty of sales volume, the inability to deliver stock seeds to production bases and difficulties with seed quality control and monitoring due to a lack of technical personnel; Seed Sales declined due to bottlenecks in logistics and transportation limited seed deliveries and the stopping of face-to-face and on-site sales promotion and marketing activities. The decrease in sales revenue led to a lack of cash flow and financial challenges for SMEs.

Finally, Mrs. Weihong addressed impacts on international seed trade. The biggest challenges stemmed from transport and logistics, and specifically a difficulty to find and book air cargo due to the grounding of
most international flights. Air cargo costs increased greatly, in some cases by as much as five times the normal. Nonetheless, the overall impact was not too significant, she concluded, with the total value of imports and exports for China in Q1 pegged at US$140mn. Though this represents a 7.2% decline from Q1 2019, most of this was reflected in an 11.5% drop in imports, while seed exports actually saw a 1.9% increase. One of the reasons for this is due to the decision of the Seed Administration Bureau of the Ministry of Agriculture and Rural Affairs to accept online applications for import and export permits, which improved the efficiency for the approval process. Aside from this, Mrs. Weihong pointed towards strong cross-department and organizational cooperation as critical to overcoming challenges, whether domestically, regionally and internationally.

In compliance with new safety requirements and to minimize impacts on work and communication, Chinese seed companies have adopted common measures echoed by others, including "working from home", virtual meetings, and are also taking the lead to exploit the full potential of electronic, digital and online platforms to reinforce marketing and sales activities.

Moving forward, CNSTA will continue to advocate for unrestricted seed movement in a post-Covid world, including through the elimination of trade barriers, and by streamlining procedures utilizing online and digital tools such as the ePhyto platform and innovative online business models. In sum, Mrs. Weihong emphasized that recovery of market demand and global seed trade will take some time, and depends on the unique situation of each country. Meanwhile, virtual meetings and tele-communications will be central to the "new normal", as will innovative business models that utilize E-commerce to reinforce sales. Moreover, there will be a strong emergence of digital agriculture bolstered by big data and 5G-powered networks. To address food security issues, the application of biotechnology and Plant Breeding Innovation will be accelerated, especially for the purpose of identifying new traits with pest and disease resistance.

PANEL DISCUSSION

Introduction 1:11:35

Chair:
1. China: Sanqiao Jiang, Deputy President of Winall Hi-tech Seed Co., Ltd.
2. China: Xiaobo Zhu, General Manager of Wuhan Qingfa-hesheng Seed Co., Ltd
3. India: Arthur Santosh Attavar, Chairman and Managing Director,
Panelists were each asked two questions. The first was to address the difficulties and challenges their companies and the private sector in their countries faced, especially with regard to the coming sowing season. The second was to offer suggestions for how to ensure seed sustainable agriculture, food security and global seed movements after the crisis.

Sanqiao Jiang, Deputy President of Winall Hi-tech Seed Co., Ltd. (1:24:30 - 1:28:28) noted that China’s adoption of strict COVID-19 control measures had initially led to a 40% increase in manpower related costs and doubled transportation costs. Due to the ban on International travel, Winall was unable to dispatch breeders and technicians abroad, which posed major challenges for the company’s overseas research and production programs. Nonetheless, compliance with strict preventative measures ensured that none of its employees abroad were infected, and to compensate for production setbacks abroad, the company accelerated domestic hybrid rice seed production domestically, which was increased by 30% from the previous year. By mid-April, it was able to export 4,000 tons of hybrid rice seed and successfully completed its maize seed production targets in Angola. Considering the potential long-term impacts of the pandemic, Winall plans to reinforce overseas investments in the near future, with a focus on the localization of seeds business, covering breeding, production and marketing, having earmarked US$200million for this. At the same time, the company will continue to maintain strong CSR in China and abroad. This includes donating seeds and providing technical guidance in poor areas. To date the company’s charitable efforts have benefited 23 towns and counties in China, and the company has also donated PPE to Pakistan, Bangladesh, Iran, Philippines and some African countries.

Addressing the second question, Mr. Sanjiao (1:47:27 - 1:51:19) referred to growing concerns around the world about constraints that limit access to food, and associated economic disruptions that have left many workers without income for sustenance. While global stocks of staples including grains and pulses have been deemed to be sufficient, he said, supply chains are coming under pressure. Therefore, “We suggest to guard against any unjustified restrictive measures that could lead to excessive food price volatility in international markets and
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threaten global food security. Any measures taken by governments to limit the COVID-19 spread should be targeted, proportionate, transparent, and temporary, and should not create unnecessary barriers to trade or disruption to global food supply chains.” Citing the case of Vietnam initially banning the export of rice, Mr. Sanjiao said he is pleased that the government of that country has since reversed the decision. He went on to note that quality seeds are the biggest contributor to food security, and thus urged governments and seed associations to work together “to formulate positive policies to ensure the operation of domestic sales and international trade of seeds”. Mr Sanjiao lauded as positive example the governments of the Philippines and Bangladesh in allocating significant budgets for crop acceleration programs.

Xiaobo Zhu General Manager of Wuhan Qingfa-hesheng Seed Co., Ltd (1:29:07 - 1:30:38) affirmed that COVID-19 measures had initially posed significant difficulties and obstacles for her company, which is based in Wuhan, where the outbreak is said to have started. Specifically, restrictions on transport and international travel made it difficult to access both domestic and international markets; ports were closed, and import policies of many countries temporarily changed, which caused increased costs and additional paperwork burden to meet new requirements for shipments.

Addressing the second question, Julie (1:51:40-1:56:30) said her company was proactive in its response from the beginning, starting with provisioning PPE to employees, in addition to psychological counseling and technical training courses to enhance their confidence in overcoming the epidemic. To address the challenges of not being able to meet customers face to face, the company utilized digital media, including platforms to provide online classes and virtual meetings to guide and serve customers, which proved to be well received. Considering seed exports account for 60% of her company’s business, it was important to act quickly in the early stages of the outbreak. This meant actively engaging customers, providing them up-to-date information about developments in China and abroad, sharing stories and experiences about overcoming the epidemic. She said it was necessary to negotiate with customers in advance to formulate and revise the annual seed import and delivery plan. Furthermore, it is important “to pay more attention to the efficiency of scientific research and production, and adjust the short-term production plan according to the market situation.”
Arthur Santosh Attavar (1:30:55 - 1:34:24) noted that in his company and in India in general, the “Fear Factor” was initially widespread as no one had experienced anything like this before, and this fueled a lot of panic early on. Hence, in his company, it was important to address the “Human Factor” and specifically how management could help the team cope with the fluid situation. Next, restrictions on movements and travel posed a significant challenge, as personnel couldn’t freely travel to sites to gather R&D data, which is very important for seed companies. Furthermore, many companies were affected by migrant laborers going home, which caused a setback for farm operations in many areas. There wasn’t much that could be done except to analyze the situation and learn and plan from it.

To minimize the risk “We’ve learned to be more cautious and try to do things in a different way”. Addressing a question from the audience about whether things are going to be different after lockdown, Santosh said “Definitely … this crisis has really altered perceptions and activities of companies.” he said, creatively terming it as a “metamorphosis … that the industry has to go through to get to the next level, and that will redefine the way we live and do business, moving forward.”

Building on this in his response to the second question (1:56:44 - ) Mr Santosh said that in a “Post-Covid” world, companies should be careful not to cling to policies of the past, and that it would be wise for management to “get back to the drawing board”.

Important will be the role of national and regional seed associations to work with governments on developing business friendly policies that are well-orchestrated for the common cause of developing agriculture and the seed industry, keeping in mind the integral importance of the farmers.

In India, where agriculture has a strong State element, it is important not to be fragmented and for the states to work together, and consult with learned stalwarts of the industry who have the experience, exposure and research depth to lead us through the crisis.

To address rising input and logistics costs Santosh warned against being “opportunistic”, which would only hurt the farmers and thus the entire industry. Finally he said that his company will, and other companies should, continue to prioritize the health safety of its people, and senior managers need to get together and brainstorm creative ways to lead their teams into the “new realm” post Covid-19.
Senthilnathan Sengottuvelu (Sen), the executive chairman at ACSEN HyVeg Pvt Ltd echoed his compatriots about difficulties from the onset of lockdown, especially due to all the initial “unknowns” -- about how, where and who the virus would affect. For his company there were several key priority areas to address: the first was to ensure that farmers could get seeds in time so that “no fields were left unsown” with kharif sowing quickly approaching. Hence, as mentioned by Dr. Shivendra, it was important to work with the national seed association to convince the government that seeds were essential. Another priority was regarding R&D activities, as lockdown came during a prime time for data collection. At the same time, the company had to ensure the safety and security of employees. This involved stringent screening and preventative protocol: not allowing elderly or sick employees on site; implementing multiple shifts, social distancing, hygiene and sanitation sites, body temperature monitoring, and even distributing vitamins to help fortify employees’ immunity.

As such strict protocol was new for many, management held daily briefing sessions, “in which we constantly reminded them about the new protocols… to address the fear factor … luckily we had good will among the workers who saw that we were genuinely concerned.”

Sen explained that teamwork, and particularly maintaining trust and good will of employees was critical. This entailed offering onsite accommodations at factories, offering extra remuneration, and encouraging senior staff to pitch in on the packing line -- all of which helped to “ensure our seeds could got out in time”.

Then came challenges with logistics and transport. Sen noted how difficult it was to find drivers and courier service. “I can say we were among the first in India to utilize the railways emergency courier services to move seeds from Salem to Punjab…and ultimately were able to impress upon the Indian Postal Service to utilize speed post and courier service to move vegetable seeds.”

With limited trucks and willing drivers, meticulous planning and coordination was required, and involved aggregating border plans and reviewing route maps to be efficient to get seeds to distributors and back quickly for the next delivery. Thanks to such close attention, ultimately his company was able to achieve both objectives of getting the seeds to farmers and collecting R&D data.

Addressing the second question Sen first highlighted two key challenges -- and the respective solution -- that
have come to light in the wake of the pandemic. The first is “sustainable agriculture” noting that there have been clear environmental benefits of lockdown in the way of reduced air and water pollution. The second challenge was in regards to food and nutrition security, especially the latter. “In India, the world’s second most populous country, we haven’t seen deaths from starvation, so much as from a lack of immunity [to Covid],” pointing out that food nutrition is one key way to promote health, and thus immunity.

Moving forward, he said the solution to both challenges was in seed. Sustainable production of quality seeds, he clarified, can minimize damage to the environment while maximizing nutrition in agricultural produce. For this, he proposed the need for policies to promote and enable plant breeding innovation -- not only for developing varieties that are disease and pest resistant and thus reduce the overuse of crop protection chemicals, but also to for developing varieties that have higher nutritional content and those promote health amongst consumers.

Finally, he said that another key challenge that seed companies urgently need to address are disruptions related to the increasing digitization of communications and reduced human interactions, especially with regard to working with farmers and other field personnel. This is inevitable, and we have to work together to devise and implement practical solutions, he concluded.

Tahir Saleemi, CEO of Haji Sons Pvt Ltd and APSA President, (1:42:03) pointed out that despite Pakistan being self-sufficient in several major staple food crops, 63% of the country’s households are food insecure. Covid-19 had only compounded the situation, creating even more serious concern for food security.

The lockdowns initially had minimal direct impacts on Pakistan seed companies, as most of the main field crops had already been sown, he noted, but indirect impacts soon mounted. Particularly, the non-availability of labor and transport made the exemption for agricultural activities all but impractical.

Like in other countries, Tahir noted that his company and others in Pakistan were proactive in adopting telecommunications and online media for keeping in touch. “Our team provided R&D follow-up and guidance for farmers via online channels, but despite all our efforts, we found it difficult that many vegetable and ornamentals could not be
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|------------------------------------------------------|
| harvested in time due to shortage of labor and those who managed to harvest found great difficulty getting produce to retail and wholesale markets."

Likewise, the grounding of flights and closing of borders muted exports.

Moreover, consumption and demand for fresh vegetables fell due to the closure of restaurants, hotels and tourism sites. Unable to recover their costs, many farmers had to suffer losses. Cashflow was affected, putting pressure on seed companies who usually work on credit.

During lockdown, wheat was one of the main crops subject to food security concerns, Tahir said, noting that existing stocks of this staple crop were already limited due to weather-related damage and low yields last season; and following the announcement of an anti-hoarding bill, panic ensued, which further compounded challenges with supply of not only the food grain, but the availability of wheat seeds for next season.

Tahir affirmed that the rising cost of air and sea freight would definitely affect the cost of seeds and inputs for Autumn sowing season. He said farmers are expected to move to easy and long-duration crops, and despite availability of good seed, demand for these high-value seeds would likely remain low. Likewise, usage of farmer-saved seeds is expected to increase, which would “definitely affect the yield of autumn crops.”

Aside from this, the agriculture sector has been dealing with a devastating locust infestation, which Tahir suggested “would require cooperation from all governments in the region to cooperate and take measures simultaneously.”

As for the rice sowing period in June, there is some optimism. Last year, high temperatures caused sterility and negatively affected yields. Hence, farmers this season are being more cautious with sowing and crop management, which would hopefully bring better returns for the agriculture sector.

This crisis has shown us the need for better logistical planning. It is a pity that on one side, farmers are forced to cultivate crops without recovering their input costs, and on the other side households are forced to purchase food at higher prices. Market systems need attention for the sustainability of both.
Addressing the second question (2:08:32 to 2:13:04) Tahir reiterated that food and health go together, and said that both agriculture and healthcare workers should be considered “front line warriors.”

“At this stage, we should focus on capacity building, especially to help with the financial liquidity of smallholder farmers to ensure they can get quality seeds and maintain good sowing practices for sowing in the upcoming seasons. To this end, Tahir urged governments to extend more support by bearing expenses, forgiving interest or providing seed subsidies to help farmers cope with the coming difficult times.

He went on to laud the implementation of “green channels” or “green lanes” for prioritizing and fast-tracking the movement and transport of agricultural goods, and suggested that this concept be extended beyond the domestic level, to regional and global scales. However, he stressed that such mechanisms should be automatic and needed to be safeguarded from any political agenda.

Aside from “focused planning” to avert bottlenecks and delays with logistical challenges, Tahir proposed that the seed industry focus on online trading platforms, and suggested that APSA consider developing one for the Asia-Pacific region and beyond. Likewise, APSA and national seed associations should continue to push governments to adopt online platforms and tools to harmonize and better facilitate compliance with rules and regulations related to the seed business including for variety registration, phytosanitary requirements and seed testing.

This has especially become urgent during prolonged lockdown, but would still be priority even if lockdown restrictions are lifted. To conclude, he brought attention back to farmers, especially those who are unable to recover costs, find markets for their produce or secure quality seeds for the coming season. “Should APSA or another organization develop an online trading platform as suggested, we could utilize this for companies to offer their excess stocks to help farmers who cannot procure quality seeds in time for sowing,” he proposed.

Everything starts with seeds, he concluded.

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<td>1. How do seed companies envisage their technology to reach the very deeper villages where smallholder farmers grow our crops? The smallholding farmers (in India) contribute to 80% of our food but their yields of all crops is about half of China and 1/3 of USA. What are the methods/initiatives from seed</td>
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companies to reach them and how do they teach them to get yields meeting the actual genetic potential of their best genetics?

Senthilnathan Sengottuvelu: It’s a regular practice that many field demonstrations are conducted in the target market area so that the benefits of the products with new traits are established. This will help farmers to be aware and understand the details of the product.

2. In India do you think that the impact of vegetable seeds consumption by growers will be impacted due to shift of cropping patterns - if yes how many quarters?

Senthilnathan Sengottuvelu: I expect a better market for vegetables due to intense recommendation for the need to improve the immunity and for consuming more vegetables with proper nutrients to improve the immunity. Hence, I believe that vegetable seeds demand will grow in the next few years due to a favourable shift towards vegetables.

3. “We know E-commerce is becoming very popular in China, even in rural areas. But for seeds or other agricultural inputs, it’s not the case. What’s the Chinese experts’ opinions on the development of seed online sales?”

Weihong Tian: I believe e-commerce for the seed industry is a new trend and has great growth potential. With the rapid development of e-commerce platforms, the China Seed industry has already carried out online sales of seeds for several years providing farmers with an alternative seed purchasing channel. Though the industry has accumulated some experience, offline transaction is still crucial. The new model is still being explored. E-commerce platforms are not equipped with the ability to replace the traditional seed sales model, thus have not yet become the main channel for seed purchases and sales for the following reasons:

1. Under the traditional sales model, distributors not only sell products but also provide agronomic technology guidance and after-sales service;
2. Under the integrated sales model of agricultural inputs, distribution efficiency and safety requirements are higher for seeds, pesticides and fertilizers, thus, online shops are not convenient compared with offline shops;
3. In addition, due to the special product attributes of seeds, quality issues impose high risks. Liabilities and compensation issues are complex;
4. Chinese growers still prefer the traditional model due to the different levels of development and quality of e-commerce platforms. Despite the rapid development of network construction in rural China, due to limitation of after-sales service and high logistics and storage costs for seeds, there are many issues with the online sales of field crops. However, the sales of family gardening seeds are relatively better. Although problems still exist, seed e-commerce has strong potential. We should fully make use of its unique advantages combined with traditional seed marketing to create more new opportunities, carry out seed marketing activities and technical services, combine life, entertainment and sales through media platforms based on farmers’ network preferences, combine the industry chain to strengthen the synergy of online sales of seeds, pesticides and fertilizers, and try to fully make use of the advantages of e-commerce in meteorology, disease, pests and agronomy services, so as to strengthen the construction of the comprehensive solutions and improvement of digital service capabilities. Furthermore, we should build up a more efficient and transparent information interaction platform through the E-commerce model and create new business opportunities in the seed sector.

All in all, I believe that e-commerce can provide more help to create new opportunities for the seed business.

4. Will there be any difference in the seed price due to pandemic?

Tahir Saleemi: Yes, the cost of airlines, sea freight and local transportation has already increased due to limited options. In many countries due to shrinkage of the economy and economic growth there is currency devaluation. At the moment overhead costs have increased between 10-15%. Production has not increased much as everyone has stocks from last production cycle, but there will be impacts from the current production cycle. Overall, increases for farmers is expected to be 15-20%.

5. How do you manage seed inventory under this circumstances?

Tahir Saleemi: Sowing times for each crop is limited and in time the availability of seed is critical. Due to uncertainty in yields, transit time and border movements, smart and efficient inventory management is needed but first need to expand financial and physical capacities. Government support will be needed to meet this challenge, especially for medium and small level companies. Incentives, and soft loans can help companies
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to build inventory for at least one year. Mechanisms are needed for guaranteeing security through banks or chambers for companies between countries, ensuring companies can facilitate seed trade for an extended inventory period. Our company is working to maintain one year stocks in advance but it will take time to align production hubs.

6. Sir, when will the seed movement begin abroad?

Dr. Shivendra Bajaj: The commercial seed movement is happening. However, the import of seed for research purposes is impacted because of the delay in the opening of government offices related to quarantine etc.

7. Do you think that lessons learnt during COVID period will have a long term impact?

Dr. Shivendra Bajaj: That’s the hope. Many things will change significantly especially the work that can be done remotely will be continued for a longer time. Technologies that enable working remotely will get a boost.

8. Is crop insurance available for sowing failure due to unavailability of seeds?

Dr. Shivendra Bajaj: Crop insurance is proposed to account for failure of crop due to several reasons. I don’t think seed can be made available through crop insurance. There should be other processes to enable timely availability of seeds.

9. How do you manage seed inventory under these circumstances?

Sanqiao Jiang: Winall attaches great importance to the improvement of risk prevention for seed production. In the past, in order to cope with the potential risks of climate change and natural disasters on seed production, Winall had established multiple seed production bases in 16 provinces of China, and decentralized seed production to disperse operational risks and ensure the safety of seed quantity and quality. At the same time, Winall had also taken similar measures to establish seed production bases in overseas countries. So, after the outbreak of COVID-19, we can still arrange seed production smoothly to ensure the stability of seed production and inventory.