

AGRICULTURE TODAY

February 2017, ₹45/-

The National Agriculture Magazine



INDIA'S TRADE TALES



HARYANA:
WHERE AGRICULTURE
MEETS PROSPERITY

FEBRUARY 2017 | VOLUME XX | ISSUE 2

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Publisher & Printer – Dr. MJ Khan on behalf of M/s Concept Agrotech Consultants Limited, Published from 306 Rohit house Tolstoy Road New Delhi-110001 and printed by Everest Press E-49/8, Okhla Industrial Area-II New Delhi-110020 Phone No. 011-23731129 Fax No.011- 23731130

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Pages in the magazine: 60

Agri Marketing Determines Farm Incomes

Agriculture and marketing are two sides of a coin. Lavish agricultural production amounts to nothing if not properly marketed and traded. The implications of marketing glitches is resounded in the poor returns to the farmers and this has over the years changed the nature and tenor of organized marketing.

Organized marketing which was the prerogative of agricultural produce market committees (APMCs) in the states, over the years, revealed its restrictive and monopolistic side, crying for reforms and overhaul.

However, the modified APMCs that followed could not also contain the irregularities as some states didn't want to be accommodated in the modified stream. The latest in the series of reforms in this segment was the electronic National Agriculture Market (e-NAM) platform which offered to be a single platform to carry out marketing activities between farmers and traders across the country. The eNAM had a slow beginning and is yet to be adopted by many states. With better network and connectivity, the electronic transactions would better in following years.

Indian agro products have got dependable markets beyond the confines of the country's boundaries and so also is India a consistent market for many imports of agricultural nature. India is the world's second biggest producer and exporter of rice, the second largest producer of wheat and sugar as well as the world's largest producer, importer and consumer of pulses. The country is next only to China in importing cooking oils. However, the country has been experiencing a dip in farm exports for the past two years. According to a report of the Agricultural and Processed Food Products Export Development Authority (APEDA), exports of some major commodities in agricultural and food products from India dipped in 2014-15 as compared to last year.

Several factors have contributed to this decline. With other countries eating into the share of India's exports with their cheaper products, India has been losing market recently. Also, the ban on certain agricultural products from India by certain countries has also resulted in a drop in agri exports. Besides this, India's agri-exports have been unreliable owing to vacillating domestic policies and hence the quantity marked for agri exports most of the time varies. Prevalence of higher domestic prices in comparison to international prices of products have made exports commercially less viable for India. Flouting of phyto sanitary measures and poor handling of agri products have made India's exports less desirable. The recent demonetization drive by the Modi Government is also believed to have some undesirable effect on the country's exports.

India has excelled in the production front owing to the research efforts of some of the brightest minds in the field of agriculture. But to experience the ultimate benefit of these production numbers, farmers must be able to productively market the produce to derive maximum monetary benefits from it. An effective marketing materializes from timely dispersal of market information and utilizing them to the utmost extent. It will become a crucial factor for realizing farm incomes.



Anjana

Anjana Nair

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Cashless in Agriculture

Farmers should be introduced to various cashless means in agriculture

Indian economy went in for a major disruption last year. The exercise fondly called as 'demonetization' made higher denominations of Rupee worthless, and put heavy and sometimes unrealistic restraints on cash withdrawals from one's own bank accounts! The alternative was either to go cashless or survive on lesser denominations with a cap on withdrawals. The situation has led to immense amount of distress to common man, not to mention the huge number of businesses that thrive entirely on liquid cash. Agriculture was deeply disappointed.

The post demonetization days saw lesser arrivals of agri commodities to the market. Neither the farmers were able to sell their products nor could the traders buy them. Distress selling was rampant and there were even reports of farmers burning their produce as they were not able to sell or store them. Prices fell and the market witnessed an unprecedented phenomenon. It has been more than two months and normalcy is not near anywhere in sight.

So as the inevitable has happened, it is time to move on. The dethroned currencies are not going to make a comeback and we have to find ways to survive under these changed conditions. The challenge manifested also present opportunities. Cashless society, to many, appear as a fancy idea with little value in realistic terms. Is it implementable in India where cashless services are mere prerogative of the urban centers? The answer has to be yes as we don't have choices!

Indian population has myriad ways of managing their finances and most of the ways do not include banks or cards. In fact, there is a good number of Indian population who are still not in the banking loop. The gargantuan task of uniting 100 per cent of the population under the formal banking network has to be the starting point. The groundwork of which had already laid with the Pradhan Mantri Jan-Dhan Yojana (PMJDY) which started in 2014. PMJDY has managed to open over 265 million accounts. But there is still many more to go.

Another limiting factor to going cashless is the severe shortage of points of sale. Besides, their shortage in number, their use is also limited by the lack of knowledge or trust in these modes of transaction. To earn the trust of the farmers, awareness on a large scale inviting the facilities of different departments and institutions should be encouraged. Unfortunately, 90% of the workforce, which produce nearly half of the output in the country work in the informal sector. A suitable programme has to be evolved to bring this sizable population under the banking net and cashless economy.

Mobile wallets – the likes of Paytm- has already become a recognizable name among street vendors in urban areas. They can also be made a regular feature among farmers. The government should make it easier and cheaper for them to adopt card payment and mobile wallets on a trial basis. Extra charges on using these facilities must be waived until they get used to the system and they themselves realize the immense potential.

Another yet evolving and promising area is BHIM (Bharat Interface for Money) which was launched on December 30, 2016. Unlike the mobile wallets which store a limited amount of money on the app, that can only be sent to someone who is using the same wallet, BHIM based on UPI (Universal Payments Interface) and thus linked directly to a bank account allows the recipient to receive money without BHIM app. All they need is a bank account to receive the payment. BHIM is also supposed to support Aadhaar-based payments, where transactions will be possible just with a fingerprint impression.

There are plethora of ways - POS machine, Debit card, online apps- to effect cashless transactions in Indian agriculture. However, it seemingly requires an equally increasing number of conducive factors. The availability and quality of telecom network, for instance plays an important part. Financial institutions have to constantly invest in technology and customer interface programmes to ease congestions involved in cash transactions, most of the time without transferring that cost to the consumers. Government's role is crucial as it has to find innovative ways to lure the customers / farmers to invest their trust in cashless transactions.

The cashless system if put in place has enormous potential for farmers. Once they start to make payment directly into their bank accounts, they will become visible in the banking network creating a credible transaction history making them eligible for loans. This can help in the institutional financing of India's vast agriculture sector.

PMFBY Glitches

The new crop insurance scheme leaves open loose ends

Pradhan Mantri Fasal Bima Yojana (PMFBY) is the last in series of the crop insurance schemes that India has seen and experienced. A far cry from its predecessors - the National Agriculture Insurance scheme (NAIS) introduced in 1999 and the Modified NAIS (mNAIS) introduced in Rabi 2010-11 which were scowled at for their higher premium rates - PMFBY had kept the premium low and intended to cover 50 per cent of farmers in three years. The premiums were maintained at all time lows. A farmer would pay premium of 2 per cent of Sum Insured for kharif crops, 1.5 per cent for rabi and 5 per cent for commercial crops. The balance will be paid by the government.

A year later, a release from the Ministry of Agriculture says 366.64 lakh farmers (26 per cent of the total) were covered under crop insurance which translates to an increase of 18.5 per cent from Kharif 2015. The area under insurance coverage increased 15 per cent and the sum insured jumped 104 per cent. So appears that the insurance scheme has worked and farmers have invested their faith in this scheme.

But a closer examination reveals that the increase has mainly come from farmers who had an outstanding crop loan as farmers with bank accounts are mandatorily enrolled into the scheme. So the basic intent to attract more farmers have only been revolving around those who were visible in the banking circuit and the innumerable, yet significant others, were apparently missing from this exercise. This class of farmers are mostly tenant farmers or share croppers who are the most vulnerable. Not being recognized formally as a farmer, deprives them of the many benefits including the crop insurance scheme. The new crop insurance scheme doesn't hold any significant clause for this stream of cultivators.

Apart from this, farmers' associations are also miffed by the manner in which premiums are being debited. As of now, banks automatically debit premium from farmers' account. Also, the payment by the insurance company is done directly to the bank account of the farmers. However, most of them prefer the deposit may be done to their saving bank account and not the loan account that the banks can access to recover their loans. Or else, these schemes have become loan insurance for the banks rather than crop insurance for the farmers. Lack of access to a real insurance agency to address to has also not gone down well with the farmers as most of the payment operations are done via banks. The invisibility of the insurance agency has affected the accountability of the entire insurance process.

The manner in which the yield of a crop is calculated to estimate the loss is also another cause for concern. The unit area in crop cutting experiments has been taken as a village and not individual farms. Since there are variations in weather events even within a village, current method assessment has been dubbed as erroneous and not adhering to the reality.

If the scheme really wants to benefit the farmers, it has to take into consideration all these issues. PMFBY has promised to include localized risks and post-harvest damages within the scope of insurance, yet has left out risks from destruction by wild animals. Besides, there does not seem to be a political will to offer a universal coverage to all farmers, all crops against all forms of damage and at all stages of crop cycle, even though agrarian crisis and farmers' suicides are mounting with every season.

Back to back droughts that India faced in the recent years are cue enough to develop a robust and comprehensive crop insurance scheme. In years to follow, unnatural weather and climate changes are bound to happen. Under such circumstances, a more transparent and amicable insurance scheme allaying the fears and fallacies of the farmers would enable a stress free and insured crop culture in India.

Gene Editing – The New Wonder?

Gene Editing opens up new vistas in Agriculture Research

While India is yet to evolve a consensus on commercializing genetically modified food crops, the world seemed to have moved on to a new technology, which bears a close resemblance to GM crops. This new technology which is capitalizing the world agriculture is an offshoot of GM technology, but is more acceptable and palatable to the regulators worldwide.

A new generation of crops known as gene-edited rather than genetically modified is being developed and is soon to make a market debut worldwide. While genetic modification largely involves replacing genes in the plants with a foreign gene, gene editing simply snips and tweaks DNA at precise locations which enables to turn off a particular gene. The result is a more polished product. With gene editing new versions of wheat are being developed which has greater resistance to fungal diseases and another version which is lower in carbohydrates and higher in dietary fibers. DuPont Pioneer is dabbling with the idea for a new variety of waxy corn, used most commonly not for food but for starch in adhesives. Scientists at Pennsylvania State University are creating mushrooms that do not turn brown quickly.

Gene editing, unlike GM foods is not to find fault with regulators as they largely fall outside of current regulations. Atleast that is the sign from USA, where many companies have gone ahead with their plans and growing these crops. Calyxt, a subsidiary of Cellectis currently consumed with developing the gene-edited food has to its pride potatoes which have been edited to remain fresher longer and not produce carcinogens when fried, and under the current system it is expected to be grown and sold in 2019. A second potato that is slower to turn brown is also on the anvil. Gene editing has also found its way to animals. A Minnesota company, Recombinetics, is editing the genes of farm animals — for example, creating cattle without horns.

The new technology is believed to have taken USA by storm as reportedly hundreds of acres of gene-edited crops have already been grown in several states. The federal Agriculture Department wouldn't be having problems with this version of genetic manipulation as long as the associated companies are able to demonstrate that the gene edits do not introduce foreign genes. And since there are no foreign genes introduced, it need not be mentioned in the label.

With gene editing, another novel tool has entered the agri scene. But what puzzles the law makers are that there are no specific guidelines in the existing framework to regulate the research or commercialization. They are free to be commercialized as hitherto laws concerning genetic modification do not apply to gene editing. Critics on the other hand has dismissed this as a minor technicality and consider the gene edited products as hidden GMOs.

Leading regulatory authorities in the US and the EU have declared that genome-edited organisms are not transgenic organisms and, therefore, do not come under any biotech regulation. It will be interesting to note what India's stand would be on these issues as the technology will soon make their way here. Will the anti biotech lobby be able to stoke public sentiments against this science? Or will they concede to this wave of biotechnology, as most of the European regulators to whom they look up to approve of this technology. If approved, India will open up a new door in the agri biotech segment giving hopes to circumvent many existential problems in agriculture. The dragging biotech segment will get a new leash of life and farmers better choices to choose from. However, it is worrying to observe that with the pace with which research is uncovering new paths, our policy frameworks are antiquated and unaccommodating. Our policies with regard to agri biotechnology should be made more dynamic and encompassing future research directions.

Conserving Indigenous Breeds

Jallikattu strives to conserve and promote indigenous breeds

Jallikattu row, the one that has now taken control of the minds and streets of Tamil Nadu, reached a crescendo with the Supreme Court banning the sport on account of cruelty to the animal during the event. The ban was considered to be a transgression on Tamil Culture and identity and this led to massive protest from people of the state from different walks of life.

Jallikattu or Bull taming associated with Pongal, the annual harvesting festival of Tamil Nadu has got a history of more than 5000 years and formed an integral part of agriculture. During the sport, a raging bull is released into a crowd. The participants try to ride the bull for as long as possible while attempting to make it stop. Bulls that respond to the participants are considered tamed and are used for agriculture and other domestic activities, whereas the untameable bulls are used for breeding purposes.

For the indigenous breeds, this was an arena to showcase their virility and strength and by diverting them for breeding purposes, their traits are carried forward to the next generation creating offsprings that are stronger, more resistant to diseases, and able to produce better quality milk. This was seen as the traditional and only practical way to be able to preserve the genetic strength of indigenous cattle breeds. Rearing an indigenous bull is an expensive affair, but events like Jallikattu opens up opportunity to bull rearers. The bulls that fare well in the Jallikattu are believed to be in constant demand for servicing the cows. Thus Jallikattu has evolved as a marketplace for these bulls.

This brings us to the point of relevance of indigenous breeds. India's milk production is largely dominated by breeds of exotic origin. The high yield and the fat content of the milk has made them the favourite of Indian dairy farmers. However, they appear fairly vulnerable to biotic and abiotic stress bringing the focus back on to the indigenous breeds which are considered to be more hardy. Besides, the milk from most of the native breeds have been discovered to possess favourable health variables that are beneficial to humans. Research has revealed that there are two types of beta-casein protein which are the dominant casein proteins in cow's milk: A1 and A2 protein. A2 milk has been adjudged to be more beneficial than A1 milk. In India, there are 37 native breeds (there were 150 a century ago), and of these, 36 have the A2 protein gene in them.

Many of India's native breeds are becoming extinct and their existence in many parts are on account of these cultures and practices. The central government has in fact been very vociferous in protecting desi cows and has been very generous in allotment of financial assistance. Jallikattu, although is primarily a sport is also involved in conserving the indigenous breeds, although the modus operandi looks a bit outlandish and barbaric to the outsiders. As per law, using bulls as performance animals is illegal and events like these violate the Prevention of Cruelty to Animals (PCA) Act, 1960. These circumstances forced the Supreme Court to ban the event.

While there exists some amount of suffering, the event bodes well to the conservation and promotion of indigenous breeds. So instead of outright ban, the event can be conducted with appropriate safeguards and under a suitable body to look into cases of cruelty and sufferings to animals. Certain amendments can be made such as to remove the ban on Bulls from using them in traditional and cultural practices and to remove Jallikattu from animal fighting as it is not a fight.

The event is a cultural symbol and integrated closely with lives and tradition of the people of Tamil Nadu. A disruption of that in the name of technicality is gross neglect to the sentiments and beliefs of a large section of population.

Mahindra Agri Solutions seeks to raise Rs 300 cr

▶ The tractors-to-technology Mahindra Group is planning to sell a minority stake in its subsidiary Mahindra Agri Solutions to raise upto Rs 300 crore as it looks to triple revenues to Rs 3,000 crore in three years to help scale up the business and build muscle through acquisitions, a senior executive said. The fund raising exercise is part of a pump priming plan for the agriculture business for faster growth. The agri business was part of the conglomerate's farm equipment business, but was made into a subsidiary last year. From fiscal 2017, agriculture business will be given a 'sector' status within the group. The company's revenue grew to about Rs 900 crore in financial year 2016 from Rs 70 crore in 2011.



Note ban raises collection worries for pesticide firms

▶ Cash crunch is raising collection risks for agricultural inputs providers. For instance, in Madhya Pradesh vegetable prices fell sharply after demonetization. This is causing panic among trade and industry as collections will come under stress and demand for pesticides may get hit in the near term, said Emkay Global Financial Services Ltd in a note after it spoke to dealers in the state. In Telangana, sales on credit have risen significantly and dealers are wary of poor collections. "As farmers lack liquidity, collections for kharif sale have been severely impacted and companies fear bad debts could rise or at least cash collection will be prolonged which will impact working capital cycle," Emkay said in the note. As a precautionary measure, firms are being cautious about how much inventory they are putting out in the retail market, the impact of which could become visible in their quarterly results.

MCX Starts Preparing Tea for Futures Listing

▶ Getting tea to be traded on the derivatives market is not going to be an easy task given its heterogeneous nature. Nevertheless, initial attempts to launch futures trading in tea are being made by the Multi Commodity Exchange (MCX) which has initiated talks with all stakeholders in the tea trade brokers, buyers and producers. The move comes after the government notified that futures trading could be initiated in tea, industry officials said. A senior official of Calcutta Tea Traders Association (CTTA) said MCX officials have held a round of talks with the trade members. "The exchange will have to come up with a tea index for benchmarking every lot of tea. The exchange will have to frame the contract specifications, trading parameters, delivery and settlement procedures for futures trading in tea," the CTTA official said.



Universal Udyog on an expansion mode

▶ Kolkata headquartered Universal Udyog Ltd, manufacturers of Universal brand of edible oil is on an expansion mode. The company is in the process of shelling out nearly Rs 130 crore over the next 18 months or so to ramp up its capacity, put up new plants and roll out new products. Going by the plans envisaged by the company, once all its expansion plans are executed, the company is expecting to take its turnover to Rs 100 crore by the end of 2017, which would be a four times jump, said Binay Singh, chairman of Universal Udyog Ltd. Last year, the company notched up a turnover of Rs 25 crore. At present, the company has two plants- one at Belgharia industrial estate in West Bengal and another at Agra in UP. It packages mustard oil and soya oil at these two plants, which are marketed under Universal brand name. Singh said that buoyant over the growing demand for its products, the company has now decided to come up with a new manufacturing unit at Jhansi, for which the company has already acquired 20 bigha of land there. Besides, the company will also put up two new packaging units- one at Dankuni near Kolkata and another at Gorakhpur in Uttar Pradesh, he said. He said that the new crushing-cum-manufacturing unit at Jhansi will come up over the next 12 months along with a large warehouse for storage of the raw materials.

NCDEX to re-launch castorseed futures

► The National Commodity and Derivatives Exchange (NCDEX) will re-launch trading in castorseed futures which was suspended after prices shot up sharply in January. To start with, castorseed contracts expiring in February, March, April and May would be available for trading. The contract will serve as crucial risk mitigation tool for the castor seed, oil and derivatives' processors and exporters, who need to hedge their exposure to price risk, said the exchange in a statement. In the absence of futures contract the traders, processors and exporters are left vulnerable to fluctuating prices, it said. Samir Shah, Managing Director and CEO, NCDEX, said it is indeed heartening to have the regulators confidence and the support of traders. "We have significantly strengthened risk management framework under the guidance of SEBI and we look forward to the successful re-launch of the castorseed contact," he added.



Insecticides India ties up with Japanese firm Nihon Nohyaku

► Agrochemicals firm Insecticides India Ltd (IIL) informed that it has tied up with Japan's Nihon Nohyaku Co Ltd for launching of new generation insecticides for different crops under the brand name SUZUKA. IIL plans to introduce one more brand HAKKO, an insecticide for BPH in paddy crop. "Under this tie up, IIL would market SUZUKA, the new generation insecticide flubendiamide 20 per cent SG of Nihon Nohyaku, Japan, which is an effective solution for control of lepidopteran pests in different crops like pulses, vegetables and paddy," a company statement said. This will add another feather to company's 'Tractor' brand range of products, further strengthening the product kitty with latest technology products. Other product Hakko, Buprofezin 25 per cent SC, an insecticide for control of BPH in paddy will also be launched in tie up with the Japanese major. "Suzuka is an important product for farmers of MP especially for rabi crops like gram and other vegetables. We always endeavour to bring the new technology products to the farmers within their reach," IIL MD Rajesh Aggarwal said. IIL has emerged as a front line performer in India's Crop care market with a top line of Rs 988.15 crore in 2015-16 as against Rs 964.19 crore in 2014-15. It has formulation facilities in Chopanki (Rajasthan), Samba and Udhampur (Jammu & Kashmir) and Dahej (Gujarat).

Patanjali's next big vertical take-off – edible oil

► Unfazed by demonetisation, Baba Ramdev's Patanjali Ayurved is readying to oil into a new vertical at the start of the New Year. Coinciding with the 22nd birth anniversary of Ramdev's yoga foundation, Patanjali launches seven varieties of edible oil – rice bran, groundnut, soyabean, sunflower, sesame, canola and virgin coconut oil. It already has a play in mustard oil. Patanjali Refined, as the oil vertical is being called is eyeing sales of Rs. 20,000 crore in three years time, and will be one of the big contributors to the target of Rs. 50,000 crore in 2020 that the company has set itself. The total market size of edible oil in India is around Rs. 1,25,000 crore currently (roughly 50 per cent is organised sector) and its growing at 7-8 per cent annually. Patanjali Refined will be rolled out nationally across one million retail touch-points.



Saudi keen on JVs with Indian firms for coconut industries

► The Arab business community is keen to form joint ventures with Indian companies for setting up integrated coconut-based industries in Saudi Arabia. The business offers received at the recently-concluded Foodex Saudi 2016 at Jeddah are a pointer to this. The Coconut Development Board got a series of enquiries from the trade on several value-added products, such as desiccated coconut powder, virgin coconut oil, Neera honey, coconut sugar, etc. A CDB official who participated in the event informed that there were good trade enquiries at the Board's pavilion on the export possibility of different branded value-added coconut products. The Arab community is highly aware of the health and wellness of coconut and this could be translated into a potential business for the export of coconut products in the entire West Asia. Many of the business groups have evinced interest in the import of de-husked nuts.

Campco removes post-demonetisation cap on arecanut buying

► The Central Arecanut and Cocoa Marketing and Processing Cooperative (Campco) Ltd has withdrawn the cap on the purchase of arecanut with immediate effect. To bring in stability in the arecanut market following demonetisation, the co-operative had limited the purchase of arecanut from a member to a maximum limit of Rs 24,000 per week. The intention to fix a cap on the purchase was to prevent panic selling of the commodity by growers. Suresh Bhandary, Managing Director of Campco, said that 50 per cent of growers would have sold the commodity at a lower rate, if the unlimited purchase of arecanut was allowed post-demonetisation. Now the co-operative has decided to withdraw the cap on the purchase of arecanut, as the market has been stabilised at the sellers' end. It had allowed the purchase of a maximum of 5 quintals of arecanut in a month from a member from January 9.



FM may set aside Rs 1,000 cr for agro processing clusters

► Finance minister Arun Jaitley is likely to announce a Rs 1,000 crore scheme called Sampada with an aim to create 100 agro processing clusters in the next three years. The scheme, to be implemented by the ministry of food processing industries, will provide a support of Rs 10 crore to a group of farmers or entrepreneurs to set up a processing unit in an area covering 5-10 acres, sources said. Since the mega food park scheme is not benefitting small farmers directly as its scope is huge, the small processing units will cater to farmers' marketing needs by adding value to their produce. The food processing ministry initially planned to launch Sampada separately by taking approval from the Cabinet, a government official said. But since budget presentation has been advanced from this year, the government thought of incorporating the scheme in the financial legislation, sources said. In 2017-18, the government may allocate Rs 300 crore with a target of creating 30 clusters, which will be raised in subsequent years, the sources said. Under this scheme, the focus will be on developing agri processing clusters close to the growing areas. Either an entrepreneur or a farmer producer organisation (FPO) can set up such units.

India to have sufficient sugar; no plans to cut import duty

► The government does not have any immediate plans to cut import duty on sugar as the country would have sufficient supply of the sweetener considering fall in consumption this year and a likely bumper crop next year. The government is also keeping a close watch on sugar futures trading to keep a check on speculative activity and ensure no spike in retail price, which at present is Rs 40/kg. The import duty on sugar at present is 40 per cent and no overseas purchase is taking place. There has been a fall in sugar consumption in the last two months by 4-5 lakh tonnes. So, this year's total consumption would actually come down to last year's level of 25 million tonnes from the earlier projection of 25.5 million tonnes for 2016-17 marketing year (October-September), a senior official said. Whereas the sugar supply would be 30.2 million tonnes for this year, including 7.7 million tonnes of carry over stock and 22.5 million tonnes of domestic output for this year. Already, mills have manufactured 8 million tonnes of sugar in the last three months of this marketing

year. In view of likely drop in consumption level, the country is going to have a surplus stock of 4-5 lakh tonnes at the end of this year, which is sufficient to meet the demand in the beginning of the next

marketing year from October 2018. That apart, the official said, "Most of them are estimating bumper sugar output of 26-27 million tonnes for next year as good monsoon has boosted sugarcane production." Even sugar mills are expected to start crushing operations earlier in 2017-18 and hence there might be enough supply of sugar in the market, he said. On sugar futures trade, the official said, "About 5,000 tonnes a day is traded on the futures platform, which is a very small quantity. But we are monitoring sugar prices to check speculation."



Centre looking at selling pulses via PDS

➤ With 8 lakh tonnes of pulses in its buffer stock, the government today said it is considering to distribute dals through ration shops at non-subsidised rate. “We have lot of pulses in our buffer stock. Some states like Karnataka want to sell pulses through the Public Distribution System (PDS). We will examine the proposal,” Consumer Affairs Secretary Hem Pande informed. Karnataka government has asked 10,000 tonnes of pulses for PDS purpose, he added. Asked if the Centre will offer the buffer stock of pulses to States at a subsidised rate, the secretary said, “If at all we decide to offer pulses to States, it will be for sale via PDS as non-PDS item and rates will be not be subsidised.” The states can further subsidise it at their cost, he added. Already some States like Tamil Nadu and Chhattisgarh are distributing pulses through PDS at a subsidised rate. It is not known whether it is sold on a regular basis. Against the target of 20 lakh tonnes for this year, the Central government has created a buffer stock of 8,00,000 tonnes so far both through domestic procurement and imports. Out of which, 4.06 lakh tonnes of pulses been imported. The buffer stock of pulses is being created so that it can be supplied in the open market to curb price rise.



PM seeds farm cash transfer plan

➤ The Narendra Modi-government is planning to roll out a nationwide scheme of direct cash transfer to farmers' Jan Dhan accounts - in lieu of fertiliser subsidies to companies. However, the lack of land and tenancy records in many states along with insufficient banking coverage in rural areas are the major deterrents to the plan, which has the potential to become the BJP-led government's real vote catcher. A limited version of the cash transfer plan is expected to be unveiled in this year's budget as a preview of what is likely to be rolled out in 2018-19, before the general elections in 2019. Even a limited version of the scheme can help the NDA to garner votes in the upcoming elections in four states, including Uttar Pradesh and Punjab, where farmers' issues and politics are intertwined. Of the estimated 263 million farmers in the country, around 159 million are covered by the Jan Dhan savings accounts. The direct cash transfer scheme will enable the government to send money to individual farmers' accounts, which can be used to buy farm inputs, including fertilisers. According to officials, who have been working at a frantic pace to roll out the scheme, the biggest challenge is to bring in the remainder 35 per cent of the farmers into the banking system and prepare rolls of tenant farmers who actually till the land. Patchy ownership of land records in many states also pose a problem.

Rs 5,000 crore push for micro irrigation likely

➤ Finance minister Arun Jaitley is likely to announce a Rs 5,000 crore fund for micro irrigation to help farmers irrigate farm land using fewer resources. “Nabard will be asked to handle the corpus and pass on to farmers through regional rural banks and cooperatives,” a source said, adding this may be announced in the budget for 2017-18 on February 1. There may not be a separate allocation, but Rs 5,000 crore can be earmarked only for micro irrigation projects from the existing corpus, the source said. Since Nabard gets funds from the Centre and also raises the financial resources by issuing bonds, there will not be any problem in creating a separate fund, he said. With the creation of the fund, small farmers will be able to get bank loans easily to install drip and sprinkler irrigation, which is also part of agricultural credit. Drip irrigation helps save resources as water is directed to roots of plants through pipes. It also conforms to the government's scheme of “per drop, more crop”, the source said.

Centre plans to amend Plantation Labour Act

➤ The Centre is planning to amend the Plantation Labour Act (PLA), 1951 in a major way to exclude “in-kind” components being regarded as wages. It may be mentioned here that under the PLA 1951, plantation workers get various benefits either subsidised or free. These include rations, housing, education, firewood and medical facilities. Accordingly, a large section of the mainstream tea industry bears the cost of providing these services. The industry does not pay statutory minimum wages, saying that the monetised value of the facilities provided compensates for this.

Watch out for yellow rust, scientists tell farmers

Two cases of yellow rust, a fungal disease that hampers wheat productivity, have been detected so far in the fields of Ropar and Gurdaspur in Punjab. Though both cases are in patches, scientists of the Karnal-based Indian Institute of Wheat and Barley Research (IIWBR) have sounded an alarm for the region and issued an advisory to farmers, asking them to be more vigilant in their fields. As per the scientists, the climatic conditions are conducive to the spread of yellow rust and farmers should intensify their vigil to detect and stop the spread of stripe rust. The cases of yellow rust in around 0.5 sq yard on fields in Gurdaspur and Ropar had been detected last week, following which a team of scientists paid a visit there, said GP Singh, Indian Institute of Wheat and Barley Research Director.



Farm distress: Telangana's food output drops as paddy area shrinks

In the recent numbers released by the National Crimes Records Bureau (NCRB), Telangana stood second only to Maharashtra, with 1,400 farmers and farm labourers ending lives in the year 2015-16. The State had accounted for nearly 10 per cent of all 12,000 farm suicides reported that year. The latest numbers gathered by the Telangana government corroborated the serious distress in the farm sector. The agriculture sector declined by 13.3 per cent in 2015-16. Obviously, this impacted the income levels of farmers, pushing them to the extreme step. Hit by a second straight year of rainfall deficit, the State reported 14 per cent less rainfall than the average 713 mm. As a result, the government had declared 231 mandals drought hit. According to the advance estimates released by the State's Economics and Statistics Department, Telangana's foodgrain production fell 28.72 per cent to 51.45 lakh tonnes against the average production of 72.18 per cent. Though both the kharif and rabi seasons were hit by the adverse weather conditions, it is the disastrous rabi impact that dragged foodgrain production numbers down. The rabi output was down by 42 per cent at 15 lakh tonnes against the normal production of 27 lakh tonnes as groundwater levels dropped because of deficient rainfall. The data compiled by the department showed that poor rainfall affected the area sown. "The gross area sown was down at 48.93 lakh hectares against the normal area of 53.51 lakh hectares, declining 7.94 per cent.

Crisis time in Kerala; rice bowl Palakkad worst affected

Kerala is anticipating a significant drop in agricultural output as a result of the successive failures of the South-West and North-East monsoons in 2016. While the June-September season left a gaping rain deficit of 34 per cent, the October-December season that followed has proved even more disastrous, with a shortfall of 61 per cent. Such a significant departure from the norm is causing an unprecedented crisis to communities habituated to living in water-surplus areas such as Kerala, notes the State Emergency Operations Centre (SEOC). The State government is gearing up for the worst, and had declared the entire State drought-affected as early as October 31, soon after the North-East monsoon showed signs of straying. According to a preliminary estimate of the Agriculture Department, at least 17,128.76 hectares of farm land were affected by drought conditions from October 31 to December 20, 2016. An estimated 49,276 farmers suffered crop damage to the tune of Rs 90.25 crore during this period. The worst damage is reported from the rice bowl of Palakkad district (7,027 hectares of farmland hit) followed by Thiruvananthapuram (4,714 hectares).



Tamil Nadu announces relief for farmers

➤ The whole of Tamil Nadu will be declared drought-hit following the failure of the monsoon, said the State government, while announcing a drought relief package. The North-East monsoon has been deficient across the State and every district is drought-affected, said an official press release. The government has waived land tax for farmers; rescheduled Rs 3,028 crore in crop loans as medium-term loans; and it will seek the Centre's financial assistance for drought relief, the release said. Farmers who have lost more than 33 per cent of crop yield will be eligible for relief. The compensation for paddy and other irrigated crops is Rs 5,465 an acre; Rs 3,000 for rain-fed (Manavari) crops; Rs 7,287 crore for long-term; and Rs 3,000 for mulberry. In addition, to claim crop insurance, crop cutting experiments will be conducted to estimate the level of losses in each area. The State government has paid over Rs 410 crore as its share of insurance premium. Paddy farmers who have lost their entire crop will be eligible for a compensation of Rs 21,500-26,000 an acre. The insurance relief will be in proportion to the loss in yield. In the Delta districts, the compensation will be Rs 25,000/acre for total loss of yield; farmers who have lost one-third of the yield will get Rs 8,250; if the loss is 60 per cent, the compensation will be Rs 15,000; if it is 80 per cent then the compensation will be Rs 20,000. Maize crops are eligible up to a maximum of Rs 20,000 an acre; pulses Rs 12,000; sugarcane, Rs 45,000; and turmeric Rs 50,000.



Rain in Punjab, Haryana raises hopes of bumper wheat yield

➤ A dip in temperature following rainfall in the country's key wheat-producing States of Punjab and Haryana will boost the wheat crop, easing concerns about the adverse impact of unusual warm weather on the crop, officials and experts informed. The showers during the past 24 hours have been widespread and ended the long dry spell in parts of Punjab and Haryana. A mercury dip is a good sign for the "temperature sensitive" wheat crop, they said. "Rain has come at a good time easing out concerns regarding dip in productivity of the crop due to unusual warm weather in the past few days. It will benefit the crop immensely, and if the weather remains conducive in the coming days, we can expect a bumper production this year," P.S. Rangi, an agriculture expert and Punjab State Farmers Commission adviser said. A long dry spell, since October had raised concerns among experts and farmers about falling wheat yields in the both these States — which have sown the crop on nearly 35 lakh hectares and over 25 lakh hectares respectively during the ongoing rabi (winter) season.



Usurers cash in as bank loans to farmers dry up

► Demonetisation seems to have helped private moneylenders in Maharashtra. Of the Rs 13,558 crore of loans required for the rabi season, banks could disburse only about Rs 2,400 crore (18%), due to shortage of cash. Besides, there are restrictions on district cooperative banks (DCCBs). Officials said the crisis gave moneylenders an opportunity to get rid of defunct notes as loans were disbursed in old notes and they will be paid back in new notes. The rate of interest levied by moneylenders ranges from 24% to 120% per annum as against the 9-15% charged by banks. Of the amount disbursed, Rs



857 crore was from DCCBs and the rest from commercial and private banks. Sowing has been 120% of last year, and on 92% of the average area available for the rabi crop, which prompted increased borrowings. The

state government had allowed farmers to buy seeds and fertilisers using Rs 500 and Rs 1,000 notes, which helped moneylenders even more. "The area under rabi cultivation has gone up despite the small amount of bank loans being disbursed. This has meant that funds have been provided from sources outside the formal banking sector," said an official from the cooperatives department. Demonetisation was announced around the time sowing had just picked up in Maharashtra. The receding monsoon was very good in the state--a favourable condition for the rabi crop.

Bank credit to agri sector grows to 12.1% in Sept qtr

► Banks loans to agriculture sector rose marginally to 12.1 per cent in the quarter ended September as compared to 11.9 per cent in the first quarter of the financial year 2016-17, according to Reserve Bank. Banks share of credit to industry reduced to 40.1 per cent in July-September quarter from 40.7 per cent in the first quarter. RBI released the quarterly data on Outstanding Credit of Scheduled Commercial Banks (SCBs), September 2016. The findings is based on the data collected from 1,10,606 offices of 91 schedule commercial banks, excluding RRBs. RBI data showed that the share of housing loans and vehicle loans in total credit of banks increased marginally to 10.6 per cent and 2.1 per cent, respectively in September 2016 from 10.4 per cent and 2 per cent, respectively in the first quarter of the current financial year. The contribution of the large credit accounts, having credit limit above Rs 25 crore, declined further to 44.8 per cent in the reporting quarter from 46 per cent in June 2016. The weighted average lending rate (WALR) came down marginally to 11.26 per cent in the second quarter from 11.28 per cent in first quarter.



Additional 3% interest subsidy on crop loans

► The RBI had announced an interest subvention scheme for short-term crop loans for farmers, giving interest subvention of additional 3%. They have also been granted an additional grace period of 60 days to repay their loans because of demonetisation. In a circular issued to all banks, the RBI said though the Government of India has been implementing the Interest Subvention Scheme since 2006-07, giving an interest subvention of 2% per annum, an additional interest subvention of 3% is being provided to prompt payee farmers from the date of disbursement of the crop loan up to the actual date of repayment by farmers or up to the due date fixed by banks for repayment of crop loans. This benefit does not accrue to those farmers who repay after one year of availing such loans.

Rs 600 cr interest loan waiver for farmers on the anvil

➤ The government is considering Rs 600 crore waiver of interest on farm loans for two months due to demonetisation difficulties. The agriculture and finance ministries are currently discussing the plan and once it is finalised, the issue will be taken up before the Union cabinet, sources said. According to the proposal, the interest waiver will be applicable to loans extended by regional rural banks and cooperative banks. The Centre will provide budgetary support to Nabard, which will help these banks, they said. Currently, the annual interest outgo on crop loans, distributed by these banks, is estimated at about Rs 3,500 crore. The agriculture credit extended by public sector banks will be handled by the Reserve Bank of India separately. Of Rs 9 lakh crore agriculture credit allocated for 2016-17 fiscal, close to Rs 8 lakh crore have already been disbursed until now and the remaining amount will be released to farmers by March-end, a government official said, adding the government would meet the target. Out of the total agriculture-credit, about Rs 6 lakh crore was earmarked for crop loan and the remaining Rs 3 lakh crore for term-loan. The government provides 2 per cent interest subsidy to farmers availing loans from banks on the basic lending rate of 9 per cent. For those farmers who repay their loans within a year, the government provides additional subsidy of 3 per cent interest making the effective agricultural credit at 4 per cent interest. About 75 per cent of farmers avail the additional subsidy by paying in time, official estimates show.



Assam Govt's insurance scheme for tea tribes

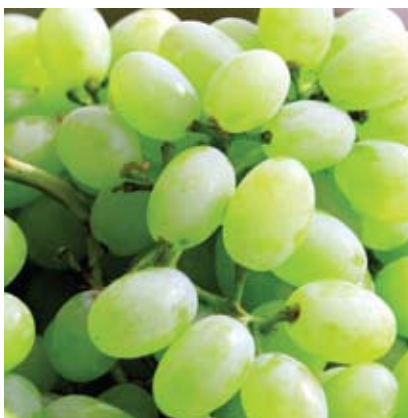
➤ To give boost to the State government's initiatives for the welfare of tea tribe communities, the State government has decided to cover all the people belonging to the tea tribe communities under a government-sponsored insurance scheme worth Rs 2 lakh per head. Besides, the State government has also decided to enhance scholarship amount of the tea tribe communities and accordingly the existing annual scholarship amount of Rs 1,880 has been increased to Rs 5,000 for the youths from the Class IX to XII. For students of degree level, the existing scholarship amount of Rs 2,530 has been enhanced to Rs 7,000. Also, the government has announced its determination to set up three football and archery training institutes in the tea community-dominated areas, to hone the talents of the youths of these communities in these areas of sports, stated an official press release here. The above decisions were taken at a meeting held with the Tea Tribe Welfare Department in the



conference room of the Chief Minister's Office in the Assam Secretariat here today, in which discussions were held for the empowerment of tea tribe communities of the State. Taking into consideration the inherent qualities of the youths belonging to the tea tribe communities, the Chief Minister said the proposed residential institutes would be mandated to hone the football and archery skills of the youths of the tea tribes and this will be his government's fitting reply to the empowerment of the State's tea tribe youths. He also directed that the training institutes should be structured in such a way that the institutes become complete centres for educational, health and physical development of the youths.

Export of grapes to Europe gets a head start this season

▶ The export of Indian grapes to Europe has begun with a bang and at least 650 tonne has been exported so far. Grape exporters are expecting a record season this year with a 15% rise in export to Europe. Additionally, some 1,200 tonne grapes have been exported to the Middle East, Russia and Bangladesh. Moreover, a trial export shipment to Australia is likely to happen this season, top officials said. According to Jagannath Khapre, president of Grape Exporters Association of India (GEAI), at least one lakh tonne grapes are likely to



be exported to Europe this season. Last year, around 85,000 tonne was

exported to the region, he said. The climate is better this year and we are expecting around a 15% rise in export, he said. The grapes exported so far are from early harvest in Satana belt of Nashik district. The regular export season is expected to begin mid-January and from Nashik district it is expected to touch 1.25 lakh tonne, he said. However, the crop has been affected by last year's drought. Of the total 1.75 lakh acre in Nashik, early grape harvest is carried out only on 6,000 acres of the Satana belt in the district.

FAO says global food price index fell for 5th straight year in 2016

▶ The global food price index fell for the fifth year in a row in 2016 due to lower prices of cereals, meat, and dairy products, the United Nations Food and Agriculture Organization said. The food price index averaged at 161.6 points in 2016, down 1.5 per cent from a year ago, the organisation said. The price index for cereals fell 9.6 per cent on year to 147 points, but on a month-on-month basis, prices were up 0.5 per cent in December, the organisation said. Global prices of cereals rose in December due to high prices of rice in Thailand and strong demand for rice supplies from Pakistan. Prices of maize also firmed up in December due to weather concerns in major growing regions, the FAO said. Wheat prices, however, fell during December due to the hope of higher output in Australia, Canada and Russia, the organisation said. The fall in global price index was limited by a significant rise in prices of sugar and vegetable oils during the year, the organisation said. The overall sugar price index in 2016 was 34.2 per cent higher than a year ago due to tight supplies from Brazil, India and Thailand. The sugar price index, however, fell 8.6 per cent on month to 262.6 points in December, as high exports from Brazil, the world's largest producer and exporter, raised global supplies, the FAO said. Anticipation of higher-than-expected sugar output in Centre-South Brazil in 2016-17 (April-March) also weighed on prices in December. In 2016, the price index for vegetable oils rose by 11.4 per cent from the preceding year to 164 points, due to high prices of palm oil and soya oil, the FAO said. Prices of palm oil were supported by low global inventory levels, and weak supplies in the international market. Soya oil prices benefited from weather concerns in Argentina and hopes of higher demand from bio-diesel sector in the US, Brazil and Argentina, it said.

Global rubber body predicts limited price rise

▶ Rubber may not see a substantial price rise globally during 2017, according to the latest forecast of the Association of Natural Rubber Producing Countries (ANRPC). This is despite the International Monetary Fund analysis that natural rubber price would gain much in 2017 compared to that of 2016. Nguyen Ngoc Bich, ANRPC secretary general, says in the Kuala Lumpur-based rubber body's bulletin on January 13 that looking at the available picture of the emerging global economic scenario, "the possibility is very limited for a substantial rise in rubber prices during 2017". The presence of a large extent of untapped mature area, especially in Malaysia and India, and the space available for increasing the average yield across countries suggest that supply has the potential to increase much beyond the expected level, if the prices scale too high. This can prevent the market from scaling substantial rise, he said. ANRPC's latest bulletin "Natural Rubber Trends & Statistics" also points out that the need to take into account the possibility of oil prices gaining further or staying at the current level of around \$55 per barrel would depend on the successful execution of the curtailment programme by the OPEC countries.

Global cotton prices likely to fall in second half of season

► Citing higher cotton supply scenario for the season 2016-17, the International Cotton Advisory Committee (ICAC) has hinted towards a bearish trend in the prices for the fibre in the second half of the year. The ICAC Secretariat has forecast the season-average for Cotlook A Index in 2016-17 (starting October-September) will range between 66 and 83 cents per lb, with a midpoint of 74 cents/lb, which would be 4 cts/lb higher than last season. But the world cotton production in 2016-17 is likely to rise by 8 per cent to 22.8 million tonnes (mt) and the world consumption is likely to remain stable at 24.1 mt, which may put pressure on the prices in the latter half of the season, the ICAC noted.

World ending stocks may fall by 7 per cent to 18 mt in 2016-17, though stocks outside of China are expected to grow by 6 per cent to 8.7 mt. According to ICAC, the current season began with lower stocks, particularly from countries in the Southern Hemisphere, which saw ending stocks in 2015-16 fall by 21 per cent to 1.6 mt, the lowest since 2009-10.

The shortage in supply carried through the first few months of 2016-17 season thereby keeping the prices firm.

Coconut Product Exports See 50% Surge

► Exports of Indian coconut products have seen a 50% surge year-on-year as shortage has raised the prices of coconut in major producing countries like the Philippines and Sri Lanka. Following rising shipments of coconut oil, desiccated coconut products -copra and fresh coconut export for the eight months till November reached Rs 1,447 crore, which is nearly the total export of coconut products achieved in 2015-16. Exports stood at Rs 1,450 crore in the last fiscal. The growth of coconut products exports is normally dependent on activated carbon, which recorded just 8% growth from a year earlier at Rs 466 crore in eight months. But in the same period, coconut oil recorded a 178% jump at Rs 319 crore.



Desiccated coconut export increased four times over at Rs 112 crore while copra exports rose three times over at Rs 94 crore.



Fruit export doubles in April-August

► Triggered by a sharp increase in the shipment of bananas, India's export of fresh fruit doubled in the first five months of the current financial year, on rising demand in Gulf countries after crop failure in Philippines and Ecuador, two major alternative suppliers. Data from the Agricultural and Processed Food Products Export Development Authority (Apeda) showed India's fresh fruit export at 409,921 tonnes during the period between April and August, from 195,259 tonnes in the corresponding period last year. In value terms, however, it was up only 26 per cent to \$256 million (Rs 1,720 crore), from \$203 mn (Rs 1,360 crore) in the corresponding period last year. This means the realisation from fruit export has failed to keep pace with the growth in volume. This is due to poor post-harvest management, reducing the shelf life.

Global black tea production up in 2016

► The global black tea production in calendar year 2016 was more than that in 2015 despite a massive decline in Sri Lanka because of a huge increase in Kenyan production. "According to our compilation, black tea production so far this year is 1,905.13 million kg (mkg) against 1,853.52 mkg in 2015. This increase of 51.61 mkg marked a growth of 2.78 per cent," said Rajesh Gupta, Compiler of 'Global Tea Digest 2016'. This was despite Sri Lanka posting a massive shortfall of 40.04 mkg to dip to 262.53 mkg. Uganda and Tanzania also posted a decline. However, these shortfalls were offset by the huge increase of 73.30 mkg in Kenya where production soared to 426.12 mkg from 352.82 mkg. Bangladesh posted an increase of 15.01 mkg to reach 68.78 mkg. Indian production up to October, the latest period for which official data is available, rose by 8.72 mkg to reach 1049.31 mkg. India continues to top the world in black tea production.

New rose varieties a hit at horticultural fair

➤ A special spray technology that increases mango production and three new varieties of rose were the main attractions at the five-day Regional Horticultural Fair-2017 that was held at the Indian Institute of Horticultural Research (IIHR) in Hesaraghatta. Five southern states and Maharashtra are participating in the fair which aims to bring all those involved in agriculture and horticulture together to make better use of research and technology. Around 125 scientists from across India will be sharing their expertise at the fair which coincides with the Golden Jubilee Year of Research in Horticulture. The theme is 'Horticulture for Rural and Urban Prosperity'. The fair was inaugurated by Dr T Mohapatra, director general of Indian Council of Agricultural Research, IIHR director M R Dinesh, and Dr K Narayana Gowda, former vice-chancellor of the University of Agricultural Sciences, Bengaluru. Scientists demonstrated the special spray technology,



which increases mango production and reduces insects that damage the yield. Three new varieties of rose - Arka Ivory, Arka Pride and Arka Sukanya, developed by IIHR scientists also drew farmers.

Scientists find 'BioClay' for pest-free high-yield crops

➤ Scientists, including an Indian-origin researcher, have found nano-sized degradable clay that could serve as an alternative to chemicals and pesticides, effectively protecting plants from specific disease-causing pathogens. Researcher NeenaMitter from University of Queensland in Australia said BioClay - an environmentally sustainable alternative to chemicals and pesticides -could be a game-changer for crop protection. The study was recently published in Nature Plants. "In agriculture, the need for new control agents grows each year, driven by demand for greater production, the effects of climate change, community and regulatory demands and toxicity and pesticide resistance," she said.

"Our disruptive research involves a spray of nano-sized degradable clay used to release double-stranded RNA that protects plants from specific disease-causing pathogens," the researcher said. Mitter further stated that the technology reduced



the use of pesticides without altering the genome of the plants. Once BioClay is applied, the plant 'thinks' it is being attacked by a disease or pest insect and responds by protecting itself from the targeted pest or disease, Mitter noted. A single spray of BioClay protects the plant and then degrades, reducing the risk to the environment or human health.

Spices Board goes digital in Andhra Pradesh

➤ The Spices Board is betting big on its web portal e-spice bazaar, which is being implemented in Andhra Pradesh on a pilot basis, to carry out digital marketing of spices and catering to farmers' needs. About 1,000 farms in the chilli growing villages of Guntur district have been selected for this new initiative, which will be extended to other districts in AP and Telengana, covering 41,000 chilli and 11,000 turmeric farms, based on the pilot operations. "Farmers as well as exporters have high expectations from the e-spice bazaar," said A Jayathilak, Chairman, Spices Board. Developed in association with the Department of Electronics and Information Technology, the digital platform will ensure total traceability of farms and strengthen the farming community in negotiations with traders. Facilities have already been established in a Quality Evaluation Laboratory at Spices Park in Guntur to test for aflatoxins, moisture and pesticide residues, among others, at subsidised rates.

For a better price realisation, Jayathilak, informed that the Board has taken initiatives for the formation of Spices Producer Societies to promote value-addition and direct marketing.

CSIR laboratory grows kashmiri saffron in Pune greenhouse

➤ The Council of Scientific and Industrial Research's (CSIR) National Chemical Laboratory (NCL) has successfully grown saffron crocus in a greenhouse in Pune and seen flowering almost like that in Kashmir. The method for high-density greenhouse cultivation of saffron being developed by CSIR-NCL is expected to benefit progressive farmers and agri-biotech industries. C K John, senior scientist from Biochemical Sciences Division at NCL, and his team have been working on developing a biotechnological alternative to the cultivation of saffron, producing a new variety of saffron crocus suitable for wider environmental conditions and standardising the parameters for high-density greenhouse cultivation outside the crop's present range. The soil and environment requirements were addressed to grow saffron in a greenhouse in Pune. Soil from a saffron field from Kashmir was studied for details

and a suitable planting medium was formulated. A modified greenhouse was established for cost reduction and energy saving. Saffron corms were procured from Kashmir and were planted in a greenhouse cooled by natural processes, without a fan, pad system or ACs. A simple irrigation method was devised to minimise the use of water and give cold/ice cold water directly to the roots as required. Flowering was synchronised as in Kashmir, but delayed by two-three weeks. The stigmas were collected from the flowers and dried to produce saffron. The saffron from the CSIR-NCL greenhouse is being compared with the Kashmir saffron. The method is suitable for places where the cool deficit is not too much as compared with Kashmir and can be managed by some degree of environmental control, using natural processes for cooling and some amount of freezing.

Solar cart to prevent Vegetable spoilage

➤ India's roadside vegetable vendors may soon get a chance to turn to the sun for reduced drudgery and a bit more take-home money. Scientists in New Delhi have designed a solar-powered vending cart that may help increase the shelf life of vegetables and alleviate the vendors' grind of sprinkling water on their vegetables on hot days. The solar power panels atop the cart generate electricity to evaporatively cool a closed chamber just beneath the vending platform, lowering the temperatures inside by 8°C to 11°C, the scientists at the Indian Agricultural Research Institute (IARI) said. In field tests during summer, the evaporatively cooled cart - which requires about 20 litres of water a day - was able to keep fruits and vegetables fresh for two to five days compared to conventional carts where most vegetables spoil in less than two days. Crop scientists estimate that



about 35 per cent of India's annual fruits and vegetables harvested is lost through spoilage, primarily because of poor storage, and that much of these losses occur at roadside vending carts. Street-side vendors typically keep their vegetables on or within wet gunny bags or repeatedly sprinkle water on the vegetables on hot days. While this has a cooling effect, it also contributes to spoilage, with green leafy vegetables, tomatoes and cucumbers among others lasting only two days. When fruits or vegetables lose about 10 per cent of their weight through heat-driven moisture loss, they wilt, look bad and keep customers away. Vendors are forced to lower prices as vegetables approach spoilage and discard spoilt produce, losing income. The field tests by the IARI research group suggests that the evaporatively cooled vending cart can help maintain the freshness of vegetables, assessed through colour, texture and coarse appearance, for an average of five days, even longer for some vegetables - cabbage remained usable for 10 days and cauliflower and carrots for seven days inside the cooled chamber.

Remote Sensing Tech to Help Map Potato, Onion Acreage

➤ The agriculture ministry plans to use remote sensing technology to map the area under potato and onion cultivation for the entire country to provide an accurate estimate of the likely production of the respective crops. This would be extended to cover orchards in the next phase. "We are working on producing robust estimates of the area and production of important crops like potato and onion for the whole country through remote sensing," said an agriculture ministry official. He said the department was working on uploading maps of fruit crops (from oranges to mango) onto the Bhuvan platform - a software application browser which explores 2D/3D representation of topography.

INDIA'S TRADE TALES

Agriculture sector's success in realistic terms has always been limited to its marketing skills. No matter how grand the year's production emerges, if the produce is not successfully disposed off (in the most profitable manner), the year turns out to be devastating for the millions of farmers dependent on agriculture. The production numbers are merely to boast and can only be translated to be of any worth if the farmers are benefited. Unfortunately, the existing marketing structure has been wearied off its goodness with which it was initially formed. The long supply chain has thinned the profit margins earned by the farmers. Attempts to overhaul the system yielded little result and more recently the government is dabbling with the idea of unified agricultural market through electronic platform.



Indian trade of agricultural commodities have seen an upswing in the recent years. From rice to spices and processed products, Indian products have been shipped around the world. Indian shores have also been welcoming to foreign products given the widening choices of Indians. Free trade agreements and several other trade contracts has led to a flourishing agricultural trade overseas. Although the trade has been earning some good revenue for the country, certain trade policies have been a letdown for Indian farmers.

Production Estimates

This year the estimates point to an optimistic return from the agriculture scene. Following back to back droughts, the country received good monsoon this year and as a result is expecting a bumper harvest, with all the possibility of establishing a new record. As per the First Advance Estimates for 2016-17 released by the Department of Agriculture and Farmers' Welfare, total production of Kharif Foodgrains is estimated at 135.03 million tonnes which is a new record. This year production has been reported to be higher by 11.02 million

tonnes as compared to last year's Kharif foodgrains production of 124.01 million tonnes. In fact, Kharif foodgrains production is also higher by 7.65 million tonnes than the last five years' (2010-11 to 2014-15) average production of 127.38 million tonnes.

Total production of Kharif rice is estimated at 93.88 million tonnes which is a new record. This year rice production is higher by 1.1 million tonnes than previous record production of 92.78 million tonnes achieved during 2011-12. Production of Kharif rice is also higher by 4.16 million tonnes and 2.57 million tonnes over the average production of the last five years and the last year's Kharif rice production

The estimated production of major crops during Kharif 2016-17

Crops	Estimates in Million tonnes
Rice	93.88
Coarse Cereals	32.45
Maize	19.30
Pulses	8.70
Tur	4.29
Urad	2.01
Oilseeds	23.36
• Soyabean	14.22
• Groundnut	6.50
• Castorseed	1.73
Cotton	32.12 million bales (of 170 kg each)
Sugarcane	305.25





respectively.

Total production of coarse cereals in the country is estimated at 32.45 million tonnes as compared to 27.17 million tonnes during 2015-16 (4th Advance Estimates). Production of Maize is estimated at record level of 19.30 million tonnes. This year production of Kharif maize is higher by 4.05 million tonnes than last year's production.

The depressed pulse production



is expected to receive a major boost this year as a significant increase in the area coverage and productivity of tur and urad have been reported. Total production of Kharif pulses is estimated at record level of 8.70 million tonnes which is higher by 3.16 million tonnes than the last year's production of 5.54 million tonnes. The production of kharif pulses is also higher by 2.54 million

Total production of kharif oilseeds in the country is estimated at 23.36 million tonnes which is significantly higher than the production of 16.59 million tonnes during 2015-16

tonnes than their last five years' average production. Also, total production of kharif oilseeds in the country is estimated at 23.36 million tonnes which is significantly higher than the production of 16.59 million tonnes during 2015-16. This year production of Kharif oilseed is also higher by 2.33 million tonnes than the average production of last five years.

Production of Sugarcane is estimated at 305.25 million tonnes which is lower by 46.92 million tonnes than the last year's production of 352.16 million tonnes. Despite lower area coverage, higher productivity of Cotton has resulted in to higher production of 32.12 million bales (of 170 kg each) as compared to 30.15 million bales during 2015-16. Production of Jute & Mesta estimated at 10.41 million bales (of 180 kg each) is marginally lower than their production of 10.47 million bales during the last year.

India's Agri Market Scene

Although organized marketing is not strictly followed in India's agriculture sector, marketing of agricultural commodities has been promoted through a network of regulated markets. Most state governments and UT administrations have enacted legislations to provide for the regulation of agricultural produce markets. The purpose of state regulation of agricultural markets was to protect farmers from the exploitation of intermediaries and traders and also to ensure better prices and timely payment for their produce.

Agricultural Markets in most parts of India are established and regulated under the State APMC Acts. The whole geographical area in the State is divided and declared as a market area wherein the markets are managed by the Market Committees constituted by the State Governments. Once a particular area is declared a market area and falls under the jurisdiction of a Market Committee, no person or agency is allowed freely to carry on wholesale marketing activities. Apart from Kerala, Jammu and Kashmir, and Manipur, all other states have enacted marketing legislations known as APMC Acts.

Over a period of time, these established markets became restrictive and monopolistic markets,

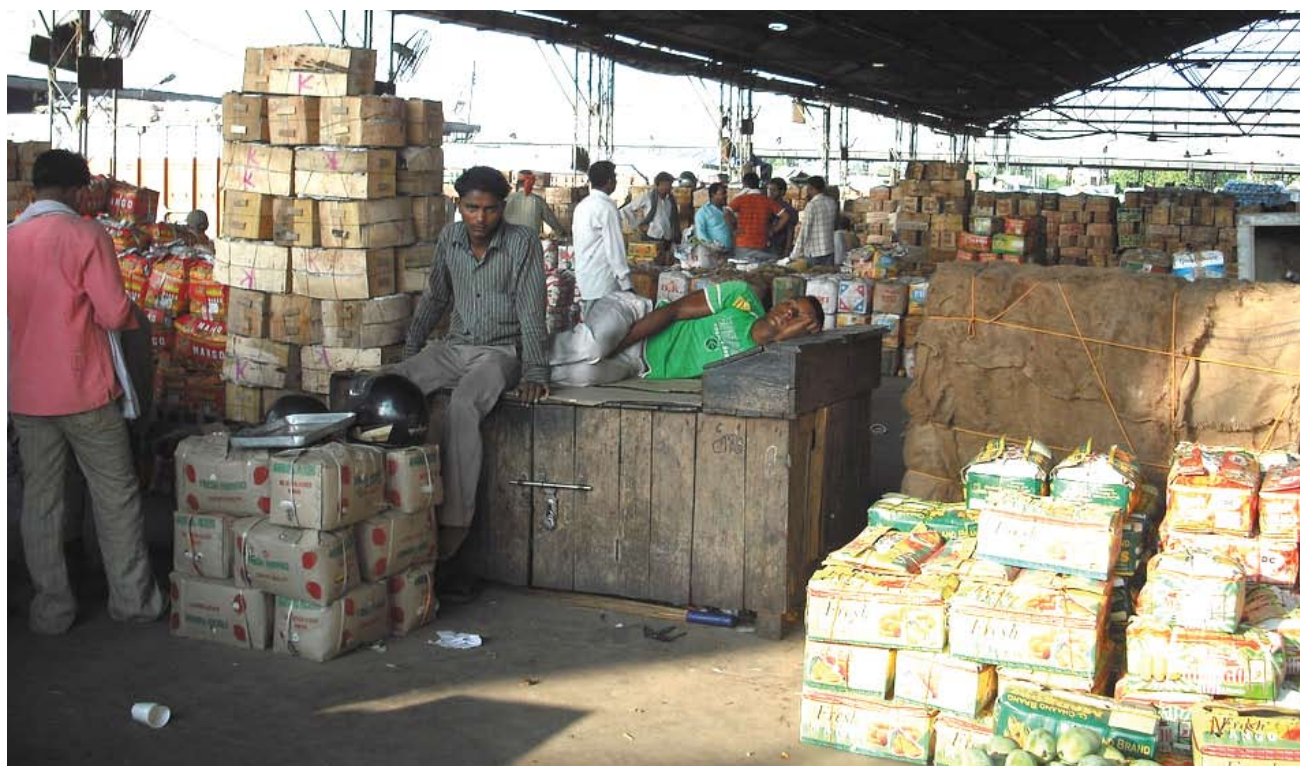
providing no help in direct and free marketing, organised retailing and smooth raw material supplies to agro-industries. Exporters, processors and retail chain operators cannot procure directly from the farmers as the produce is required to be channelised through regulated markets and licensed traders. There is, in the process, an enormous increase in the cost of marketing and farmers end up getting a low price for their produce. Monopolistic practices and modalities of the state-controlled markets have prevented private investment in the sector. Eventually, the marketing channels for agricultural produce remain long and fragmented, and lack economies of scale. On an average, four to six transactions take place before the produce reaches consumers from the point of sale by producers increasing the price spread between consumers and producers.

Although the Centre passed a model APMC Act in 2003, only 16 states have amended their Acts. The model legislation provides for the establishment of private markets/yards, direct purchase centres, consumer/farmers' markets for direct

sale and promotion of Public-Private Partnership (PPP) in the management and development of agricultural markets in India. Provision has also been made in the Act for constitution of State Agricultural Produce Marketing Standards Bureau for the promotion of grading, standardisation and quality certification of agricultural produce. This would facilitate pledge financing, direct purchasing, forward/future trading and exports.

As a further refinement to the existing scenario of agri marketing in India, the government in 2016 announced unification of agricultural markets nationally. Prime Minister, Narendra Modi launched India's National Agriculture Market (NAM) on April 14, 2016 coinciding with Ambedkar Jayanthi. The NAM offered to be a single platform to carry out marketing activities between farmers and traders. NAM explored the possibility of unhindered trade between farmers and traders of different states, different market areas, different languages through a common e marketing platform. The middle men who formed the core of the mandis and their hefty commissions which were the

Most state governments and UT administrations have enacted legislations to provide for the regulation of agricultural produce markets. The purpose of state regulation of agricultural markets was to protect farmers from the exploitation of intermediaries and traders and also to ensure better prices and timely payment for their produce.





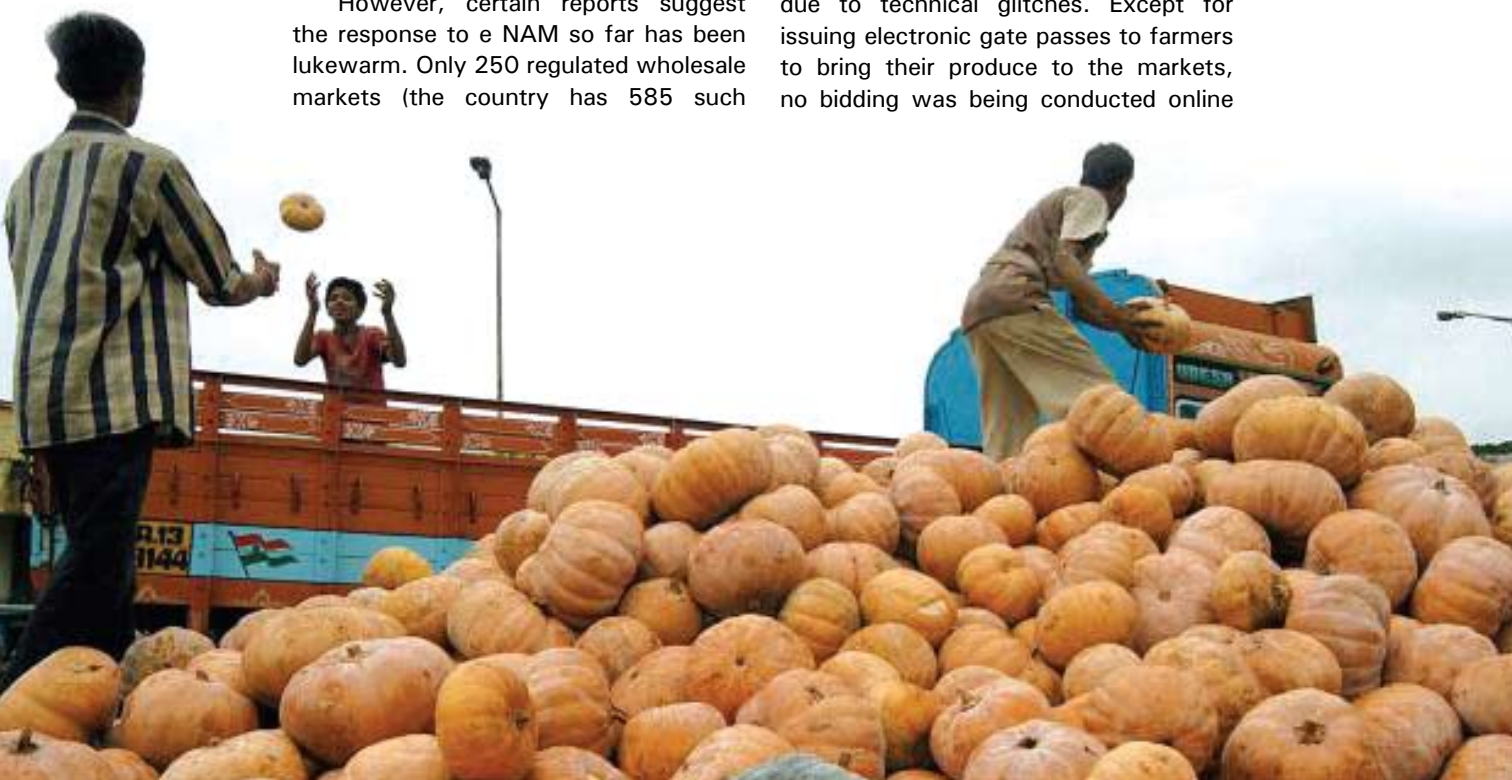
norm of the mandi markets was to be eliminated and the complete bargaining power was transferred to the farmers. They were linked up electronically via a kiosk or their phones, fixed the trade and materialized it with the click of a button.

The e-NAM platform—a key initiative of the National Democratic Alliance government's promise to double farm incomes by 2022—promised to connect 21 mandis from eight states in the first phase. With the initiative, the centre aimed to bring 585 mandis across India on to the platform by March 2018. The eight states that will be part of the platform in the first phase were Gujarat, Telangana, Rajasthan, Madhya Pradesh, Uttar Pradesh, Haryana, Jharkhand and Himachal Pradesh. The platform traded 25 crops, including wheat, maize, pulses, oilseeds, potatoes, onions and spices.

However, certain reports suggest the response to e NAM so far has been lukewarm. Only 250 regulated wholesale markets (the country has 585 such

Mandis) spread across 12 states under the respective agricultural produce marketing committees (APMCs) have so far been integrated with the NAM platform. However, trading is being carried out at present only in 220 Mandis. NAM has achieved a trade turnover of only Rs 1,825 crore so far. Of this, Haryana's 54 Mandis have achieved a trading volume of Rs 1,521 crore. Telangana's 44 Mandis integrated with NAM have reported a trading of Rs 218 crore. The remaining Mandis integrated with NAM have seen a lower trading volume. Only 3.6 lakh farmers — of an estimated 14 crore in the country — and less than 50,000 traders and 27,000 commission agents have been registered with NAM.

It was also reported that the e-NAM portal had failed to handle heavy volumes of Kharif farm produce arrivals to markets due to technical glitches. Except for issuing electronic gate passes to farmers to bring their produce to the markets, no bidding was being conducted online



nationally. Trading in these mandis continued to be done manually and traders and middlemen called the shots. The MSP announced by the government remained only on paper and the actual prices dropped sharply even before the produce reached the markets. With Kharif season over and large quantities of paddy, maize, soya, pulses, chilli, cotton stocks etc. reaching the markets, farmers still continue to suffer at the hands of traders and middlemen as e-NAM is yet to become fully operational. The e-NAM server has not been able to handle the huge rush of farmers in 250 markets in 10 states. There were also Internet connectivity issues.

These glitches, however, may resolve with each phase as the work progresses and improvises.

India's foreign trade

As soon as India emerged from the green revolution era, we had enough surplus to engage in some serious international trade. The growth was spectacular and agricultural exports showed an increase from around Rs.60 billion in 1990 - 91 to Rs.398 billion in 2005-06. The major agri-exports of India are cereals (mostly rice - Basmati and non-Basmati), spices, cashew, oilcake/meals, tobacco, tea, coffee and marine products. Value of agri-exports to total exports of the country has been ranging between 15 to 20 per cent. India's many firsts in the production ranking has helped the country in export of many agri commodities. India is the world's second biggest producer and exporter of rice, the second largest producer of wheat and sugar as well as the world's largest producer, importer and consumer of pulses. The country is next only to China in importing cooking oils.

However, the country has been experiencing a dip in farm exports for the past two years. According to a report of the Agricultural and Processed Food Products Export Development Authority (APEDA),

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exports of some agricultural and food products from India dipped in 2014-15 as compared to last year. Also, the export of products handled by APEDA declined 6.13 per cent to \$3.9 billion during April-June of 2016-17 compared to \$4.16 billion in the year-ago period. India, which was the seventh largest agriculture exporter in 2014, dropped two places to ninth position while Thailand and Australia improved their rankings. Argentina remained in 10th position, according to WTO data.

Several factors have contributed to this decline. With other countries eating into the share of India's exports with their cheaper products, India has been losing ground recently. For instance, India, which had the distinction of becoming a major exporter of wheat in 2012-13 with 6.5 million tonnes, is now unable to meet the demand in Bangladesh, which is importing cheaper grain from Ukraine. Also, the ban on certain agricultural products from India by certain countries has also resulted in a drop in agri exports.

Besides this, India's agri-exports have been unreliable owing to vacillating domestic policies and hence the quantity marked for agri exports most of the time varies. Prevalence of higher domestic prices in comparison to international prices of products have made exports commercially less competitive for India. Flouting of phyto sanitary measures and poor handling of agri products have made India's exports less desirable. The recent demonetization drive by the Modi Government is also believed to have some undesirable effect on the country's exports. Exports of fruits and vegetables from Maharashtra to the Gulf countries, Europe and Canada have fallen by 50-60% since demonetisation, according to a newspaper report. The number of consignments from the major exporting markets in the state have reduced drastically as exporters have not been able to pay farmers and labourers in cash.

Agri-imports, on the other hand form a miniscule proportion of the country's total imports. During the



Pulse has enjoyed zero import duty as India has not been able to produce enough pulses to meet the domestic demand. Recently import duty of wheat was also reduced to zero as the government anticipated lower production

period 1996-97 to 1999-2000, agri-imports have been in the range of 4 to 7 per cent of the total imports of the country. However, in recent years, edible oil has become the single largest agri import accounting for more than 50 per cent of the value of total agri-imports. In 1999-2000, it accounted for as high as 70 per cent of total agri-imports. Another item, which has been accounting for around 10 per cent of total agri imports is raw cashewnut. Each of the other



agricultural and allied products imported into the country - cereals, pulses, spices, sugar, milk and milk products, chicken meat etc. - account for very small proportion of total agriimport, except in some climatically abnormal years warranting relatively larger import of a particular commodity – cereals (mostly wheat) in 1997-98, pulses in 1996-97 and 1997-98.

Generally, import duties are maintained low as large quantities are imported at times of a severe scarcity due to naturally low production or arising out of a temporary deficit. Pulse for instance has enjoyed zero import duty as India has not been able to produce enough pulses to meet the domestic demand. Recently import duty of wheat was also reduced to zero as the government anticipated lower production. India is also expected to import 5 million tonnes of wheat in 2016/17, as the country's output of the grain could decline by an annual 2.3 percent

How significant is agriculture foreign trade for Poland?

Foreign trade in agri-food products has been an important part of Polish foreign trade. The agri-food product exports income in 2015 reached the value of ca. 22.5 billion Euro. Import expenditures amounted ca. 15.0 billion Euro. As a result, the surplus in foreign agri-food product trade reached a value of ca. 7.5 billion Euro. Traditionally, most important recipient of agri-food products has for many years been other EU member states, mostly Germany. Restrictions in exports to Russia forced exporters to search for alternative market, mainly in developing countries of Africa, Asia, the Middle East and North America.

Which are the other areas in agriculture segment, where Poland cooperates with other countries?

There are plenty of opportunities. We would like to encourage you to cooperate with our research institutes



H.E. Mr. Tomasz Łukaszuk
Hon'ble Ambassador, Embassy of the
Republic of Poland, New Delhi

– Research Institute of Horticulture in Skierniewice, Institute of Soil Science and Cultivation National Veterinary Research Institute – and many other.

How significant is India as a trading partner for Poland?

India is considered for Polish agri-food exporters as absorptive and prospective market in the years to come. In recent years, our trade has grown. The value of exports to India

has increased in 2015 by 41%. We expect at least the same share in 2016.

Which are the most traded agricultural products between India and Poland?

The biggest share in overall export value of Polish agri-food products are fruits and fruit products, vegetables and fruit-vegetable products, cereals and their products, then meat and processed products, dairy products as well as fish and fish products. The prevailing category in Polish agri-food exports to India are live animals, apples and pulses.

Which are the other potential areas where the two countries can cooperate?

We see the biggest potential in trade cooperation, especially in the processed products as our health certificates for apples, milk, fish products, feed, feed additives and premixes have been accepted by Indian authorities.



to about 85 million tonnes. For the others, import duties are maintained very high to discourage imports and promote local farmers.

India's Trading Partners

India is one of the leading agricultural producers in the world. According to the World Factbook of the CIA in 2014, the global agricultural output was \$ 4,771 billion. But a full 42 percent of this output comes from just six countries – China (\$ 1,005 billion) is the largest producer, followed by India (\$ 367 billion). The US is third (\$ 279 billion), followed by Brazil (\$ 130 billion), Nigeria (\$ 122 billion) and Indonesia (\$ 121 billion). India therefore continues to enjoy a strong trade relationship with many countries.

The European Union represents the world's biggest single market. The EU is India's largest trading partner accounting for about 20% of India's global trade. In the year 2007, India exported the goods worth euro 29.4 billion to EU and imported the goods worth euro 26.2 billion. India's agriculture exports to EU have a share of only 7% of its merchandise exports. India's main markets were

U. K (20.27%), The Netherlands (13.31%), Germany (12.87%), France (11.30%) and Spain (11.11%). India's agriculture exports to the East European countries viz. Bulgaria, Romania, Slovakia, Hungary, Czech Republic, Latvia and Lithuania were considerably low. With Brexit, some changes are bound to happen in this sector as new deals and FTAs are being negotiated with Britain. It is observed that the Product Group Fish and Crustaceans, Molluscs and Other Aquatic Invertebrates is at no. 1 position having 23% share followed by Coffee, Tea and Spices (15%), Edible fruit and nuts (10%), Cereals (9%), Animal or Vegetable Fats (6%) and Sugar and Sugar Confectionery

(5%). These 10 major product groups constitute 84% of India's exports to the European Union. The trade with EU has suffered turbulent times owing to strict safety regulations imposed. EU follows stringent SPS which has sometimes led to rejection of consignments from ports and ban on certain Indian products. The most famous of this is the ban on Indian mangoes. In 2014, the export of mango, taro, bitter gourd, snake gourd and eggplant were banned by the EU for a period of 20 months following the detection of fruit flies in some consignments. The ban on mango was lifted in January 2015. This year, the ban on other vegetables have also been removed.

Middle East constitutes an important destination for agri exports; Rice, being a very important export commodity from India. Basmati rice exports worth Rs. 1092323.83 lakhs were conducted during 2015-16. The trade to countries such as Qatar, UAE, Kuwait, Bahrain, Oman and Saudi Arabia were valued at Rs.24,14,554.98 lakhs. Other important commodities which are exported include buffalo meat, non-basmati rice, fresh fruits and vegetables, sheep meat, processed





Mr. Apirat Sugondhabhirom
Chargé d'affaires, a.i.,
Royal Thai Embassy, New Delhi

"As our globalized world moves forward and all of us try to make this planet a better place - a prosperous and inclusive world with a decent standard of living for all peoples - agriculture remains an important part in this plan of development. Both India and Thailand play significant roles in this sector. We are like kitchen to the world. We both are producer and exporter of agricultural products to the world. This does not necessarily mean we must be competitors, but rather there are rooms for cooperation where we can benefit together. There are number of Indian agricultural products that Thailand cannot produce and requires importation from India, and vice versa. We can complement each other. Famous Indian Basmati rice can be an example. Thai people are eager to learn more about India. Besides from Taj Mahal and the Buddhist circuit, more and more Thai tourists come to India for Rajasthan, Kashmir, Ladakh, Kerala and so on, and they love Indian food. Now there are number of Indian restaurants in Thailand. In Bangkok alone North Indian, South Indian, Gujarati, Mughal, Tandoor, Bengali, Marathi and many more Indian cuisines are available. Thus, Indian Basmati rice is consequently required. At the same time, importation of Thai jasmine rice can answer to the increasing love for Thai cuisine among Indians as well as expats in India. Rice is just one example. Even on the items which we both produce such as rubber and tapioca, we do believe that there are plenty of business opportunities in agro industry that we can explore and develop together. I'd like to take opportunity, especially as the year 2017 marks both the 70th anniversary of diplomatic relations between Thailand and India and the 25th anniversary of ASEAN - India relations, to reach out to the readers of "Agriculture Today" and encourage you to do and strengthen your business ties with Thailand. Striving to increase bilateral trade is also a priority that both our Prime Ministers pledged to achieve. With ASEAN Community coming into existence since 2015, trading with Thailand also means an access to ASEAN market with the size of more than 600 million people. Lastly, I wish to thank "Agriculture Today" for giving the Royal Thai Embassy in New Delhi a space to reach out to its readers. The Embassy stands ready to assist with your business interests with Thailand".

fruits & vegetables, onions etc. India's trade ties to this part of the world have been mostly consistent. Recently India suffered a setback when Iran severed ties with India on basmati rice exports. Iran had been one of the largest importers of Indian basmati rice in recent years. However, the ban was lifted this year after a five month long hiatus and exporters are optimistic to resume the trade.

India has a major foot print in African continent. The ties between both countries have been evolving and gaining substantial ground with private companies leading the bandwagon. Cheap land and labour costs in Africa are attracting a number of Indian firms with interests in the farm sector. Africa's farm sector is expected to grow to up to \$1 trillion by 2030. Seizing this opportunity many big Indian names have started to enter and establish in Africa. Many business enterprises such as Jain Irrigation, Karuturi Global, Kirloskar Brothers, Ruchi Soya and Renuka Sugars have already established there. In addition, several new players such as Yes Bank and McLeod Russel are making forays into the agriculture sector in the continent. India's mounting pulse deficit and mounting prices have also opened for further ties with African nations. Recently India signed a Memorandum of Understanding (MoU) with Mozambique wherein India would purchase pulses from Mozambique in an effort to address the shortfall back home and stabilise prices of this rich source of protein.

Latin America is another area which has been less explored in terms of trade due to issues of poor connectivity. The opportunities this region offer in terms of agri business has been divulged in the recently concluded India-LAC summit. Trade between India and Latin America is likely to double in the next five years from the current level of \$46 billion, with direct shipping, air connectivity and visa-on-arrival, as well as free trade agreements, as some of the steps being taken to boost trade with the region.

Canada is also a palpable trading partner of India especially when fifty per cent of the country's pulse requirement is met by this North American country. Canadian agriculture and agri-food exports to India include pulses, oilseeds / seeds, food residues and fodder, fats and oils and products of animal origin. India's exports to Canada in the sector include dairy produce, and edible products of animal origin,



cocoa and cocoa preparations, and residues and waste from the food industries, and prepared animal fodder. In the year 2014-15, India's total exports of agricultural commodities to USA were to the tune of US \$ 4293.78 million. India's principal exports during this period were shrimps & prawns, honey, cashew nut, pepper, rice, soya bean, guar gum, castor oil etc. During the same period, the agricultural imports from that country were of the order of US \$ 1042.32 million. India's principal imports were peas, lentils, almonds, apples, food preparations, raw cotton etc.

India, albeit being constantly epitomized as an agriculture powerhouse, has seldom enjoyed an exporter status with this ease. India's trade with many countries has been met with several barriers both tariff and non tariff barriers. Non Tariff barriers such as food quality, safety and health-related issues have constantly meddled with India's foreign trade. The data from the United States Food and Drug Administration (USFDA) shows that it rejected more imports from India than from any other country in the first five months of the year 2015. In EU, there were 172 notifications against Indian peanut and peanut products in the EU's Rapid Alert System for Food and Feed (RASFF) portal between March 8, 2004, and April 30, 2016. Our excessive reliance on chemical fertilisers and pesticides at the farm level and lack of Good Agriculture Practices (GAP) have alienated most markets for Indian agricultural products. Specifically, at present 67 pesticides that have been banned in the US, the EU and other nations are still in use in India. There are immense variations in food quality standards laid by different importing countries making it difficult for Indian traders.

India has evolved into a major food producer, a fact which has helped the country to become self sufficient. However, agriculture marketing which still scores some stale points need to be looked into. This needs transparency and uniformity. Hopefully in the years to come with better functioning of a unified agriculture market, the agri markets would be a fair meeting point for both farmers and customers.

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'INDIA IS A VERY SIGNIFICANT TRADING PARTNER FOR ARGENTINA'

India-Argentina relations are cordial and encompass political, economic, scientific and technological cooperation. Argentina's trade with India has grown 18 percent in the last year as against 10.6 percent with the rest of the world. In the last decade India has grown from 0.3 to 1.2 percent of Argentine trade. The trade in agriculture products mainly concentrated on soyabean oil and pulses. However, in years to come, the cooperation may extend to other areas as well. In an interview with Agriculture Today, Mr. Jesus Maria Silveyra, Under Secretary of Agri Marketing, Government of Argentina, Buenos Aires discussed the trade relations between Argentina and India in the agriculture segment.



How crucial is India as a trading partner in agricultural commodities for Argentina?

India is a very significant trading partner for Argentina especially for the exports of crude soybean oil. During 2015, we exported 2.6 million metric tonnes and 2.8 million metric tonnes of crude soybean oil during 2016. We also export barley and pulses (mungo beans and yellow peas) to India, but not in big quantities.

Recently, the agriculture trade between two countries increased. What are the reasons behind this?

Mainly, because India increased the imports of edible oils around 50% in the last five years, from 10.45 million metric tonnes in 2012 up to 15.1 million metric tonnes in 2015, and that also affected the total imports of soybean oil from 1.18 million MT in 2012 to 3.6 million MT in 2015. Argentina ranks first in the export of soybean oil worldwide and so, increased its participation in the exports to India. This situation will continue because population of India is growing and so is the gross product. With more people improving their way of living demanding more food and proteins with every passing year, the demands are going to increase.

Besides trade in agricultural commodities, which are the other areas in agriculture segment where the two countries can cooperate?

We could cooperate in many fields, like in pulses, fruits, wines, agricultural machinery and know how, etc... Recently, an Argentinian fruit exporter's delegation

participated in negotiations with Indian fruits importers in Mumbai. In addition, an Indian delegation of the Solvent Extraction Association (SEA) came to Argentina and we are preparing the visit of a delegation from the Indian Grain and Pulses Association (IPGA) in order to develop a program of pulses supply to India. Regarding machinery, we could help India in the supply of seeders, fumigation equipment, harvesters, dryers and silo bags equipment for storage.

What are the challenges associated in international trade with India?

I believe that is very important to build a relationship day by day. On one side, Argentina is an empty country, seventh in size in the world, with only 42 million people as population, producing food for more than 500 million people. So, we are obliged to export. On the other side, India will be in 2020 the most populated country, which always will be not self-sufficient in production of food to satisfy the increasing demand. Therefore, both countries could complement each other perfectly. Meantime, Argentina is importing some agro-chemicals from India.

Are there any trade talks underway between the two countries to further the agricultural trade and cooperation between the two countries?

We are in a process of negotiation of a new trade agreement between Mercosur (Argentina, Brazil, Uruguay, Paraguay and Venezuela) and India. That will be take place in March, and we hope to include more products into the list of preferential import tariffs.



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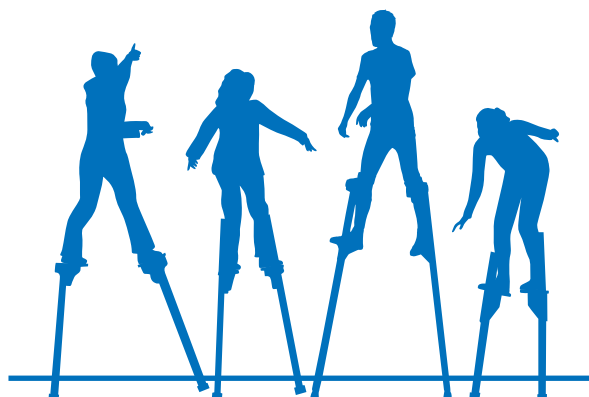


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'TRADE RELATIONSHIP BETWEEN INDIA AND NETHERLANDS IS BECOMING STRONGER'

The Netherlands is one of the world's largest exporters of agricultural and food products. Holland is one of the world's leading developers and manufacturers of food processing machinery. Dutch industry produces 80% of the world's capacity of poultry processing machinery, and a substantial amount of cheese production machinery. Dutch agricultural entrepreneurs use efficient and sustainable production systems and processes, resulting in a productivity that is five times higher than the European average.

Netherlands has a formidable presence in International trade of agro products and technology. In an interview with Agriculture Today, Mr. Wouter Verhey, Netherlands Agriculture Counsellor discusses the trade relations between India and Netherlands and possible areas of cooperation in the future.



How was the agriculture trade from the Netherlands in the last fiscal?

The Dutch Agro& Food sector has further strengthened its leading position in the world market. In 2016, Agro& Food exports totaled almost 94 billion euros, compared to 90 billion in 2015. Agricultural products accounted for 85 billion euros and agricultural materials, knowledge and technology accounted for 9 billion: a new record. This means the Agro&Food sector now comprises 22% of total exports.

The export of agricultural products rose by over 3.6 billion euros (+ 4.4%) to 85 billion, the largest increase since 2011. The exports were mainly foodstuffs, such as vegetables, fruit, dairy, meat and processed products, in addition to high-quality floriculture.

A noticeable factor is the increasing demand for Dutch agricultural materials, innovations and high-quality technology. Exports in this area totaled nearly 9 billion euros. Examples of such exports include energy-efficient greenhouses, precision agriculture systems (via GPS and drones) and new discoveries that make crops more

resistant to the effects of climate change and diseases. In 2016, the import of agricultural products rose by 1.6% to 57.1 billion euros.

The trade relationship between India and Netherlands is becoming stronger as each year passes by. The Netherlands is the second largest exporter in the world. To India however, the Dutch food export is modest and our export mainly focuses on the export of technology and know-how. India ranks sixth in world food production, is the largest producer of milk, the second largest producer of fruits and vegetables and is the number one in meat exports. The agricultural sector in India is of enormous economic and social importance and provides livelihood to over 600 million people.

How has Brexit affected agriculture trade of Netherlands?

There are a lot of talks going on right now when it comes to Brexit and its effects on the agriculture trade of Netherlands. This, for sure is consequential, but it is too soon to comprehend right now.

What were the objectives behind the creation of ten Centers of Excellence (CoEs) in India?

The Indian Government and the Netherlands had signed the Joint Action plan in order for the Indian government to make use of Dutch technology and skills in the agricultural sector. The intention of the centers of excellence was to improve the quality and productivity of agricultural sector in India with modern technology and adequate training given by the Dutch companies. It was all about sharing knowledge, technological know-how and developing skills through the training of instructors and farmers in the region. By demonstrating the Indian instructors about Dutch production methods and techniques, these instructors are again able to educate thousands of farmers and experts with the goal to increase the food production in India. The focus of this initiative is on every aspect of the production chain, from the development phase to post harvest phase; a total integrated chain approach. In the Netherlands, farmers and growers are full partners in the agricultural production chain,

which is beneficial for the agricultural economy for example the Center of Excellence in apples will inform the fruit growers about high-quality plants, micro-irrigation, high-tech greenhouse technology, tissue culture and weather forecasting. Dutch agro companies are usually small or medium scale companies and are always very skeptical of entering a new market unless attracted by a win-win situation. CoE works as a really good model for these kinds of companies to first get a feel of the market and then penetrate deeper into the Indian market.

Which are the areas in which Netherlands can help India technologically?

I would say Cold Chain, Grading and sorting of vegetables, Dairy, Reconditioning machinery for manufacturing of Dairy products, fruits and horticulture. The ultimate goal of Dutch Technology is to promote and implement Indo-Dutch trade, cooperation and innovation in agriculture and food by providing Dutch expertise, products and technology relevant to the Indian requirements. This results in a win-win situation for both countries through the optimization and professionalization of the Indian agro-food sector.

Which are the areas in which India can follow the lead of Netherlands?

I could mention here horticulture, or dairy, sectors in which the Netherlands is very advanced, but I would also like to focus on Antimicrobial Resistance (AMR), as this is a worldwide urgent issue which affects human and animal health both. One of the pillars of our Sustainable Dairy Chains is to reduce the use of antibiotics. In the Netherlands we have been quite successful in bringing down the use of antibiotics in animal production. In 10 years we had managed to diminish the use of antibiotics with more than 50% without a decrease in production or economic loss. We believe that it is an interdepartmental issue which affects the human health, animal health

and the environment; hence in the Netherlands we have started working on a One Health approach with the Ministry of Health, the Ministry of Agriculture and the Ministry of Environment as one team. Under the umbrella of a MoU of health, we have a common dialogue going on with India and would like to explore how both the countries can build a platform to share knowledge and work towards a common goal of One Health. Yes, I admit AMR may not be a priority for the ministry of Agriculture in India at the moment. However, considering the huge effort all Indian organizations put into increasing the productivity in the dairy and the poultry sector and taking into account the importance for human health, at a later point in time AMR may become a priority issue. As they say: prevention is better than cure. Therefore, we think a One Health approach to Antimicrobial Resistance is an interesting area for both our countries to explore.

What are the lessons that India can learn from Netherland's success in dairy sector?

The dairy sector in India is very diverse and is in different stages of development in different parts of the country. India has some very well organized co-operatives, foreign and domestic companies. How they develop their supply chains and product lines varies from player to player. Then there are the government organizations which also have their own programs for small scale farmers. All have their different challenges. The Netherlands is in continuous discussions with different Indian organizations on how to develop common programs jointly in the area of capacity building (training and research), animal health (feed and nutrition), animal welfare and the big agenda of One Health. For India, rather than copying the intensive dairy production system, could learn from the experience in the Netherlands to prevent loss of family farms, biodiversity, rural-urban linkages, integrated farming, and related knowledge. The Dutch

expertise and technology in the area of the whole dairy chain is innovative and unique, and can help the Indian dairy sector with enhancing productivity, controlling disease and clean milk production.

PI brief us about Dutch Dairy Cluster in India (DDCI). How can the DDCI contribute to develop a profitable Indian dairy sector?

The Dutch Dairy Cluster (DDC) in India is a consortium of companies that have created a common platform in order to provide adequate solutions to the Indian dairy sector. Since advancement of the dairy sector depends on the weakest link, the integrative solution (covering amongst others - generics, feed, animal health, farm management and food processing technology) is one of the main reasons for the establishment of the cluster. Together with the relevant Indian public and private stakeholders and the Dutch government, an Indo-Dutch approach encompassing dairy farming, handling and processing will be developed. DDC India has an in-depth knowledge and network to fully understand the local requirements and needs. The DDC will be participating annually in trade fairs which will be combined with visits to dairy farms. Since the services and the products that these companies have to offer will be used by local end users there should be space for interaction with them. DDC will also be organizing the Dutch Dairy Days in a local setting with room for in depth- interactions such as workshops, demonstrations, and seminars. The other aspect DCC is focusing on is training; some of the members in the cluster also represent training institutions for the transfer of knowledge and tailor made training course will be offered in which the specific knowledge gaps are addressed. It is expected that these knowledge gaps differ in each region / segment. The outcome of these activities will be analyzed to see its effects on the development of the local organizations where the programs will be conducted.

'U.S. AGRICULTURAL EXPORTS TO INDIA HAVE SHOWN CONSISTENT GROWTH'

India's agricultural trade relations with United States of America has shown considerable improvement in the recent years. Apart from the export –import of agricultural and food products, both countries have evolved to include other areas of cooperation such as technology development, research and education. In a discussion with Agriculture Today, Mr. Scott S. Sindelar, Counselor for Agricultural Affairs, Embassy of the United States of America, New Delhi delves deeper into the trade relations existing between India and United States in the area of agriculture and allied sectors.



How significant is agriculture foreign trade for US?

U.S. agricultural exports are vital, not just for America's agricultural sector, but for the overall U.S. economy. In 2015, exports of agricultural and related products from U.S. reached \$150.6 billion and over the past eight years, the United States has exported approximately \$1 trillion worth of agricultural and food products. These exports support 1 million jobs and account for 20 percent of U.S. farm income. Moreover, U.S. agricultural exports support global food security and are vital inputs for our partner countries.

Apart from trade which are the other areas in agriculture segment, where US cooperates with other countries?

Market development and trade are the primary objectives of the U.S. Department of Agriculture's (USDA) international programs. In meeting

these objectives, USDA partners with a number of private sector entities and government and non-government agencies to build technical and institutional capacity that raise overall agricultural productivity and efficiency. In countries like China and Mexico, for example, USDA programs helped develop commercial poultry, dairy, aquaculture, animal feed, and other, similar enterprises. These countries now rank number 2 and 3, respectively as markets for U.S. agriculture while Chinese and Mexican consumers benefit from a stable supply of lower priced, readily available foods produced from these American inputs

"U.S. agricultural exports support global food security and are vital inputs for our partner countries"

How significant is India as a trading partner for US?

In 2015, India was ranked 21st as a destination for U.S. agricultural and related products exports, just behind Saudi Arabia. In that year, the United States exported \$1.3 billion worth of products, led by tree nuts, pulses, cotton and fresh fruit.

What are the areas of cooperation between India and US in agri technology segment?

A number of U.S. agribusiness firms and U.S. based multinational agribusiness companies have partners and facilities in India. They are deploying innovative agricultural technologies in crop production and food processing. In addition, India's agricultural universities and research institutes have a number of tie-ups with U.S. universities, colleges and research centers engaged in agricultural research and technology development.

“India’s agricultural universities and research institutes have a number of tie-ups with U.S. universities, colleges and research centers engaged in agricultural research and technology development”

Which are the most traded agricultural products between India and US?

U.S. Agricultural & Related Products Trade with India

BILATERAL TRADE	2011	2012	2013	2014	2015	2016 YTD
EXPORTS	818.0	931.1	966.10	1,169.4	1,313.4	1,394.4*
IMPORTS	3,319.0	6,059.3*	4,642.7	4,698.1	4,095.5	3,420.6
TOTAL TRADE	4,137.0	6,990.4	5,608.8	5,867.5	5,408.9	4,815.0

MAJOR EXPORTS TO INDIA

Commodity	2011	2012	2013	2014	2015	2016 YTD
Tree Nuts	308.0	329.7	368.8	473.8	605.7*	502.1
Cotton	92.0	73.0	90.0	88.8	114.9	213.8*
Ethanol (non-bev)	22.0	0.5	43.8	79.1	72.9	167.8*
Pulses	42.0	85.6	102.5	182.8*	136.2	133.3
Other Intermediate Products	69.0	79.4	86.6	86.7	87.4	102.4*
Fresh Fruits	101.0	110.6	81.4	78.6	112.4*	63.7

MAJOR IMPORTS FROM INDIA

Commodity	2011	2012	2013	2014	2015	2016 YTD
Shrimp	526.0	575.0	1,006.8	1,380.0*	1,281.4	1,354.1
Other Intermediate Products	1,131.0	3,629.8*	1,870.7	1,468.1	870.9	475.7
Spices	221.0	256.7	230.8	240.0	299.0*	257.0
Rice	125.0	139.7	166.5	177.4*	165.3	145.0
Tree Nuts	319.0*	285.8	286.1	232.2	244.7	136.2
Processed Fruit & Vegetables	112.0	112.6	90.5	95.4	114.5*	106.5

Source: U.S. Census Bureau Trade Data

Note: The superscript sign < * > against numbers above, denotes highest Export and Import levels respectively, since at least CY 1970.

Which are the other potential areas where the two countries can cooperate?

USDA is interested to engage with India in any part of the agricultural value chain where our two countries share an interest. Both India and the United States are agricultural powerhouses and there is tremendous opportunity in working together more closely.

What are the challenges associated in international trade with India?

U.S. agricultural exports to India have shown consistent growth over the past several years, reflecting India’s own economic growth and increasing consumer wealth. This is a positive development for both India and the United States. I am confident that Indian feed and food processing companies and consumers could enjoy an even more diverse range of quality and healthy products from the United States if tariffs were lowered and regulations in the sector were streamlined. While India is a major global exporter and importer of agricultural goods, there is a significant opportunity for India to become a more dominant player in the global agricultural market.

Are there any trade talks conducted between the two countries to further the agricultural trade and cooperation?

Agriculture is one of the pillars of the U.S.-India Trade Policy Forum which is held annually.

POTENTIAL GALORE FOR INDO – TURKEY AGRICULTURAL TRADE

The geographical location of Turkey presents the country a very advantageous situation in international trade. Turkey's proximity to the Europe, Middle East, North Africa and the Central Asia provides an easy access to large markets through the Black Sea to the North, the Aegean Sea to the West and the Mediterranean Sea to the South, not to mention also the ease of road transport connectivity with these markets. India ranks 48th with a share of 0.3% in Turkey's export of agriculture and food products and has considerable potential to improve further. In an interaction with Turkish Embassy, Office of the Commercial Counsellor, New Delhi further light was shed on the areas of cooperation and the quantum of agricultural trade taking place between the two countries.

What is the share of agriculture in Turkey's foreign trade?

Turkey is the largest producer and exporter of agricultural and food products in the Eastern Europe, Near East and the North African region. In 2015, Turkey's total exports were \$144 billion, in which the exports of agricultural and food products had the share of 12% and valued at about \$17 billion. Turkey's vast agricultural potential, offers the advantage of producing an extensive range of fruits such as grapes, figs, apricots, sourcherries, strawberries and olives and vegetables such as potatoes, tomatoes, leeks, peppers and onions which can be preserved by different methods and presented in a variety of ways. Utilizing the abundant production capacity of agri-products; processed fruits and vegetables, pastry and milling industry, sugar confectionery, chocolate and cocoa products, pulses are the promising sectors in exports of Turkey's agriculture and agroindustry. Turkey's agri-imports stood at \$11.2 billion in 2015, which constituted 5.4% of the total imports. Turkish agricultural and food products has about \$5.5 billion trade surplus. Major imported agricultural products

are cereals, crude vegetable oils and oilseeds.

Where does India stand in this segment?

Total bilateral trade volume between Turkey and India was around \$6.3 billion in 2015. Turkey's exports was \$ 650 million and imports was \$ 5.6 billion, which shows a significant trade surplus of about \$ 5 billion in favor of India. The trade between the two countries has gradually increased in the past 15 years, for except 2 years of global economic slowdown. Trade between the countries was about \$27 million in 2001 and almost increased 10 fold to reach \$280 million in 2015. India has always had surplus in agri-food trade with Turkey, which reached to about \$175 Million in 2015.

How has the agricultural trade in farm commodities evolved over the years with India?

The trade between Turkey and India is limited to a very few numbers of products. Turkey's export of agricultural and food products to India were \$ 52.3 million in 2015, which constituted 10% of total exports to India. Poppy seed is the major export

product having half of the exports to India. Same year, Turkey's agri-food import from India has been \$ 227.2 million, 45% of which was tobacco and coffee products.

What is the extent of agricultural cooperation between the two countries?

For sustainable and healthy trade, it is very clear that the trade must be in balanced manner between the countries. Although there is a remarkable trade imbalance between Turkey and India, due to the limited range of products in bilateral trade, there is also a huge scope to expand it. We see that India already imports many products from the world, which are also produced and exported by Turkey to other countries. Same is true for also some of the Indian products. Major potential products from Turkey are, dried fruits and nuts (hazelnuts, dried apricots and figs), fresh fruits like citrus fruits and apples, olive oil, pasta, biscuits, sugar and chocolate confectionery, tomato paste and other food products. On the other hand, Turkey imports rice, wheat, cashew nuts and oilseeds from India. Turkish products especially dried fruit and

nuts are actually not competitors but compatible products with Indian agri-food trade and manufacturing industry. In this respect, Turkey may meet the product diversification requirements of the Indian food industry with products like, hazelnut, dried apricot, pistachio, etc. Besides, the potential of Turkish agriculture and food industry is not limited with these products only. There are many other products worth experiencing which may serve for the tastes of the Indian consumers. In the meantime, trade between Turkey and India must not be solely limited to export and import business, foreign investment is always welcomed and joint ventures are potential activities between the both of the countries, which are expected to be the major promoting tool for enhancing trade relations. Apart from the food products Turkey's agricultural machinery sector is also developed over the years. Many cooperation opportunities is already there for this sector too. Major agriculture machinery and equipment products manufactured in Turkey are tractors, harvesters, seeders, planters and transplanters, manure spreaders and fertiliser distributors, equipment for plant protection and irrigation, machines and equipment for cleaning, sorting and processing, milking machines and other farm and garden equipment. Some Indian companies are also invested in Turkey and latest, an Indian company acquired a major share of a Turkish farm equipment company in Turkey.

What are the strengths of turkey in agriculture segment?

As a whole, the Turkish agriculture and food industry obeys and applies all the rules of hygienic requirements to produce high quality and sanitary products. Also, the exports of the traditional agricultural products are controlled by mandatory standards in order to supply products suitable for the consumers of the world. This enables the Turkish food industry to export to all of the countries in the

In 2015, Turkey's total exports were \$144 billion, in which the exports of agricultural and food products had the share of 12% and valued at about \$17 billion.

world. In this regard, many companies in Turkey have applied internationally recognized quality and food safety systems like ISO9000, ISO22000, HACCP, BRC, IFS or SQF. In addition, the similarity of consumer preferences with middle-east countries and the geographic and cultural proximity to many European markets, allow Turkish food exporters to penetrate international markets easily. Owing to its abundant production of agricultural products Turkey has a highly developed food industry. Olive oil and other edible oils, Milling and Pastry Industry, Sugar Confectionery, Chocolate and Cocoa Products, Milk and Dairy Industry, Fishery and Poultry products are major items of exports in food industry. The products of the dried fruits and edible nuts sector; namely hazelnuts, raisins, dried figs and dried apricots, are regarded as the traditional agricultural export products of Turkey. In particular hazelnut and hazelnut products has an important share in Turkey's agri-exports. Turkey is the number one producer and exporter of hazelnuts, dried apricots and figs in the world. The availability of diverse ecological conditions enables Turkey to grow all temperate, most subtropical and some tropical products. Turkey produces 80 types of fresh fruits and vegetables, out of which 50 types are exported. Among processed fruits and vegetables, tomato paste and other tomato products, canned

fruits and vegetables, frozen fruits and vegetables, dehydrated vegetables and fruit juices are regarded as the most important sectors under this heading.

In 2017, how would you want the relationship between the two countries in agriculture segment?

India ranks 48th with a share of 0.3% in Turkey's export of agriculture and food products. Besides, the trade volume of \$280 million in agri-food products is too low when compared to the economic size of the two countries. The trade between our countries is way below its potential. Even, we sometimes face problems during export of poppy seeds, which is our number one export product to India. To overcome the problems we established the regulation to record the export of poppy seeds under mandatory export registry in Turkey. Furthermore to start the export of some fresh fruits and vegetables, prior permissions has to be taken for each product, which takes time and also extend trade procedures. These are the products actually Turkey exports to other countries without any restriction and India is also importing from other countries. In this respect, ease of doing business and liberalisation of trade between Turkey and India is also very important. In 2017, we expect Turkish companies to participate in some major food and agricultural fairs in India. Besides we're also expecting trade delegations from Turkey to meet with their Indian counterparts. We also invite the Indian companies to either participate in or visit Turkish Trade Fairs to benefit from the above mentioned market access advantages of Turkey. In line with the trade fairs, buyer mission programmes are also organized by the Exporters Unions and other associations of Turkey in coordination with the Turkish Ministry of Economy. We believe participation in these organisations from both sides will contribute to enhance the trade between Turkey and India.



ICFA Organizes poultry industry CEOs Round Table

Poultry sector has tremendous potential for nutritional security and doubling farm incomes in India. In line with this, ICFA hosted poultry industry CEOs Round Table in New Delhi.

Seated from left to right are: Harish Garware, Chairman, Poultry India; Dr MJ Khan, Chairman, ICFA; Dr. OP Chaudhary, IAS Joint Secretary and Dr. KML Pathak, Vice Chancellor, PDDU Mathura



Farmers Meet up at ICFA

A group of farmers from Muzaffar Nagar district led by Ch. Udham Singh, President, Kisan Mazdoor Mahasangh was recieved at ICFA headquarters to discuss farmers issues. Mahasangh is part of All India Farmers Alliance promoted by ICFA. The series of meetings are part of making agri agenda for the Union Budget 2017.



ICFA Meets Mr. MJ Akbar, Minister of State for Foreign Affairs

India Africa Partnership promises great prospects for global food security. India's learnings in agriculture can help Africa transform its farm sector and achieve rural prosperity. To boost trade and business cooperation ICFA created a Working Group on Africa Agriculture and would be hosting Round Table on India Africa Agriculture in March 2017 in New Delhi. In this regard a meeting was held at the office of Minister of State for Foreign Affairs, Mr. MJ Akbar in New Delhi



ICFA hosts Students from John Hopkins University

ICFA hosted students group led by Dean Sharon from John Hopkins University, USA through its strategic partner IAG International, Washington DC for interaction between JHU and IARI students. The meeting was chaired by Dr. RB Singh, Chairman ICFA Academics Working Group and Chancellor, Central Agriculture University. Present on the occasion were Dr. PK Joshi, South Asia Director, IFPRI; Mr. Ramesh Deshpande, Director of NCAP, IAG Convenor; Mr. NS Randhawa, ED, ICFA and senior officials of IARI and NASC. ICFA and JHU are planning to work on students exchange programs.



ICFA signs MoU with NERACORMP

North Eastern Region of India has enormous untapped potential in agro and natural resources sector. MJ Khan, Chairman, ICFA co-chaired a Round Table Meet on Agro and Rural Projects for NER at Barapani, Shillong. Senior officials from all the NE States and bankers participated. He also signed MoU with NERACORMP for project partnerships.



ICFA hosts African Ministerial delegation

Indian Council of Food and Agriculture today hosted 17 member African Ministerial delegation from 14 countries, mounted by ICFA collaborator Michigan State University, USA. The delegation included Ministers of Science and Technology, Ministers of Agriculture and MPs besides senior level officials. ICFA side was joined by its four Working Group Chairmen and top management including Chairman, DG, ED and two Vice Presidents besides strategic collaborators AARDO and MSU.



ICFA Organizes National Round Table on Horticulture

Horticulture sector has tremendous potential for employment generation, exports and doubling farmers' incomes. ICFA hosted national round table on horticulture in New Delhi, which was chaired by the Secretary of Agriculture, Government of India, Mr SK Pattanayak and co-chaired by Mr. JP Meena, Special Secretary, Food Processing. VCs of Jodhpur, Solan and Shimoga universities, top Government officials and industry executives from horticulture and food retail industry joined the meeting. A working group was announced to work on all issues.



PRESENT AND FUTURE CHALLENGES FOR AGRICULTURE & FOOD PRODUCTION

Reliable projections estimate that by 2050 the human population will reach 9.7 billion. This poses a major and increasing challenge in terms of agriculture and food production and have several interacting components. Those, like FAO and others, who have studied and analyzed often suggest some changes and adaptation in traditional agriculture, but the effort requires a much wider spectrum, encompassing public policies, private sector and general consumers' awareness. This article summarizes some of the often-mentioned factors that might be worth to take into account for decision-making.

Some Challenging Factors Influencing Food Production

Price volatility: From many years, abrupt change in prices of food have been occurring, this creates uncertainty and a subsequent discouraging scenario for investment and resource allocation. It may also create instability in policy making, making it more difficult to implement long term public policies which are consistent with the growing needs to increase food availability by several times.

Climate change: Figures show an increasing trend in droughts, flooding, unusual behavior of rainfall, etc. Subsequently, concerns on things like "carbon footprints", ozone layer depleting substances, greenhouse effect and so on, are becoming more present in international fora and among regulators. Also, many consumers have already started to pay attention to these conditions and tend to prefer those products with less environmental impact.

Policies and regulations: Many areas still need to be clarified from the regulatory point of view, a few of them are GMOs, use of Methyl Bromide for QPS purposes, use of the arable land, etc. Regulations should be done in a way that they don't compete with each other, but are rather complementary and compatible. An example is food safety (quality and safeness) versus food security (availability of food), since more stringent rules for food quality will impact the availability of food, with many practical and ethical derivations, both necessities should be addressed in a way that they do not create a negative feedback. In a nut shell: good regulatory practices.

Private sector responsibility: This involves a wide scope from farm to fork, including many players, both from inside and outside the agricultural field. Banks, financial institutions and retail chains may also play a key role in cooperating towards this common issue. Hampering factors like speculation, over pricing, underinvestment, short term decisions and so forth, should be considered and controlled. Education and creation of awareness are key components in preventing wrong practices to thrive. There is an undisputed need for increased food production and this will only grow in the future. A number of factors should be taken into account when devising policies which are in line with the future needs in term of food production. Both, private and public sectors have an important role in building a well-balanced future, coping with food needs in a sustainable and safe way.

Jaime González G.
Agricultural Counsellor of Chile,
Embassy of Chile in India





Crop Protection



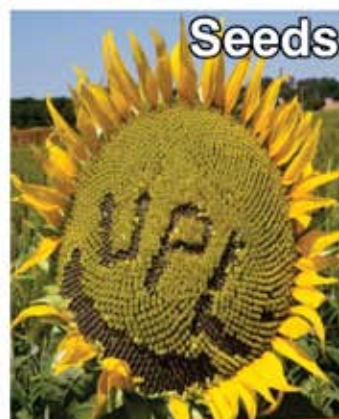
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Situated in the northwest part of the country, Haryana, carved out of the erstwhile state of East Punjab on 1 November 1966, is bordered by Punjab and Himachal Pradesh to the north, and by Rajasthan to the west and south. The river Yamuna defines its eastern border with Uttar Pradesh. Haryana surrounds the country's capital Delhi on three sides, forming the northern, western and southern borders of Delhi.

The total geographical area of the state is 4.42 m ha, which is 1.4 % of the geographical area of the country. The cultivable area is 3.7 m ha, which is 84% of the geographical area of



HARYANA **WHERE AGRICULTURE** **MEETS PROSPERITY**





the state, out of which 3.64 m ha i.e., 98% is under cultivation. The gross cropped area of the state is 6.51m ha and net cropped area is 3.64 mha with a cropping intensity of 184.91%.

Haryana is one of the most economically developed regions in South Asia, and its agricultural and manufacturing industries have experienced sustained growth since the 1970s. Since 2000, the state has emerged as the largest recipient of investment per capita in India.

There are two Agroclimatic zones in Haryana. The North-Western part (also referred as Paddy belt) which is suitable for Rice, Wheat, Vegetables and Temperate Fruits, and the South-Western part (also referred as the Cotton belt or Dry belt) which is suitable for Cotton, Millets, coarse cereals, tropical fruits, exotic vegetables and herbal & medicinal plants. As Kharif season cultivation depends on rainfalls & the Northern part receives ample rains, rice is extensively cultivated in this part. Punjab bordering area from Cheeka-Kaithal to Karnal-Kurukshetra is major belt of Basmati rice cultivation and most millers of Basmati rice are present in Karnal-Kurukshetra. The cotton belt which receives less rainfall grows Cotton, however farmers with irrigation still prefer growing Rice. Sirsa, Fatehabad, Hisar & Jind are among major cotton producing areas of Haryana. Southern districts of Bhiwani, Rewari, Jhajjar and Mahendragarh in Haryana which are usually arid are

major producers of Millets like Bajra & Jowar. During Rabi season, major crops in Haryana are Wheat & Gram. Sugarcane cultivation is done in parts adjoining the Yamuna river and in some internal pockets where irrigation facility is available. The cultivable area is 3.7 m ha, which is 84% of the geographical area of the state. 3.64 m ha, i.e. 98% of cultivable area, is under cultivation. The gross cropped area of the state is 6.51 m ha and net cropped area is 3.64 m ha with a cropping intensity of 184.91%.

About 86% of the area is arable, and of that 96% is cultivated. About 75% of the area is irrigated, through tubewells and an extensive system of canals. Haryana contributed significantly to the Green Revolution in India in the 1970s

There are two Agroclimatic zones in Haryana. The North-Western part (also referred as Paddy belt) which is suitable for Rice, Wheat, Vegetables and Temperate Fruits, and the South-Western part (also referred as the Cotton belt or Dry belt) which is suitable for Cotton, Millets, coarse cereals, tropical fruits, exotic vegetables and herbal & medicinal plants





that made the country self-sufficient in food production. The state has also significantly contributed to the field of agricultural education in the country. Haryana's agriculture GDP contribution to the nation is 14.1%.

Haryana State has always given high priority to the expansion of electricity infrastructure, as it is one of the most important inputs for the development of the State. Haryana was the first State in the country to achieve 100% rural electrification in 1970, first in the country to link all villages with all weather roads and first in the country to provide safe drinking water facilities throughout the state.

DAIRY FARMING

Dairy farming is an essential part of the rural economy. Haryana has a livestock population of 10 million head. Milk and milk products form an essential part of the local diet. There is a saying "Desaan main des Haryana, jit doodh dahi ka khaana", which translates to "Best among all the countries in the world is Haryana, where the staple food is milk and yogurt". Haryana, with 660 grams of availability of milk per capita per day,

ranks at number two in the country as against the national average of 232 grams. There is a vast network of milk societies that support the dairy industry. The National Dairy Research Institute at Karnal, and the Central Institute for Research on Buffaloes at Hisar have been instrumental in developing new breeds of cattle and propagating them through embryo transfer technology.

Haryana is one of the most progressive states of India. In the domain of dairy development, it is well known for its productive milch cattle particularly the 'Murrah' Buffaloes and Haryana Cows. The economy

of the state is predominantly based on agriculture. People rear and breed cattle as a subsidiary occupation. The essence of various programmes launched in the State has been to adopt the Anand pattern of Milk Co-operatives. Under this system, all the functions of dairying like milk procurement, processing and marketing are controlled by the Milk Producers themselves. It has three tier system comprising milk Producers Societies at the village level, Milk Producers Co-operative Union at the district level and the state Milk Federation as an apex body at the State level.

The Dairy Cooperatives in Haryana have got projects sanctioned from Govt. of India/State Govt. as per details below:-

GOVT. OF INDIA

1	Intensive Dairy Development Program (2005-06 to 2015-16)	Rs. 24.81 crore
2	Strengthening of Cooperative Societies under RKVY (2012-13 to 2014-15)	Rs. 8.60 crore
3	Strengthening of Marketing Infrastructure under RKVY (2013-14 to 2016-17)	Rs. 3.90 crore
4	Strengthening of Processing Infrastructure under RKVY (2015-16 & 2016-17)	Rs. 4.18 crore
5	National Dairy Plan Phase-1 (2012-13 to 2016-17)	Rs. 21.90 crore

STATE GOVT.

1	Assistance to Women Dairy Coop. Societies (2016-17).	Rs. 30 lacs
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Spearheading Haryana's Milk Production

Dr. GS Jakhar, Director General, Animal Husbandry & Dairy, Haryana



What is the outlook of the milk production this year in Haryana?

The milk production for the year 2015-16 has been estimated at 83-81 lakh, and a target to produce 87.94 tonnes has been fixed for the year 2016-17. The per day per capita availability of milk in Haryana State is 835 gm as compared to 329 gm of national availability.

What is the extent of milk production by the indigenous breeds?

The total milk production of the State for the year 2015-16 is 83.81 lakh tonnes and out of this 4.22 lakh tonnes was produced by the indigenous breeds of cattle. The yield rate of indigenous cattle in Haryana is 5.55 kg per day as compared to 3.40 kg of national average.

What are the steps taken by the state government to improve desi milk production?

The Haryana Government has taken various steps for conservation, upgradation and integrated development of indigenous breeds of cattle such as Haryana, Sahiwal and Belahi through various departmental schemes: National Programme for Bovine Breeding and Dairy Development; Subsidy upto the extent of 50% for establishment of dairy units of indigenous cows; Incentive money ranging from Rs. 10,000/- to Rs. 30,000/- on the basis of milk yield is being provided to the owners of indigenous cows; Complete ban on cow slaughter under "The Haryana Gauvansh Sanrakshan & Gau Samvardhan Act, 2015" implemented in the State w.e.f. 19-11-2015 and constitution of Gau Sewa Aayog in the State for the welfare and upgradation of indigenous cows.

Apart from dairy production, which are the other potential livestock farming avenues of Haryana?

The other avenues of other potential livestock farming are Egg production, Meat production and Wool production.

How has poultry production fared in recent years in Haryana?

The egg and poultry meat production has been increased in Haryana State. The yearwise production is given as under:

Sr. No.	Year	Egg. Production in Nos.	Poultry Meat production lac Kgs.
1.	2014-15	45790	352.06
2.	2015-16	49133	382.41
3.	2016-17(p)	50000	410.00

Which are the future thrust areas of animal husbandry sector which are yet to be explored?

The major thrust of animal husbandry sector would be on Development of breeds of livestock by adopting latest scientific technology like Embryo Transfer Technology, Use of sexed semen on the development of indigenous breeds of cattle like Haryana and Sahiwal and Animal Nutrition Adoption of Total Mixed Ration (TMR) Technology.



Dr. Anshaj Singh, MD, HDDCF

The Haryana Dairy Development Co-operative Federation Ltd. (HDDCF) registered under Haryana Co-operative Societies Act came into existence in April 1, 1977. It was established with the primary aim to promote economic interests of the milk producers of Haryana particularly those belonging to weaker sections of the village community by procuring and processing milk into milk products and marketing thereof by itself or through its unions. The Federation undertakes a number of activities such as establishment of milk plants, marketing of VITA BRAND milk products of the Milk Unions. It also extends technical guidance to the Unions in all spheres of personnel, technical, marketing and financial management as well as makes them quality conscious, through use of modern methods of laboratory testing of various products. The federation operates milk processing plants in Jind, Ambala, Rohtak, Ballabgarh, Sirsa and Kurukshetra having installed capacity of 9.45 lacs litres per day. Dr. Anshaj Singh, Managing Director of HDDCF discussed with Agriculture Today the success achieved by dairy cooperatives in Haryana.

The federation has essentially adopted the Anand pattern of milk co-operatives in the state. Under this system, all the functions of dairying like milk procurement, processing and marketing are controlled by the milk producers themselves. Milk is collected at village level societies and



State Govt. has sanctioned subsidy of Rs.4.00 per litre of milk to be paid to milk producers/dairy farms of Haryana state supplying milk to District Milk Unions during summer season under Mukhya Mantri Dugdh Utpadak Protsahan Yojna

processed at unions' plants. It functions both as a milk procuring agency and a milk marketing agency. HDDCF has a three-tier structure comprising milk producers' societies at the village level, milk producers co-operative union at the district level and the state milk federation as an apex body at the state level.

Apart from procuring milk from the farmers, HDDCF provides other additional services to the farmers like AI facilities, cattle feed at low prices – lower than the market prices, mineral mixture for their cattle feed and tying up loans for purchase of cattle.

"The Haryana Dairy Development Cooperative Federation Ltd. (HDDCF) is engaged in procurement and processing of milk and manufacturing of milk products under the famous market brand "Vita". A range of Vita Products including Pasteurized Full Cream Milk, Standard Milk, Toned Milk, Double Toned Milk in pouches Ghee, Table Butter Paneer, Sweetened Flavoured Milk, Mithi lassi, Namkeen lassi, Chhach, Dahi, Kheer, Milk Cake, Kaju Pinni, Ice Cream,

etc. are being manufactured and sold by 250 milk and milk products distributors, Institutions, Defence Units, Districts Jails and 399 number of milk booth network. In future, we are going to install more booths in Haryana/Chandigarh to provide good quality liquid milk and milk products to the general public. Vita products are manufactured from milk procured from Village Level Dairy Cooperative Societies and processed at our own Milk Plants which are ISO and HACCP certified. Vita milk products are known for their quality and good taste not only in Haryana but entire Northern Region. The sale of Vita products also contributes to the economic upliftment and welfare of farmers of Haryana who provide us milk through the village level milk cooperative societies" said Dr. Singh.

The average milk procurement was 3.81 lakh liters per day and average milk sale 3.28 lacs liters per day during 2016(01.04.16 to 30.11.16). The surplus milk (after Marketing Liquid Pasteurized Milk) is being utilized for manufacturing Milk Powder and other Dairy products like Ghee, Table Butter, White Butter Paneer, Dahi, Lassi and Sterilized Flavoured Milk etc. The total Cumulative ghee sold during 2016 (01.04.16 to 30.11.16) was 2631.10 MT. The total turnover of the federation during the year 2015-16 was Rs. 824 Crores. To Strengthen milk marketing, so far 399 milk booths/milk bars have been set up in different cities/towns in the State.

"State Govt. has sanctioned subsidy of Rs.4.00 per litre of milk to be paid to milk producers/dairy farms of Haryana state supplying milk to District Milk Unions during summer season under Mukhya Mantri Dugdh Utpadak Protsahan Yojna. This scheme has also been implemented in the year 2015-16, and from 01.04.2015



'Haryana has Tremendous Potential in Horticulture'

Dr. Arjun Singh Saini, DG, Horticulture

How was this year's horticulture production of Haryana?

Presently horticulture occupies 7.58% of gross cropped area. The total area under all horticultural crops is 4.90 lakh ha with production of 70 lakh MT. In Haryana, the average productivity of fruit crops is 16.54 MT/ha and of vegetables is 14.99 MT/ha. We intend to increase this productivity to 25 MT/ha in 2029-30. During the last five years, this sector has improved and farmers are coming forward to adopt horticulture as diversified activity. This year the horticulture area may increase 5-10%. Farmers have started adopting new production technologies and this year the production is likely to increase further.

What are the schemes taken up by the State government to promote horticulture in the State?

At present Horticulture Department is implementing 14 schemes for the promotion of Horticulture, and there are flagship programmes like National Horticulture Mission and Micro Irrigation which are contributing a lot in the promotion of horticulture in the State. Apart from this, Government has approved Crop Cluster Development Programme for "On Farm & Marketing Support to Horticulture Farmers" for an amount of Rs. 510 crore to focus 140 horticulture clusters, wherein all the infrastructure facilities like pack houses, grading packing units, waste management units, cooling facilities having complete value chain shall be created. For promotion of backward integration, there is separate scheme for advanced technologies to promote production technologies in the State.

What are the strengths of Haryana in horticulture production?

In Haryana, total area under horticulture is around 4.90 lakh ha with production 70 lakh MTs. Haryana strength lies in vegetables, which covers around 85% of the total area

under horticultural crops viz. fruits, vegetables, flowers, spices and mushroom. Vegetables give added advantage to Haryana due to its proximity to National Capital having huge consumption market.



How has demonetization affected the horticulture farmers of Haryana?

State enjoys the big advantage of close proximity to National Capital Region and most of the produce is sold as wholesale in the wholesale markets of the State and in Azadpur Market as well. Due to liquidity issue during demonetization farmers were facilitated for purchase of inputs required for their fields. Further, subsidy to the farmers is directly released to them as DBT which facilitated to transfer the amount directly into their accounts.

What is the potential of horticulture in doubling farmers' income?

Horticulture is the major contributor in the GSDP in the State which accounts for around 10% in agriculture GSDP. The income generation in horticultural crops is more in comparison to agricultural crops. Further, there is stagnation in agriculture production and productivity in Haryana due to saturation of crops and technologies. Horticulture has recently made inroads into the State, and there is tremendous scope for productivity enhancement from present level of 15.77 MT/ha to 25 MT/ha. The factor alone has the potential to increase the income of the farmers by almost ¾ times of the present level. Another factor would be creation of infrastructure, for which Govt. has sanctioned RS. 510 crore, that will create complete value chain with backward and forward integration. This intervention shall further enhance income by 20 to 30% by way of market interventions, value additions and avoidance of post-harvest losses and bypassing various unnecessary market intermediaries. We are hopeful, that by various interventions as suggested above we may be able to double the income of the farmers and Haryana has tremendous potential due to market advantages.





“We will start Swarn Jyanti Bal Dugdh Yojana very soon. Under this sweetened flavoured skimmed milk powder will be supplied by Haryana Dairy Development Cooperative Federation Ltd in 500 gm/1000 gm packing as per the requirement of Elementary Education Department, Haryana in 5 different flavours”

**DR. ANSHAJ SINGH
MD, HDDCF**

to 30.09.2015 subsidy amount of Rs. 23.51 Crore had been paid to the Cooperative Milk Producers in Haryana. This scheme is also being implemented for the year 2016-17 (w.e.f. 01.04.2016 to 30.09.2016) with enhancement of subsidy amount from Rs.4/- per to Rs. 5/- per liter on milk. From 01.04.2016 to 30.09.2016 subsidy (approx.) amount of Rs. 31.17 Crore has been paid to the Cooperative Milk Producers in Haryana by the Cooperative Milk Unions.

For the year 2017-18, the Government has approved to implement the scheme from 01.04.2017 to 30.09.2017 with subsidy of Rs. 5/- per liter on milk for Cooperative Milk Producers in Haryana. Accordingly a proposal has been sent to RCS, Haryana for making budgetary provision of Rs. 35.40 crore for the year 2017-18 under the scheme”, says Dr. Singh.

It has been proposed to provide Automatic Milk Collection Units and Milko Testers to all the societies in the next five years. This will help in maintaining good quality of milk and to establish faith/confidence of milk producers as well as consumers. Similarly Bulk Milk Coolers will be provided to a Milk Producer Society, who forms a cluster of 10 to 15 villages. Milk weight and Fat is instantly measured in a transparent manner in Automatic Milk Collection Units. Milk is also being checked for any adulteration with milk testing kits approved by NDDB,

Anand.

Talking about the future activities of HDDCF, Dr. Singh says on an optimistic note, “we will start Swarn Jyanti Bal Dugdh Yojana very soon. Under this sweetened flavoured skimmed milk powder will be supplied by Haryana Dairy Development Cooperative Federation Ltd in 500 gm/1000 gm packing as per the requirement of Elementary Education Department, Haryana in 5 different flavours. The reconstituted sweetened flavored Milk from this powder will be provided to approximately 17 lakh school children for minimum 236 days and maximum 280 days in a year and each child will be served 200 ml. milk daily”.

HORTICULTURE ACHIEVEMENTS OF HARYANA

Powered by visionary policy initiatives, Haryana has made strong advancements in recent years in the horticulture segment. The government has laid tremendous emphasis on diversification to horticulture crops and has considerably increased the allocation of funds to horticulture department. The total area under all horticultural crops was 4.50 lakh ha during 2013-14, which has been increased to 4.90 lakh ha by the end of 2015-16. After establishment of Centre of Excellence for Vegetables under Indo-Israel Work Plan, protected cultivation has taken a boost in the State. The area under protected cultivation during 2013-14 was 180.30 ha which has increased to 329.96 ha by the end of 2015-16.





Horticulture Bio-Technology Centre, Centre of Excellence for Vegetables, Centre of Excellence for Fruits, Centre of Sub Tropical Fruits and Technology Demonstration, Centre of Guava have been adding the much needed support to strengthen the horticulture sector. The State has also gone global and became the first Indian State to sign up MoU with Iowa State of US for cooperation in agriculture and horticulture. With technological intervention and appropriate policy support Haryana's horticulture sector has undergone metamorphic change in recent years, auguring well for the farm economy of the State.

The Horticulture Department of the State deals with the production and maintenance of fruits, vegetables, and flowers, spices, mushroom, medicinal and aromatic plants. The cultivation of horticulture crops is highly specialized, technical and remunerative venture as compared to traditional crops being grown by the farmers. Apart from this, majority of Horticulture crops, being perishable in nature, requires systematic planning for their development. Horticulture development has assumed greater

Horticulture development has assumed greater importance in recent years since this sector has been identified as remunerative for diversification of land use which provides increased employment opportunities, better return per unit area besides filling the nutritional gaps

importance in recent years since this sector has been identified as remunerative for diversification of land use which provides increased employment opportunities, better return per unit area besides filling the nutritional gaps. Farmers in Haryana have also started taking up horticulture crops as a separate viable economic activity. With a view to give a boost to the growth of horticulture in the state, Haryana Government created a separate Department of Horticulture in 1990-91, which was previously a part of Agriculture Department.

Keeping in view of the emerging challenges in the field of horticulture

and to provide nutritional security to the masses, the department with a vision "to make Haryana Modern Fruit and Vegetable Cultivation State with a vision to lead in domestic and export market" has earmarked objectives of Diversification from agriculture to horticulture and doubling of horticulture production.

DEVELOPING CLUSTER IN FRUITS

When Haryana was newly formed in 1966, the area under fruits was only 7865 ha which increased to 49536 ha in the year 2012-13 recording 82.77 % growth since the launch of NHM in the State.

The Department of Horticulture is encouraging cluster approach for the development of fruit cultivation on the basis of climate and soil requirements. As for example North Haryana has been selected for Stone fruits including Mango and Sapota, whereas the South Haryana has been selected for Citrus (Kinnow), Guava, Ber etc. This has been done to provide holistic growth of horticulture sector through an area based approach which is helping in creation of required



infrastructure at one place. Area and Production of fruits respectively has increased considerably from 12640 ha and 99800 MT during 1990-91 to 49,536 ha and 5,16,070 MT up to the year 2012-13.

VEGETABLE CLUSTER

Though vegetable cultivation is not covered under NHM programmes, however, to boost the activities of vegetables in the State, various components of NHM like IPM, protected cultivation and vegetable seed production were integrated to increase the production and productivity of the vegetable crops.

Having proximity to NCR, the requirement of fresh vegetables has increased manifold. The area and production of vegetables has increased respectively from 55,360 ha and 8,02,240 MT during 1990-91 to 3,60,339 ha and 50,11,311 MT during the year 2012-13. The Department is now focusing on introduction of latest technologies in collaboration with Israel Government. In this direction a project to the tune of Rs.6.0 Crores has already been sanctioned by GOI, that will further increase the productivity in the vegetables.

HARYANA STRENGTHS, OPPORTUNITIES AND INITIATIVES

Strengths

- Favorable climate for production of quality fruits and vegetables.
- Exclusive good soils for fruits and vegetables with a high production potential.
- Proximity to major markets like Delhi and tri-city of Chandigarh.

Opportunities:

- Proximity to NCR offers excellent marketing channels.
- Scope for establishment of Processing Industries in fruits (mango, citrus, aonla, strawberry) and vegetables (pea, tomato, potato, carrots, garlic, onion)
- Export of Mango, Citrus-kinnow and Vegetables to Far East.
- Amendment of APMC act, opportunities for contract

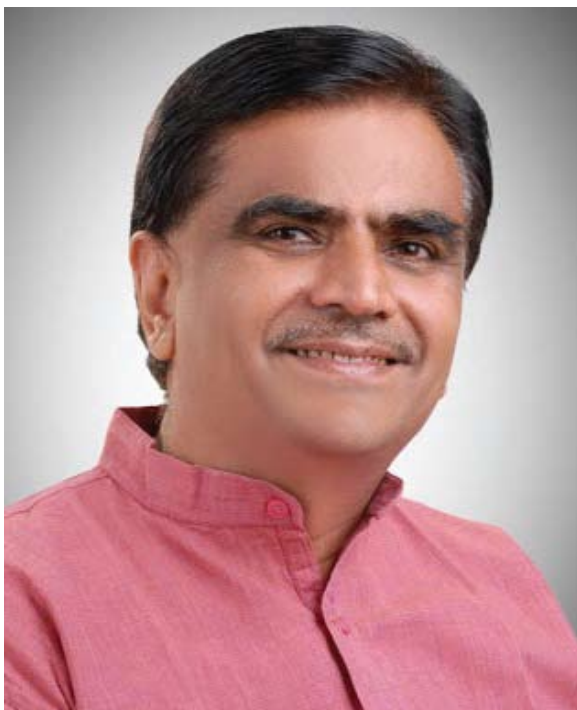
farming.

- Favorable industry climate

Initiatives:

- Increase in outlay of more than 200 times in the last five years. In the year 2004-05, the outlay for Horticulture was Rs. 80.00 lakhs which increased to Rs. 16573.00 lakhs in 2009-10.
- Launching of new schemes of National Horticulture Mission, Micro-Irrigation and National Mission on Medicinal Plants. Major activities initiated under National Horticulture Mission were area expansion under fruits, flowers, spices, creation of water resources - community tanks and post harvest management and marketing infrastructure.
- Development of best integration model in India by integrating the components of community tank, orchard plantation and micro-irrigation which has been emulated by other States.
- Concerted efforts on water saving techniques and increased subsidy assistance in Micro Irrigation (drip and sprinkler) scheme from 50% to 90%. An area of 8231 Ha has already been covered up to 2008-09.
- Tremendous impetus to the post harvest management and marketing of fruits and vegetables and got sanctioned projects to the tune of Rs.67.00 crore and of Rs.170.00 crores in 2006-07 and 2009-10. The facilities created were collection centres, pack houses, grading units and whole sale market.
- At Horticulture Training Institute, Karnal three new courses were started as one year diploma, six month and three month courses in the field of Horticulture.
- With the agreement of Govt. of Haryana and Govt. of Israel two projects in the name of Centre of Excellence for fruits and Centre of Excellence for vegetables were started at Sirsa and Karnal respectively. In these centres, all the new technologies with Israeli expertise will be demonstrated.
- Entering into the field of Biotechnology especially production of micro tubers in potato and introduction of new varieties through tissue culture techniques.

'HARYANA – THE STATE THAT LED INDIA'S RESURGENCE IN AGRICULTURE'



Haryana holds special significance in the agricultural history of India. One of the states that led the green revolution, India's current status of agricultural power house therefore owes significantly to the contributions of this state. Shri Om Prakash Dhankar who holds the independent charge of the highly influential departments of Agriculture; Animal Husbandry & Dairying; Fisheries; Development & Panchayats and Irrigation in the Chief Minister Manohar Lal Khattar's Cabinet in conversation with Agriculture Today team discusses the role played by the state in the agricultural segment and the future actions planned in the segment.

During the 50 years, how has Haryana evolved in the agriculture segment?

Haryana contributed significantly to the green revolution in India in the 1970s that made the country self-sufficient in food production. The state has also significantly contributed to the field of agricultural education in the country. Relatively less has been known on how Haryana – the state that led India's resurgence in agriculture maintained the momentum gained from the revolution. Haryana is very large producer of wheat and rice in the country. Around 90 acres field of Haryana is under cultivation of horticultural crops. This year Haryana cultivated around 6-7 quintal wheat and 6.5-7 quintal of rice. Haryana produces more than 7 million tonnes of milk every year, and stands third among the major milk producing states in India. The fisheries sector has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of low cost animal protein to the people particularly to the economically weaker sections of the society and thereby it is an advantageous position to ensure national food security. Haryana stands 2nd in the average annual fish production per unit area in the

country. The average annual fish production in the state is 7000 Kg. Per hectare against a national average of 2900 Kg. Farm poultry is dominant in Haryana. The Department of Animal Husbandry and Dairying, Haryana is responsible for the promotion of poultry farming. Andhra Pradesh is the biggest producer of poultry meat and Haryana has been growing at the highest rate of over 12 percent over the last five years. The main hubs of broiler production are Jind, Panipat, Hisar, Fatehabad, Sirsa, Karnal, Kaithal and Yamunanagar. There are four government poultry farms in the state, one each in Ambala, Rohtak, Bhiwani and Hisar.

This year is the Swarna Jayanti Year for Haryana State. As it turns 50, Haryana has many reasons to celebrate. Be it agriculture, industrialization, corporate investments or urbanization – the state has progressed rather well on most fronts. The Haryana government has planned year long 'Swarna Jayanti' celebrations, starting November 1, 2016 to mark the golden jubilee of the creation of the state. Prime Minister Narendra Modi officially launched the celebrations from the Tau Devi Lal stadium in Gurgaon on November 1 and launched various schemes for benefit of the state. The BJP government in Haryana, headed by Chief

Minister Manohar Lal Khattar, has earmarked a Rs. 1,700-crore budget for the year-long celebrations and schemes were announced during the event.

During the Swarna Jayanti Year of Haryana, what are the new schemes for the agriculture segment?

We have launched various schemes to mark golden jubilee year. Aimed at making the water reach every farm in Haryana, the State Irrigation Department has decided to launch 14 Israel type pilot projects this year. Besides, processing of cow milk has started and it would soon be made available in the market with the name 'A-2'. The State Government has lined up plans to celebrate 2016-2017 as the Golden Jubilee year of the formation of Haryana. To mark the 50th anniversary, the State Government would not only focus on irrigation, but also launch various welfare schemes. Every department has been asked to prepare schemes to meet the future requirements of the people and also have its vision document for the year 2026. Presently the farmers make arrangements for irrigating their fields, but now it would be the responsibility of the State Government to ensure water to every field. Such schemes have changed the fate of agriculture in Israel and the same will be replicated to resolve the issue of providing irrigation water to every field in the state. Tarun (Garvit) scheme launched from Jhajjar had also come to implementation stage. Under this scheme, the youth would give new direction to rural development. Besides, various other schemes were launched in the Golden Jubilee Year and "Swaran Jayanti Fund" for rural development is one of them. Haryana state government has also decided to develop 340 villages as horticulture villages at a cost of \$13.94 million (Rs 93 crore) during the Golden Jubilee year of the State. We will also establish 140 clusters in these villages. Under this project, producers in Haryana will supply fruits, flowers, vegetables and dairy products to

these areas.

We have sought technical expertise and resources from the World Bank for development of peri-urban agriculture and climate smart agriculture in the state. In order to break the wheat-paddy cycle, we will promote growing of horticulture crops especially in the National Capital region. The aim is to supply items of daily needs to residents of the NCR. Peri-Urban agriculture will be promoted on the pattern of Beijing which would help in meeting the demand for milk, milk products, vegetables, fruits, flowers and poultry products in the NCR. At present, 4.9 lakh hectares of total cultivable land in Haryana is covered under horticulture crops. It is proposed to double this in the next 10 years. Government has decided to set up mandi of flowers in Gurgaon. The mandi in Gurgaon would benefit farmers of the state in a big way. It is expected that the demand for milk and milk products, fruits, vegetables, poultry products and flowers in the NCR could be met through peri-urban agriculture. More than 80 per cent of total mushroom production approximately 4000 tonnes/year in Haryana comes from the seasonal mushroom growers of the Sonapat district. New Scheme has been prepared with an objective to adopt the cultivation of mushroom on scientific lines and introduce new disease free cultivation of Mushroom.

Water Management is a serious issue in Haryana. In the last 50 years how has Haryana dealt with this scarce resource in agriculture?

In Haryana 3.9 Mha is arable land Agriculture sector consumes 85% of the available water. The total requirement of the state of Haryana has optimally used available water as a result there is increase of 65% irrigated area in last 50 years. This distribution is through 12246 KM length of canals in the state in three systems namely Western Jamuna Canal System and BML – Barwala Link System to meet demands of the residents of the state. The available

water is distributed equally among all the farmers through warabandi system. Modern techniques like Micro irrigation system are also being installed to bring more area under cultivation.

How do you plan to integrate rural development with agriculture?

The Rural Development Department, Haryana is of the view that more than 60 per cent expenditure of MGNREGS must be on agriculture related works in financial year 2016-17. As per MIS reports (as on 23.1.2017) the expenditure incurred on agriculture related works is 73.41 per cent of the total expenditure of MGNREGS in the state. The Department is planning to execute works to integrate Rural Development with agriculture in convergence under MGNREGA. Under LAND DEVELOPMENT scheme the land of SCs, small/marginal farmers is developed by executing various kinds of works like Contour Trench, Contour Bund, Boulder Check, Farm Bunding, Gabion Structures, Earthen Dam, Dugout Farm Ponds and Stop Dam. AGRICULTURE RELATED WORKS include revitalizing soil health and improving the productivity of agriculture. Composting is also provided by the NADEP Compost pits and vermicompost pits. IRRIGATION RELATED WORKS includes rehabilitation of minors, sub-minors and field Channels by the line department (Irrigation department) with convergence under MGNREGA.

How has the Yamuna – Sutlej row affected agriculture potential of Haryana?

Due to non construction of SYL canal, Haryana is not able to bring its share of 1.88 MAF (18.8 lakhs acre feet), which effectively means that about 2600 cusecs of Haryana share is being utilized by Punjab and Rajasthan throughout the year. This water, if supplied to Haryana, would irrigate 10.8 lacs acres (@2.4 cusecs per 1000 acres). Water table in Southern Haryana is going down sharply due to non availability of this water. The

loss in the generation of employment, subsidiary industries and trade is also considerable. Similarly, the annual loss of power due to its unabated use in agriculture sector and consequent loss in industrial production, reinvestment and generation of employment would be three to four times more. This loss is being suffered when Haryana's farmers are in acute need both of water and power and its industry is in serious need of energy. The farmers are losing anything between Rs. 100 to 150 Crores each year as they have to resort to inefficient and expensive diesel pumps or erratic electric tube-wells for irrigation. Hence, substitution of tubewell irrigation by canal irrigation is a dire necessity to avoid the socio – economic disaster and hence the urgent need to construct SYL canal. Due to non completion of SYL canal by Punjab, over one lakh acres of irrigation potential in Haryana remains unutilized. Haryana is thus losing incremental agriculture production of over 40 lakh tonnes per annum. Had the canal been completed in the year 1983 as envisaged by the 1981 agreement, the state of Haryana would have produced an additional 1300 lakh tonnes of foodgrains and other products by now. The value of this produce at current price of Rs 15000/- per tonne would work out to be about Rs. 1,95,000 Crores.

How important is indigenous cattle breeds for Haryana?

The State is native to one of the best dual-purpose Haryana breed of cattle and in addition Sahiwal breed which is one of the most preferred indigenous milch cow. Lack of concerted efforts towards genetic improvement of the indigenous cattle breeds have contributed to their gradual decline in the State. Indigenous breeds of cattle are of immense importance for overall development of dairying sector in the State. The potential to enhance the productivity of the indigenous breeds of cattle through professional management and appropriate nutrition is immense. For this, it is essential to promote conservation and development of indigenous breeds. Indigenous breeds of cattle

are superior to exotic breeds of cattle because of higher disease resistance, adaptability to local climate, higher fat percentage in milk, higher feed conversion efficiency, production of A-2 milk etc. Livestock Sector has an important role in the integrated farming system particularly for the small as well as landless farmers in the State of Haryana. It has great potential for further growth provided it gets much needed policy support including emphasis on genetic resource conservation, improvement of valuable indigenous breeds, their health, nutrition etc.

What are the programmes implemented by the government to promote indigenous breeds in the state?

For the conservation and development of indigenous cattle in the State, several schemes/activities are being implemented by the Department. Scheme for the conservation and development of indigenous cattle (Gausamvardhan) was implemented with the objectives of Increase in milk production and productivity; Upgradation of valuable indigenous germplasm available in the State through selective breeding; Identification of top quality germplasm and insemination with quality semen for sustainable genetic improvement; Procurement of pedigreed young indigenous bulls (male calves) for further supply in the State/Country and Encouraging the farmers to rear better yielding animals. All the Haryana and Sahiwal cows, meeting the bench mark of 8 kg peak yield and 10 kg peak yield respectively, are being properly identified (with ear tags) along with their progeny. Cash incentive to the owners of these identified Haryana and Sahiwal cows is also being provided. The Scheme for the establishment of Hi-Tech & Mini Dairy Units is intended to Create employment opportunities through Animal Husbandry activities, Increase milk production and productivity; Upgrade and develop valuable breeds/germplasm available in the State; Supplement the income of the families

of the entrepreneurs; Raise the socio economic status of the weaker sections of the society and Enhance per capita/day availability of milk in the State. Under this Scheme, subsidy @ 25% is being provided to farmers for establishing Dairy Units of 3, 5 and 10 milch animals. However to encourage indigenous breeds of cattle subsidy @ 50% is being provided to the farmers for purchase of indigenous cows for establishment of dairy unit. Apart from this, State Level Indigenous Cattle Show is conducted in order to have maximum publicity of the schemes and to encourage livestock owners to rear indigenous cattle and to inculcate the spirit of competition amongst the farmers / breeders for rearing quality indigenous cattle in the State. A two days State level cattle show was organised at Bahu Akbarpur, Rohtak on 6th and 7th May, 2016 which was exclusively for the indigenous cattle. In the show, the breed champion and best animals of indigenous cattle were judged and were provided cash prizes / awards. The "Best Animals" were selected by the committee of judges in an open and fully transparent way. In the cattle show 633 quality indigenous cattle of Haryana, Sahiwal, Tharparkar, Gir, Rathi and Belahi Breed participated in the show. Indigenous cows of different breeds from Gausshalas of the State also participated in the show. A State Level Indigenous Cow Milk yield Competition was also organised. The indigenous cows possessing true breed characteristics only participated in this competition. The farmers who visited the show got maximum exposure to latest technologies and new innovations in the animal husbandry field as the exhibition of stalls for exhibiting the latest technologies, medicines, panchgavya products etc., were displayed. Kissan Sangoshties & Technical sessions were also organized in the show. The major objective of this State level indigenous cattle show was to encourage the farmers to rear quality indigenous cattle and propagation of good quality germplasm of indigenous cattle in the State.

'Emphasis is to Modernize the Mandis'

Dr. J. Ganeshan, MD, Haryana State Agricultural Marketing Board

How has been the journey of Haryana State Marketing Board?

The HSAMB was set up on 1st August 1969 for exercising superintendence and control over the market committees in Haryana State. The Board has set up a modern marketing infrastructure with a network of 108 Principal Yards, 177 Sub-Yards and 193 Purchase Centre in such a way that the farmers have to travel maximum 5 to 7 kms from his farm house to sell his agriculture produce in the notified regulated mandis under the provision of Haryana Agriculture Produce Markets Act 1961 and General Rule 1962. The HSAM Board has its own Construction Wing which performs the work of development of Mandis, its modernization and maintaining basic facilities in the Market Yards and construction of Link roads from villages to the Market Yards to facilitate the farmers and other Mandi functionaries.

What are the challenges faced in marketing of agricultural commodities in the State?

The main challenge faced in marketing of agricultural commodities is to reduce the post harvest losses of agriculture commodities, which are being taken care of by facilities of cold storages, Pack Houses for horticulture produce and godown or warehouses for storage of food grains in the mandis. Secondly, there is a need to reduce the role of intermediaries so that farmers can get maximum price for their produce.

How has these fifty years been for the agri marketing segment?

In the starting when the HSAMB was separated from joint Punjab Agriculture Marketing Board, the number of regulated mandis in the State were very less and the infrastructure in the mandis was also very poor. HSAM Board after separating from Punjab Agriculture Marketing Board started to create a network of sufficient markets



in the nearest reach of farmers. Till now, an agriculture marketing network of 108 Principal Yards, 177 Sub-Yards and 193 Purchase Centre has been setup and now the emphasis is to Modernize these mandis to the level of global competition of agriculture marketing.

Is Haryana ready for the national agriculture markets?

Yes, the modernization with latest Information & Technology of the mandis in the State is almost completed and it is being upgraded with the latest facilities of I.T. Therefore, the mandis of the State controlled by the HSAM Board are ready for the operation of National Agriculture Markets, the process of which has already started. 37 mandis of Haryana State have been integrated with online e- NAM Portal and the Government intends to bring all the 108 mandis of the State under e-NAM Portal by the end of 2017-18.

What is the role of middlemen in Marketing?

In the regulated mandis of the State under the provision of HAPM Act and General Rule 1962, the main faction of sale and purchase of agriculture/ Horticulture produce is performed through the Trader/Commission Agents having the licence under section 10 of the Act, who works as the middlemen between the seller farmer and the purchaser of the agriculture produce on commission basis which is 2.50%

on food grains and 5% on Horticulture Produce. The commission agent provides the facilities of unloading, cleaning of agriculture produce, filling of bags and its lifting from the mandis as required by the purchaser for which they are paid the commission as above as well as the labour charges/sundry charges as fixed by the HSAM Board from time to time.

How did demonetization affect the marketing of agri produce?

The payment of the value of the agriculture produce sold by the farmer producer is made by the purchaser through the commission agent generally in cash. Due to demonetization there has been a shortage of cash with the purchaser for payment to the farmers who prefers the payments in cash. But the payments through cheque and direct payments in the account of farmers by the purchaser/commission agent may reduce any effect and the same has come to normal. However, the payment through cheque and direct to bank account may also be in the interest of farmers in getting the actual payments of value of their agriculture produce.

How do you view the future of agriculture marketing in Haryana?

Haryana is an agrarian State and there is need for modernization of already well established marketing network in the State, the process of which is already going on. Better Marketing Yard equipped with latest modern facilities with the use of Information and Technology is required in the State to provide modern marketing facilities to the farmers in the State so that they may get the better remunerative prices of their Horticulture and Agriculture Produce. For this the facilities of better marketing yard, cold storage, pack houses and grading centres are being provided in the mandis so that the post harvest loss of agricultural /Horticultural produce can be minimized.

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HAFED - A Close Friend of Farmers

Ms Sukriti Likhi, IAS, Managing Director, Hafed

How has been the journey of Haryana State Cooperative Supply and Marketing Federation Limited (HAFED)?

The Haryana State Cooperative Supply and Marketing Federation Limited (HAFED) is Haryana's largest Co-operative Federation serving farmers and consumers since 1966. Foodgrains Procurement for the Federal Government, Processing of farm produce, Providing Warehousing facilities for storage of Wheat, Paddy, Rice and Fertilizers, etc. and Marketing are its core activities. The main objectives of the federation are - To make arrangement for procurement, marketing and processing of agricultural produce and allied products; To make arrangements for supply of agricultural inputs such as fertilizers, seeds and agro chemicals and To facilitate the working of the affiliated Co-operative Societies. Hafed has established itself as a close friend of farmers over a period of time. It has played a vital role in providing marketing support to the farmers being the largest food-grain procuring agency in Haryana and by setting up different agro processing units like Oil Mills, Rice Mills, Sugar Mill etc. Hafed has also ensured adequate supply of agri-inputs like fertilizers, pesticides and wheat seed at the door step of the farmers. It has also emerged as a premier warehousing agency of Haryana for safe and scientific storage of food grains.

What are the challenges faced in marketing of agricultural commodities in the state?

In Haryana adequate infrastructure have been provided by the State Government through a network



of Mandis, and procurement of foodgrains on minimum support price is being executed through different procurement agencies. Being the largest purchaser and custodian of the food grains in the State of Haryana, it is always a challenge to maintain the health of food grains properly and to keep the losses on this account at its minimum level. It becomes challenging especially when the volume of operations is that large. Creating covered capacity for scientific storage of foodgrains has been one of the major challenges and to constantly run the agri-business in profits while dealing with the political and social compulsions has also been a major challenge.

How has these fifty years been for the agri marketing segment?

Over the years Hafed has become one of the leading organizations in the State in the following segments : Largest Food Grains Procurement agency of the State; A premier Warehousing agency of the State for scientific storage of Foodgrains; Largest chain of Agro - Processing units in the State; Major supplier of

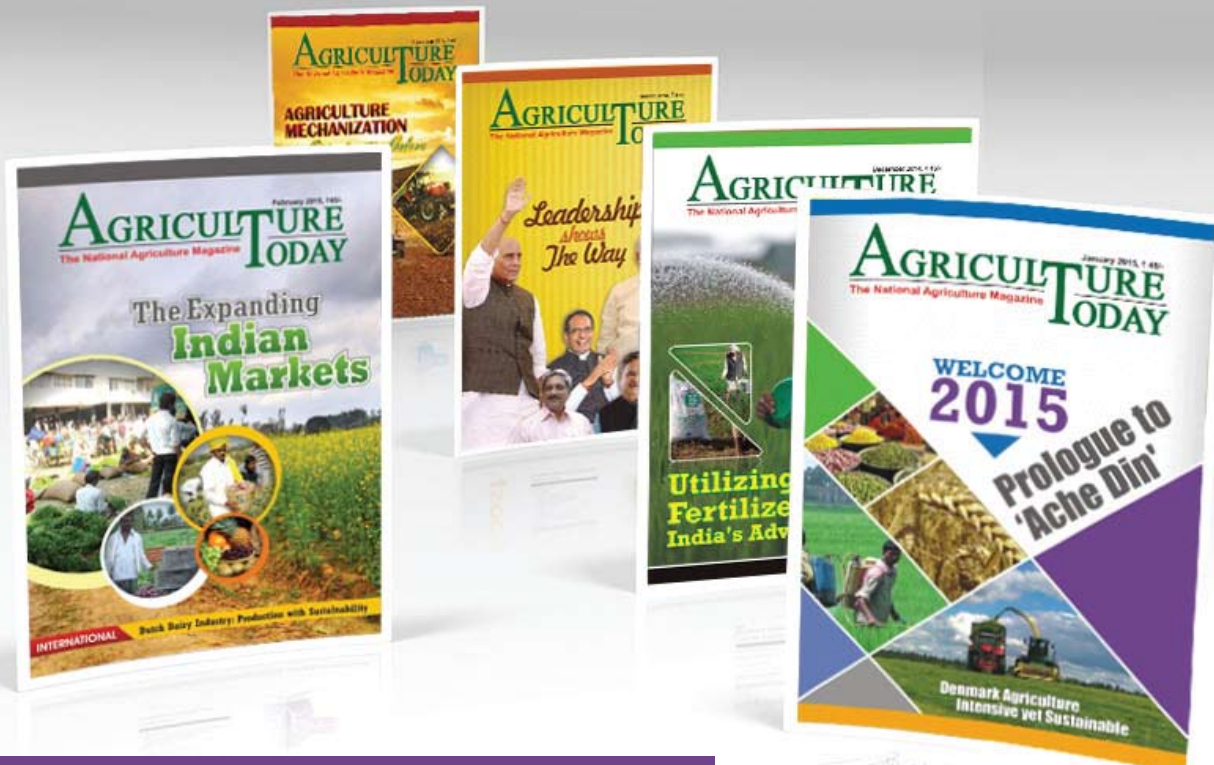
quality, hygienic and safe Consumer Products, Cattle/Animal Feeds and Largest supply chain network upto the village level in Haryana State for distribution of Agri - Inputs like Fertilizers, Pesticides, Seeds etc. Hafed has also been continuously enhancing its focus on marketing its consumer products, and new products have also been regularly added in its product range. The business turnover and profit of the Federation for the financial year 2015-16 has reached Rs. 8780.11 crore and it has earned a profit Rs. 38.06 crore (after tax).

How did demonetization affect the marketing of agri produce?

As purchase of Fertilizers and Seeds by the Farmers through the Cooperatives were covered under the exemptions by the Government so the demonetization did not seem to have any affect on marketing of agri produce.

How do you view the future of agriculture marketing in Haryana?

With the multi dimensional initiatives of the Government and exposure of farmers to the information and communication technologies and e-markets, role of middlemen in agriculture marketing is going to reduce considerably in the State. Quality consciousness among the consumers, information dissemination about the prevailing prices in different mandies across India, availability of adequate covered storage capacities, state-of-the-art agro-processing facilities etc. would also help in growing healthy trends in agriculture marketing in the State.



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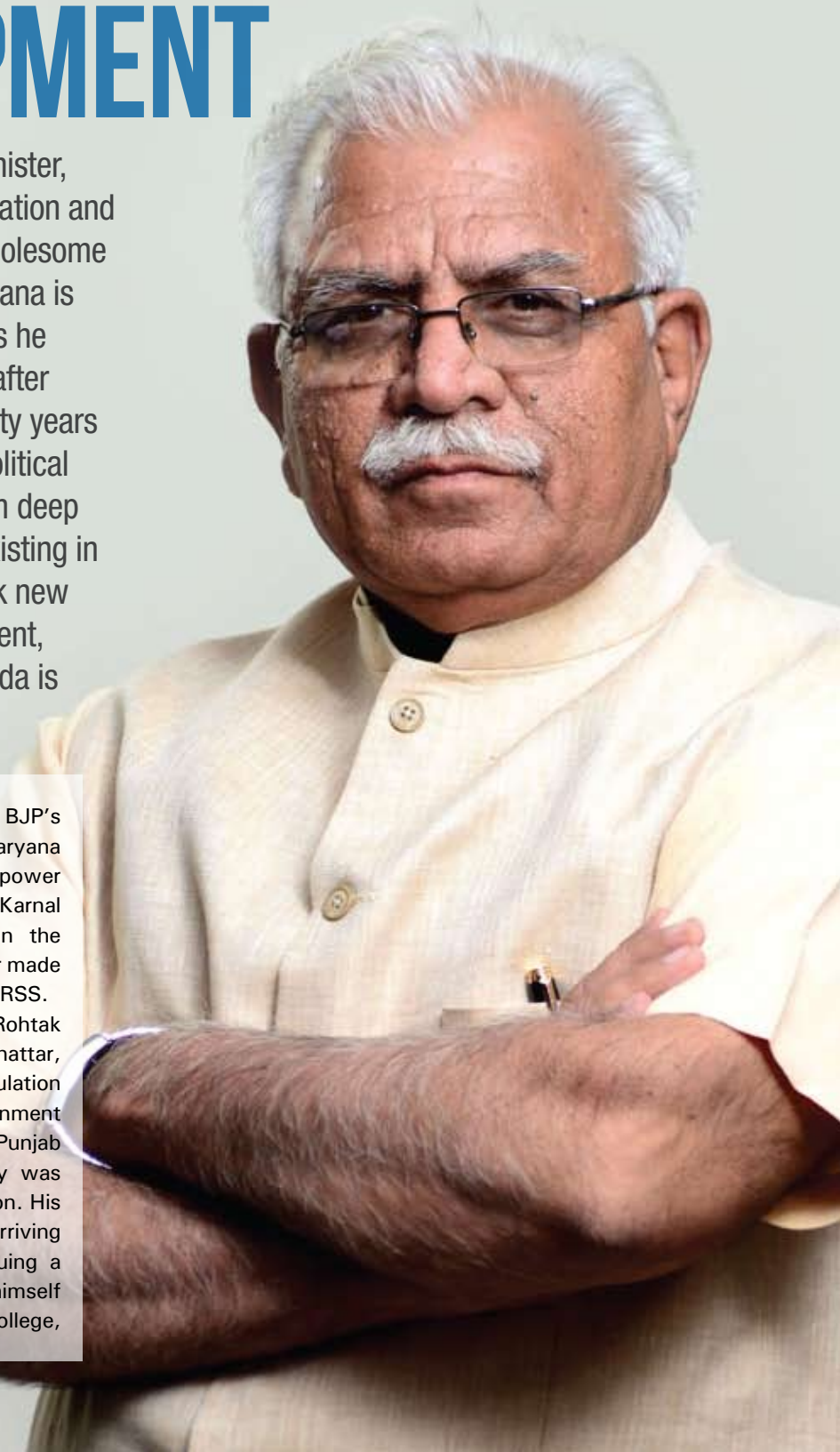
AGRICULTURE
TODAY

HARYANA'S FACE OF DEVELOPMENT

A first time MLA turned Chief Minister, Shri Manohar Lal Khattar's dedication and commitment to bring about a wholesome development to the state of Haryana is echoed in the plethora of reforms he has brought around in the state after assuming power. A dedicated forty years of service and being an active political worker in the state has given him deep insight into the state of affairs existing in Haryana. With the desire to break new grounds in the road to development, Shri Khattar's development agenda is pragmatic and inspiring.

Shri Manohar Lal Khattar, is BJP's first Chief Minister of Haryana who assumed the reins of power in 2014. Elected from the Karnal Assembly constituency in the Assembly elections, 2014, Shri Khattar made way into the world of politics through RSS.

Born in 1954 in Nindana village of Rohtak district of Haryana to Harbans Lal Khattar, Manohar Lal completed his matriculation from Pandit Neki Ram Sharma Government College, Rohtak. Originally from East Punjab (currently in Pakistan), Khattar family was forced out of their home during Partition. His family made way to India in 1947, arriving almost empty-handed. Keen on pursuing a medical degree, Manohar Lal enrolled himself in Neki Ram Sharma Government College,



Rohtak and became the first member of his family to study beyond Class X. Later he moved to Delhi and took to business and simultaneously graduated from Delhi University. Driven by the passion of service, he joined RSS and remained an active member for 14 years after which he made his move to BJP and made Sangathan Mahamantri in Haryana.

The 2014 Lok Sabha Election in Haryana was a turning point for both Khattar and Haryana. Years of selfless working in key party positions established him as a strategist par excellence. As an able and firm-handed administrator, and a man who has a keen sense of state's politics, he played crucial role in the party's success in states like Punjab, Haryana and Chhattisgarh. Manohar Lal was given prominent roles in various elections in different states where he delivered stupendous results. In 2004, Manohar Lal found himself in-charge of 12 states, including Delhi and Rajasthan.

For the Lok Sabha elections of 2014, Manohar Lal was appointed Chairman of the Election Campaign Committee, Haryana which led to the party's thumping success in the state. Contesting the election for the first time from the Karnal Assembly constituency and winning it by thumping majority, he was unanimously elected leader of BJP Party MLAs. He took oath as Chief Minister on October 26, 2014 creating history as it was the first time a first-time MLA has become the Chief Minister.

Khattar's government made many reforms in the agriculture sector. In order to provide major relief to farmers, the state government fixed compensation amount upto Rs 12,000 per acre for the damage to crops due to unseasonal heavy rains and hailstorms in Haryana. In villages, where the crops of farmers have been damaged more than 50 per cent, cent per cent agriculture bills of

farmers have been waived off for one year. The State Government under his leadership has also waived off 50 per cent of agriculture bills of farmers whose crops have been damaged to the extent of 25 to 50 per cent. As many as 56,555 soil health cards have been issued free of cost to the farmers. A Horticulture University is being established in collaboration with Central Government to encourage farming of flowers, fruits and vegetables in the state. 'Haryana Fresh' brand has been launched for agriculture and allied sectors products. The government has given tremendous importance to indigenous breeds. Gau Sanrakshan and Gau Samavardhan Act was formed with the suggestions of people for the preservation and promotion of indigenous breeds of cows in Haryana. The process to set up Cow Sanctuaries at identified

places in the state has been initiated for the development of 'Gau-Vansh', where stray cows would be rehabilitated. Fifty per cent subsidy is being provided to farmers from the current financial year for setting up Mini Dairy units of indigenous breed of cows and 25 per cent subsidy in other dairy schemes.

Nurturing a vision of wholesome development, Shri Khattar assumed the power in Haryana with the keen intent to develop Haryana as a vibrant state. His out-of-box thinking and fresh approach to issues will provide the much needed freshness and change in Haryana.



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“The true measure of success is the impact in villages, not the impact in Dalal Street or Lutyens Delhi. By that yardstick, we have a long way to go. Our stock markets need to raise capital in innovative ways for projects in agriculture. Our commodity markets must become useful to our farmers, not just avenues for speculation”

NARENDRA MODI
Prime Minister

“Youth are getting job opportunities in dairy, poultry, meat, fisheries, horticulture, micro-irrigation, etc. Self-employment opportunities also have been enhanced in these fields which require skilled youth”



RADHA MOHAN SINGH
Agriculture Minister



“We want to grow economically without destroying the ecology. Government of Assam will give priority on organic farming to maintain the ecological balance”

SARBANANDA SONOWAL
Chief Minister, Assam



“Our aim is to provide the irrigation facility to the farmers to make the agriculture a profitable occupation and to double the farmers’ income. The state government will take concrete steps in this regard”

SHIVRAJ SINGH CHOUHAN
Chief Minister, Madhya Pradesh



“Almost 80 per cent of the financial operations in rural areas are through cooperative banks. Farmers totally depend on the cooperative network. Farmers and villagers have trust in their working. Therefore, cooperative banks will have to be incorporated in all the digital reforms undertaken for cashless transactions”

DEVENDRA FADNAVIS
Chief Minister, Maharashtra