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Chile Special

FOODS OF CHILE



◀ Cover Feature ▶

Crop Protection Chemicals

Indispensable for India's Food Security



Mr. Carlos Furche
Minister for Agriculture, Chile

Chile's Agriculture Prospects

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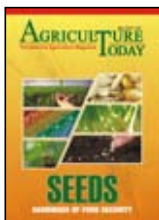
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Crop protection – Key to India's Food Security

Crop protection is today an indispensable tool in securing India's food sovereignty. India, home to the second largest population in the world since the green revolution, has been more or less independent in terms of food production. However, the country's agriculture production system was never immune to the pests and diseases. A major share of losses that India suffer in agricultural output is due to the damages inflicted by these biotic elements.



India's crop protection chemicals industry, which is the second largest in Asia, second only to Japan, has a size of above Rs 26,000 crore. Indian agro chemical industry has been registering a robust growth and is even expected to remain so in the foreseeable future. Insecticides form the largest segment of the domestic crop protection chemicals market accounting for 65 per cent of the total market. However, herbicides are the largest growing segment and currently account for 16 per cent of the total crop protection chemicals market. The Indian crop protection chemicals market is highly fragmented in nature. The competition is fierce with large number of organized sector players and a notable share of spurious pesticides. Recently, the market has been witnessing mergers and acquisitions with large players buying out small manufacturers.

Years to come will have increasing focus on improving the crop production. Contract manufacturing is an emerging trend in agro-chemical companies. There are several leading companies in crop protection industry, who are actively involved in contract manufacturing of agrochemicals and intermediates for global innovators. With more emphasis on producing environmentally friendly molecules, market will see many technologically improved products in the future. There is an increasing focus on development and production of environmentally safe pesticides by the industry as well as the Government quite recently larger companies are focusing on brand building by conducting awareness camps for farmers and providing complete solutions. Also, an increase in strategic alliances among large players for greater market reach and acquisitions of smaller companies globally to diversify product portfolio has become a common phenomenon. Newer molecules especially low dosage, high potency molecules are increasingly invested upon. Also, increased focus is laid upon seed treatment chemicals. The advantage of these products is that they require very small volume of the compound and are more effective than the normal crop protection chemicals. An increasing interest in the bio-pesticides segment with increasing preference for environmentally safe products in the market is also being witnessed.

Despite the tremendous scope in India's market, there is a sense of lethargy in the Indian market to invest in R&D to develop new agrochemical molecules. The primary reasons being the huge investments and the time involved. There is a significant share of spurious pesticides and spiked biopesticides in India. These products fail to kill pests and at the same time inflicts damages on crops.

The threats of the future are immense. The crop protection industry must be dynamic enough to combat these threats in the most effective and productive way. The key to India's food security lies with crop protection.

Anjana Nair

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Outsourcing Pulse Production

India keen on finding foreign solution for local problem

Pulse production remains to be a sore point in Indian agriculture. Despite the persistent and perennial demand for pulses in Indian market, Indian farm lands have been unable to yield to that demand forcing the nation to depend on expensive imports. While reasons of poor pulse production stretch from the non interest of farmers to the absence of better varieties of pulses, India has poorly fared in exploring the option of self sufficiency in pulses.

Recently India has revealed its plan of contract farming of pulses in African countries -- Mozambique, Tanzania and Malawi -- as it looks for a long-term solution to domestic shortage and high prices. These countries grow tur and arhar similar to our domestic varieties. However it remains to be seen how this would materialize in reality. The issue of India leasing land in African nations to grow pulses on a contractual basis might figure during Prime Minister Narendra Modi's visit to those nations in July, suggesting the Centre's urgency to explore all possibilities to boost the availability of pulses in the country.

In fact leasing farm land in Mozambique, Tanzania and Malawi to grow pulses for domestic consumers is not the first such project and all such attempts in the past have not yielded desired results due to high cost of investment, poor law and order and inadequate infrastructure in the host countries. In Africa, too, there have been several attempts by Indian companies to purchase or lease land to grow pulses, oilseeds and corn but not much has moved forward.

In fact in 2009, eight major Indian food companies — including Godrej Agrovet, Ruchi Soya, Pranav Agro and State Trading Corporation — had formed a consortium called Select Agro Ventures, with the intention of either purchasing or leasing land (10,000-15,000 hectares) in Uruguay, South America, to grow pulses and soybean. Export Import Bank of India (Exim) had said it would lend money. However, there was a global recession and Exim backed out. The consortium still exists but largely on paper.

However, not all such investments have failed so early. Bengaluru-based Karuturi Global has been one of the largest investors in Ethiopian farmland. It grew corn, sugarcane and palm oil before its investment got caught in a dispute with the local government. In March 2010, the 140-year-old construction firm of Shapoorji Pallonji and Co signed an agreement to take on lease up to 50,000 hectares in Ethiopia to cultivate *Pongamia pinnata*, a feedstock for biodiesel. Earlier, Emami Biotech, part of personal care products maker Emami, had entered into a similar agreement there to lease up to 40,000 hectares for cultivation of *Jatropha*, another biodiesel feedstock, and edible oilseeds. Ethiopia had emerged a preferred destination for Indian companies, mainly to grow feedstock for biodiesel, with large tracts of contiguous land and favourable government policies.

While the proposition seems to be an easy fix to the looming pulse problem, there are several other ramifications with this proposal. Many are unconvinced of this mode of augmenting pulse production. Incentivizing farmers from other countries, at the expense of India farmers have drawn criticism to this proposal. Some even have suggested that the move would alienate people from agriculture, when the government is intensely trying to attract and retain youth in agriculture. Outsourcing agriculture again means import of food.

Instead of outsourcing agriculture and importing back the food, why not explore the same option in India. Promoting micro irrigation and development of improved varieties can increase pulse production and reduce our pulse dependency on foreign countries. By outsourcing pulse and oil seed cultivation we are once again opening our gates to cheaper imports of pulses destroying the income generating prospects of Indian pulse growers. The investment and effort that the government is keen on devoting on a foreign land could be concentrated here. This will not only increase our production but also increase the income prospects of domestic farmers.

Addressing pulse and oilseeds production requires utmost urgency. But before committing to a foreign solution, it is better if we could find a local solution.

Strengthening Rural Economy

Rural economy need to be strengthened by strengthening agriculture

Rural economy remains insulated from the progress achieved in the rest of the country. For a country to prosper, it is pertinent to carry its rural populace along with it. Agriculture which remains the backbone of rural India obviously would determine the pace of the rural development. Indian agriculture which has come a long distance from the phase of famine, has much scope for further improvement. A recent report titled 'India: A Tale of Two Economies – Rural and Urban' by Goldman Sachs has suggested - boosting agricultural productivity, diversifying sources of income and urbanisation as the potential drivers in the growth of rural India over the coming years. The report also suggests urban economic growth continues to remain steady and rural growth is recovering due to improving consumption. However, rural investment remains weak.

Rural growth was affected in the past few years due to erratic monsoon and drought like situations that was prevalent in the country. Agriculture for the most part of India relies on monsoon and the monsoon factor determines the rural well being. A precarious relationship, this agriculture-monsoon tie up has been determining the fate of rural India since a long time. Goldman Sachs report confirms this association and attributes the recovery of overall rural growth in the past two months to an increase in rural consumption, even as investment trends remain subdued. The forecast of above normal monsoon and the recent stress on fiscal support to rural areas could be key swing factors driving rural activity in FY2017. However, a good monsoon is only likely to provide a temporary boost to rural economic growth. For a more permanent impact on growth, the report suggests less reliance on monsoon.

For a less dependence on monsoon, India needs to invest heavily on irrigation. Currently more than eighty per cent of the cultivated land in India derives its moisture requirement from the showers. To bring about a stability in the rural income, this trend needs to be changed and the focus should be shifted towards more reliable and stable sources of irrigation. Keeping this in mind, Modi government has been laying considerable significance on increasing the cover of irrigation in agriculture landscape. Micro irrigation with sprinkler and drip heads can economise water consumption without compromising the water demands of the crops. Similarly improving rural economy has direct relation with improving the quality of agriculture that is practiced in India. The mismatch between production and storage has resulted in loss of farm produce and distress selling. Lack of appropriate commodity specific storage infrastructure most often results in poor quality produce fetching prices lesser than market rate. Another factor that determines better price recovery is market connectivity. Farmer should be able to transport his produce to markets where he can sell his produce at competitive rates. Absence of transportation and road connectivity also adds to his woes thereby depriving them of better income and hence livelihood.

The report also suggests to create more stable income sources, reduction in overall reliance on farm income and agriculture. "Diversifying income away from agriculture into industry and services can help boost rural economy's labor productivity," the report notes. Building better road connectivity in rural areas, electrifying villages, improving internet connectivity, converting thatched roof structures into more durable housing and ensuring adequate power supply could help lift rural incomes and standards of living, states the report.

No doubt agriculture runs the rural economics. Unfortunately, agriculture in India is not a stable income source. The production factors are not a constant and depends on a lot of variables in which unfortunately humans have no control. To bring in more stability to rural growth there should be less dependence on these variables or else a constancy need to be brought into these elements. Nevertheless, a stability needs to be brought into the income sources via diversification or technology upgradation. A stable rural economy is important for a stable country.

Pulse MSP takes a Hike

Hike in MSP of pulses aims to boost pulse production

A recent cabinet decision to hike Minimum Support Price (MSP) of paddy and pulses comes with the hope that the higher MSPs would increase investment and production through assured remunerative prices to farmers. Last month, Government sharply hiked the MSP of pulses by up to Rs 425 per quintal for this year to boost output and check price rise, while making a modest raise of Rs 60 in paddy MSP to Rs 1,470 per quintal. The government also approved a bonus of Rs 425 for pulses and Rs 100-200 per quintal for oilseeds growers over and above the MSP to encourage domestic production and check prices.

MSP is the rate at which government agencies like Food Corporation of India (FCI) and other state government-owned agencies procure grains from the farmers. It is also taken as benchmark prices in the market. MSP has been viewed as an instrument to assure minimum price for farmers' produce. MSP assures market to the farmers and promises a buyer for the farmers. It offers an assurance to farmers that their price realised for their agricultural produce will not fall below the stated price. The government uses the MSP as a market intervention tool to incentivise production of a specific food crop which is in short supply. It also protects farmers from any sharp fall in the market price of a commodity. MSPs are usually announced at the beginning of the sowing season and this helps farmers make informed decisions on the crops they must plant. MSP is computed on the basis of the recommendations made by the Commission for Agricultural Costs and Prices (CACP). It considers factors such as the cost of production, change in input prices, market price trends, demand and supply, and a reasonable margin for farmers.

The provision of MSP was initiated during the mid-1960s to create a favorable environment for the producers of major food crops, which were seen to possess vast potential for raising grain production. Presently, 24 major crops are covered under the minimum support price program (paddy rice, wheat, five coarse grains, four pulses, eight oilseeds, cotton, jute, tobacco and sugar cane). With the price support policy favoring food grains, this price support instrument has been highly asymmetric and skewed mainly towards the production of rice and wheat at the cost of cultivation of pulses, oilseeds and other crops. This has created serious imbalances in demand and supply of principal crops in the country. Similarly, the country has been facing large shortages of pulses and edible oils and now has to meet about one-tenth of its demand for pulses and close to half of the demand for edible oil from imports. In these circumstances, MSP hike for pulses and oilseeds is a welcome step.

Government as a ritual has been increasing the MSPs ahead of the planting seasons in the hope that they can influence the planting decisions of the farmers. However years of experience has proved otherwise. Pulses MSP has increased over 50 per cent in the last five years but the output has remained stagnant.

Despite the hype surrounding MSP figures announced each year, only a tiny section of Indian farmers benefit from the price-support mechanism. According to the HLC report, just 6% of farmers sell their produce to state-run procurement agencies. In a bid to boost pulses output, the CCEA has approved a hike in MSP of tur or arhar by 9.2% to Rs 5,050 per quintal for the coming kharif season, which includes a special bonus of Rs 425 per quintal. This implies that effective rise in MSP is only Rs 200 per quintal. Similarly, for other pulses like moong and urad, the MSPs have been increased by more than 7% to Rs 5,225 per quintal and by more than 8% to Rs 500 per quintal, respectively. This also includes a bonus of Rs 425 per quintal for both the pulses. Unfortunately, prevailing market rates of pulses like tur, moong and urad are substantially higher than MSP, so any increase will not have much impact.

Incentive prices in the form of minimum support prices are essential to the success of agricultural production programs. However, that should be tailored to the demands of the current agriculture scene.

Paddy Research set to get a Boost

IRRI to set up a research hub in UP

Uttar Pradesh, the country's second largest rice producer, would soon have a South Asian regional centre of Manila-based International Rice Research Institute (IRRI). The proposed research hub would go a long way in helping paddy farmers of not only Uttar Pradesh but also farmers around the country.

Uttar Pradesh, an ace rice producer of the country, is a suitable candidate to host the world's premiere rice research institute. The state has as many as nine varied agro climatic zones suitable for paddy varietal research. The state government is expected to provide the land for setting up rice research facility, IRRI would invest in physical infrastructure such as labs and other facilities. This development would be beneficial for not only Uttar Pradesh, but for the entire South Asian region as it would provide ample scope for research and development of varieties suitable for the varied areas and conditions. This comes with the decision of the IRRI administration to decentralise its research activities which are currently localised at its head quarter located on the outskirts of Manila, the Philippines.

Paddy is grown in all the 72 districts of Uttar Pradesh with low to high acreage and the state's contribution in India's rice production stands at around 14 per cent. The country's annual production of rice is around 104 million tonnes. The state has its share of paddy research activities being carried out in many research centers and organizations situated in the state. Currently, three agriculture universities — Narendra Deva University of Agriculture & Technology, Faizabad, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur and Sardar Vallabh Bhai Patel University of Agriculture & Technology, Meerut that are also involved in the rice research and development programme. Under the National Initiative on Climate Resilient Agriculture (NICRA) programme, various ICAR affiliated institutes and state agricultural universities are also engaged in developing climate resilient varieties and production technologies to address the possible negative impact of climate change on future rice production and thereby increasing the production and profitability of rice. Cuttack-based National Rice Research Institute (NRRI), along with other national and international research institutes including IRRI, have developed climate resilient rice varieties tolerant to submergence (Swarna Sub-1), drought (Sahabaghidhan), salinity (Luna Barial and Luna Sankhi) and high temperatures (Naveen). So far, NRRI has developed 115 rice varieties. Recently, NRRI has developed 'CR Dhan 310' variety which has 10.5- 11% protein content in comparison to 6% in the most of the rice varieties. Besides, in the field trials the new variety has produced a yield of 5 tonne per hectare against usual 3-4 tonne in the conventional paddy varieties. Addition of IRRI center into the paddy research map of the state will surely propel the state's research ambitions in the crop. Philippines has benefited a great deal with presence of IRRI.

Over a 25-year period, Filipino farmers have gained an additional US\$52 (Php 2,300) per hectare from using improved rice varieties derived from the breeding work of the International Rice Research Institute (IRRI). This finding came after the Australian Centre for International Agricultural Research (ACIAR) examined the benefits of investment in IRRI's plant breeding – the science behind improving rice varieties. The study covered three major rice-producing countries in Southeast Asia – the Philippines, Indonesia, and Vietnam. IRRI works with all three countries' agricultural research and extension systems to advance its improved rice and distribute it as new varieties to local farmers. Indonesia had the highest gains in rice yields (13%) over this time of the three countries. This increase in rice yield is equivalent to an increased return of \$76 per hectare - a significant benefit to Indonesia's rice farmers.

IRRI's presence in India will surely boost country's rice production – quantitatively and qualitatively. India is one of the top producers of the rice in the world, but the productivity of rice is low compared to other major producers of rice. Also, in the scenario of changing climate, India should invest heavily in research to develop climate resilient varieties. IRRI's research hub will augment India's paddy research capabilities.

Monsanto to Form Sorghum JV with Pvt Co

US seed and agro chemicals company Monsanto said it is selling its US sorghum production assets to Remington Holding Co and will roll its sorghum breeding business into a joint venture with the privately held company, in transactions valued at about \$169.5 million. Monsanto's global sorghum breeding business will be a part of the joint venture called Innovative Seed Solutions, which will initially be focused on sorghum, a drought-tolerant grain



crop that is used as animal feed and to produce ethanol biofuel. Remington will contribute cash to the venture. The move comes in a period of heightened deal making in the agricultural seeds and chemicals industry.

NCDEX links up 8,000 farmers on its platform

NCDEX, an agriculture-focused commodity futures exchange, has got 8,000 farmers to trade on its platform through four farmer producer companies (FPC) in the last 12 months.



The FPCs from Rajasthan, Madhya Pradesh and Bihar act as aggregators of farm produce and take a sell position on the exchange platform. Later, as the month-on-month spread gets lucrative, they roll over their positions to the next month. This has ensured that farmers receive almost 15-20 per cent higher returns over the previous year, said the exchange, in a statement on Wednesday. Additionally, timely settlement and payments have helped build liquidity for farmers, it added. NCDEX has conducted over 135 programmes in association with the National Skills Foundation of India across Rajasthan and Madhya Pradesh, educating over 4,000 farmers.

Companies call for higher prices of Bt cotton seed

Hybrid seed companies body National Seed Association of India (NSAI) has urged the Union agriculture ministry to increase the maximum sale price (MSP) of genetically modified (GM) Bt cotton seed by Rs 75 per packet and also impose a premium of Rs 100 per packet for a period of three years on new cotton hybrids, as an incentive for companies to invest in research and development. The agriculture ministry in March this year had notified MSP for widely used Bollgard II (BG II) variety of Bt cotton seeds at Rs 800 per packet. The MSP would be applicable across the country for the 2016-17 season. This price includes trait fee of Rs.49 per packet, down 70% from the current level, in what could hit technology provider Mahyco Monsanto Biotech (MABL).



MMTC invites bids to import 5,000 tonnes of pulses

State-run MMTC is looking to import 5,000 tonnes of pulses to keep the domestic prices under control by increasing the availability of lentils. The gap in demand and supply of pulses has widened in the last two years due to drought. Pulse production is around 17 million tonnes while demand is for 23.6 million tonnes (MT). The country had imported around 5.5 MT of pulses in 2015-16, there is still a shortfall of around 1 MT, putting upward pressure on prices. The government is importing pulses through MMTC, using Price Stabilisation Fund for creating buffer stock of pulses and other essential commodities so as to intervene in the market to check prices when need arises. According to the tender document, the MMTC has invited bids for import of desi chick peas from Canada or Australia. The bid should be made for minimum 2,500 tonnes. "Note that all the pulses quoted shall be from new crop and shall be sound, clean, wholesome, free from moulds/fungus, artificial colour, admixture of unwholesome substance and should be of reasonable uniform size, shape and colour characteristics," MMTC said in the tender. The Centre is procuring pulses to create a buffer stock of 1.5 lakh tonnes. State-run agencies FCI, NAFED and SFAC had already procured 1.11 lakh tonnes of pulses so far from farmers for creating buffer stock. At the same time, for raising lentils' domestic output, the Centre has raised their minimum support price (MSP) by up to Rs 425 per quintal for this year.



Duncan group: Eols to run 7 tea gardens find no takers

Nearly six months after the Commerce Ministry took over the management of seven ailing tea gardens of the Duncan group, repeated invitations seeking Expressions of Interest (Eoi) have failed to elicit a response. On January 28, the Ministry took management control of the gardens in West Bengal with an aim to hand them over to eligible promoters on a 5-11 year management contract. Since the quality of tea assets deteriorates if left unattended, the delay puts a question mark on the success of the tender in future. Tea Board had invited expressions of interest for management control of four Duncan group tea estates: Demdima, Lankapara, Huntapara and Tulsipara. With this, Demdima was put on the block for the third time. In the past, the Board invited Eols exclusively for Demdima on February 12 and April 28. Both the offers failed. Eols for Lankapara, Huntapara and Tulsipara were previously sought along with three (Birpara, Garganda and Dhumcipara) more Duncan gardens. The tender was issued on March 21. Tea Board sources say that they have diluted the working capital requirement clause to attract the attention of planters. Unlike in the past, the Board did not quote any number on working capital guarantees in the latest tender.



MCX eyes product innovation, to launch agricultural offerings

Product innovation and the launch of agricultural products are the key focus areas for MrugankParanjape, the new managing director and chief executive officer (CEO) of Multi Commodity Exchange (MCX). Paranjape took charge at MCX on 9 May after working with Deutsche Bank for the past 14 years. This is his first stint at the helm of an exchange. "It was a challenge but I believe that this space and platform has great scope for growth," Paranjape said. "We could have done more on product innovation. However, the exchange was focussing on giving more comfort to the regulators that we have things under control," said Paranjape. Having been founded by the same promoter—Jignesh Shahled Financial Technologies Ltd (FTIL)—the MCX management underwent a complete overhaul with P.K. Singhal handling the affairs of the exchange as joint managing director for the past two years.

IIL in talks with Japan, US companies for products

Agrochemical manufacturer Insecticides (India) Ltd (IIL) is planning to bring some products of Japan and the US to the Indian market. "We are in talks with a Japanese firm and a US company for technology and distribution agreements to bring their products to Indian market," its Managing Director Rajesh Aggarwal told newsmen at a press conference held. He did not, however, disclose any further details on the matter. The company, which has just launched an herbicide, Green Label, for the paddy crop, has also lined up over half-a-dozen products for the launch. "We have a strong pipeline for products on new formulations and combination products to be launched shortly," Aggarwal said. Though the company plans to launch Green Label in all markets across the country, major markets were Uttar Pradesh, Chattisgarh, Madhya Pradesh, Haryana, Punjab, Telangana, Andhra Pradesh and Karnataka, he added.

FCI inks pact with Adani Group to build two silos

State-run Food Corporation of India (FCI) has entered into an agreement with Adani group for construction of two silos to store wheat, at an estimated cost of about Rs 80 crore. The two silos would have a combined storage capacity of 75,000 tonnes. As part of the agreement, AdaniAgri Logistics will construct silos at Kotkapura in Punjab and Katihar in Bihar in the next two years, a senior government official said. The silos will be designed, built, financed and operated by the private partner while it will be owned by the FCI. FCI, the government's nodal agency for procurement and distribution of foodgrains, would provide guarantee of rentals for 30 years, the official added. The silo at Kotkapura would be of 25,000 tonne capacity and will require an investment of about Rs 35 crore, while the other silo at Katihar would have a capacity of 50,000 tonnes to be built at a cost of about Rs 45 crore, a source said. A silo is a steel structure, comprising large size cylindrical shape bins normally each with a capacity of about 12,500 tonnes, where grains can be stored without jute bags for longer duration. FCI will provide the rent assurance for 30 years. For the first year the rate is fixed at Rs 97 per tonne per month. The rates will keep on revising based on the predecided formula, the source added. At present the total storage capacity under silos is about 10 lakh tonnes. Out of which 5.5 lakh tonnes is with FCI and remaining is with state-agencies.



Make GM mustard data public, biotech regulator tells developers

► The country's top biotechnology regulatory body asked developers of a genetically-modified mustard variety to place documentation related to the variety in public domain in the next few weeks to facilitate a fresh round of public consultation. The Genetic Engineering Appraisal Committee (GEAC) under Environment Ministry met Monday to consider the pending decision on GM mustard and to take up fresh applications for research trials of new GM crops. The GM variant of mustard, called DMH11 (Dhara Mustard Hybrid 11), has been developed by the Centre for Genetic Manipulation of Crop Plants at the Delhi University. It has gone through Biosafety Research Level-1 (BRL-1) tests in 2011-12 and 2012-13, and through the BRL-2 tests in the 2014-15 season. An expected clearance for commercial cultivation of the crop by GEAC in February year was deferred following protests from NGOs and activists. Anti-GM NGOs landed up at the GEAC meeting Monday as well, asking to be heard. Sources said they were asked to make their case in 30 minutes, the same time that was offered to a farmers' representative organisation that had come. The NGOs, however, asked for at least two hours to put their point across, but it was not granted. Unhappy, the anti-GM activists called the DMH-11 a "major scientific fraud" at a press conference that had been scheduled well in advance.



25% import duty on wheat further extended

► The government has decided to further extend 25 per cent import duty on wheat to curb inward shipments as domestic output is estimated to have gone up by 9 pc. "Twenty-five per cent import duty on wheat has been continued further," Food Minister Ram Vilas Paswan said in a tweet.



Agri output to double with 80k-cr irrigation scheme

► To boost agriculture production, the government is planning to bring two crore hectares of land under irrigation through various schemes including Rs 80,000-crore AIBP, Union Minister Nitin Gadkari informed. Terming severe water crisis in 11 states as the main cause behind farmers' plight, the Road Transport, Highways and Shipping Minister said irrigation schemes were being fast-tracked to provide relief to the agrarian community. "Two crore hectares of land can be irrigated and agriculture production could be doubled through agriculture schemes including Accelerated Irrigation Benefit Programme (AIBP) for which a provision of Rs 80,000 crore has been made in the budget," Gadkari said addressing a workshop on 'Liberating the Farmers from Death Trap' here. Besides the AIBP for 89 projects, a provision of Rs 20,000 crore has been made under Pradhan Mantri Sinchai Yojana. Maharashtra's 28 projects are included in the AIBP, the minister said. Admitting that farmers' suicide was a sorry state of affairs, he said the Centre was committed to addressing their problems and bring more cultivable areas under irrigation. Presently, only 46 per cent of the cultivable area is irrigated. As far as loans were concerned, the minister said a provision of Rs 9 lakh crore in the priority sector lending was made for agriculture sector only. Crop insurance scheme will also provide relief to farmers, he said.



Coconut board clears 18 value-additions projects

➤ The Coconut Development Board (CDB) has cleared 18 projects in coconut value-addition, with an outlay of about Rs 12.76 crore. This includes production of shell charcoal, adding mills' annual processing capacity and product diversification as in flavoured coconut milk, ready-to-drink products, virgin coconut oil production and desiccated coconut powder.

The board has approved financial assistance to the tune of Rs 2.75 crore for annual processing capacity of 493 lakh coconuts and 3,300 million tonne (mt) production of shell charcoal, said a CDB chairman AK Singh, after the 48th meeting of the board's project approval committee (PAC). Under



the sub-component 'Processing and Product Diversification', five projects for desiccated coconut powder for processing 300 lakh nuts per year, three virgin coconut oil units for processing 105 lakh nuts per year, one coconut-based food production unit with a capacity to process 2 lakh nuts per year, two copra dryer units with processing capacity of 60 lakh

coconuts per year, four ball copra-making units with processing capacity of 26 lakh coconuts per year and two shell charcoal units were sanctioned. CDB Institute of Technology in Aluva, Kerala, has developed four flavours of 'flavored coconut milk, a 'ready-to-drink juice' in lab scale. For pilot testing of the product, PAC has sanctioned Rs 52.20 lakh. A unit for virgin coconut oil processing with a capacity to process 5,000 nuts per day, one coconut-based food unit for processing 600 coconuts per day, two desiccated coconut powder making units and two copra dryer units with a capacity to process 20,000 coconuts per day were sanctioned in Kerala.

Govt not to hike urea prices for next three years

➤ Government has decided not to increase the prices of urea for the next three years, Union Minister of State for Chemical and Fertilizer HansrajGangaramAhir said on Tuesday. "We have decided not to increase the urea price in the next three years," the union minister told reporters here. Claiming that shortage of fertiliser, including urea, the minister said the farmers could get required the quantity of fertilisers. "Some of the measures have been taken for the benefit of the farmers as the NarendraModi-led government's thrust is on the welfare of the farmers," he said. The union minister further said the government has been encouraging farmers to use neem-coated urea. "Investment in neem coated urea was less than the general urea. Production will also increase with the application of neem-coated urea," he added.



Centre plans alternative to Bt cotton

➤ The Union government is working to develop a suite of Bt cotton genes that can be integrated into traditional varieties and be made available to farmers as a viable alternative to the current technology, which is largely sourced from Mahyco Monsanto Biotech India Ltd. (MMB). The Indian Council of Agricultural Research has for many years unsuccessfully tried to develop Bt cotton, which contains insecticidal genes sourced from a soil bacterium and targeted at key cotton pests. However, officials told The Hindu that this project would be led by the Council of Scientific and Industrial Research (CSIR) and the Department of Biotechnology (DBT). There were already several genes available in various labs and stages of development, but the aim was "that India not be dependent on foreign technology", said a top official privy to the project but who did not want to be identified. While Bt cotton has always been controversial, it is now in the throes of a new controversy with the Agriculture Ministry mooting a change in the way seed companies and seed-technology companies such as the MMB share royalty, technology and determine the price as which farmers buy cotton seed. Different arms of government are split over whether seed tech companies have the right to, or are obliged to license, their technology to seed companies on request. More clarity is expected to emerge on this issue within the next few months.

Areas under minor millets cultivation shrinking in Orissa

➤ Traditionally-cultivated minor millets are the major sources of sustenance for lakhs of tribals and Other Traditional Forest Dwellers living in southern and western parts of Orissa. Over 170 varieties of millets are cultivated in the hilly and forested areas in the state. Some of the prominent minor millets largely cultivated in Orissa include sorghum (jawari) spiked millet (Bajra) and finger millet (Ragi/Mandika), among others. The nutritional value of the minor millets have not only been proved beyond any doubt, but also their disease resistance values have been well recognised. However, increasing focus on crops like paddy, wheat have resulted in the tribals and OTFD communities slowly moving away from these crops. "It is unfortunate that after Independence our agricultural policies always focused on increasing paddy and wheat production. We have succeeded in increasing of paddy and wheat production by at least 125 per cent and 285 per cent, respectively. But, it's shocking that the minor millet production has registered a (-)2-5 per cent growth," Mr Jagdish Pradhan, former member, National Commission on Farmers, said. Minor millets, as Mr Pradhan put it, are drought-resistant and they cope with any kind of climate change conditions. Besides, millet crops do not require huge investments in chemical fertilisers and pesticides as they can be grown better with the use of organic manure and natural pest-control mechanism, he said. However, because of inadequate support by the state government as well as encouragement to the forest dwellers to adopt new food habits with rice and wheat as major components, the areas under minor millet cultivation are shrinking steadily.



Rs 109.35 cr Agri Action Plan under RKVY approved

➤ The State Level Sanctioning Committee (SLSC) headed by Chief Secretary, B R Sharma today accorded sanction to the proposed Agri Action Plan of Rs 109.35 crore under Rashtriya Krishi Vikas Yojana (RKVY) and National Mission on Saffron for the year 2016-17.

The proposed allocation under RKVY (Normal) is Rs 37 crore and under the National Mission on Saffron, allocation is to the tune of Rs 72.35 crore. The sanctioned plan will be submitted to the Union Ministry of Agriculture for release of funds. While reviewing the progress of implementation of the scheme, Chief Secretary called upon Agriculture Department to undertake evaluation/field studies of RKVY impact, both in terms of addressing field level infrastructural gaps and also benefits that have accrued to the farmers in the form of yield and returns. "Under RKVY, focus should have been on achieving quantifiable outcomes in agriculture and allied sectors, however, it is observed that State has not been able to reap the benefits of the scheme to satisfactory levels and consequently agriculture sector has not recorded major improvements on ground as was expected", Chief Secretary said.

Chief Secretary also underlined the need to work harder under the National Mission on Saffron to revive the economic potential of the Saffron crop in the traditional Saffron growing belts of the State. "Department needs to work harder so that entire amount of Rs 400 cr allocated under the flagship Saffron Mission is utilised and Saffron records improvement both in terms of yield and quality", he said. The National Mission on Saffron was launched in J&K in the year 2010-11, as a flagship project of Rs 400 cr. Till date, an amount of Rs 205 cr has been released. For the year 2016-17, an action plan of Rs 72.35 cr has been proposed.

Mahagovt to remove restrictions on sales by farmers in retail markets

➤ Maharashtra will soon make it easy for farmers to sell perishable commodities such as fruits and vegetables to whosoever they want, with the government set to remove restrictions that force them to sell only to wholesale traders. An ordinance will be introduced in the Assembly and thereon compulsions shall be removed for the farmers to sell only to Agriculture Produce Market Committees, Chandrakant Patil, state minister for cooperation, said. The minister also hastened to add that this does not mean that APMCs will cease to exist. They will exist alongside and farmers will have the option of selling their produce to whosoever they want, he said. The reform cannot be introduced unless the APMC Act is amended, he added. "At present, the 350-odd APMCs in the state do a business of some Rs 50,000 crore and if these reforms kick in, at most the APMCs may lose business worth Rs 10,000 crore. Therefore the fear that APMCs may shut down or traders will lose business is not correct. We are giving farmers an additional option. If they find it difficult to directly sell to the consumer, they are free to approach the APMCs," he said. Patil was speaking on the sidelines of a meet held by Krushak Farm on sustainable farming held in Pune.

Haryana govt approves climate resilient agri practices

► To make agriculture production system more flexible to climate change, Haryana government recently approved a Rs 25 crore project that will benefit 75,000 farmers. The state level steering committee, which met under the chairmanship of Chief Secretary D S Dhesi, here approved the detailed project report of this ambitious project. Climate resilient agriculture practices include all possible methods that are required to make agriculture production system more flexible to climate change, an official release said here. The project will be implemented in northern part of the state and benefit 75,000 farmers.

This project proposes to sustainably intensify crops and cropping systems in Haryana for enhancing and sustaining production at less cost by adopting climate resilient technologies, without deteriorating soil health while maintaining the flow of environmental services. It was observed that some areas are not



equipped with water storage structures for agriculture resulting in low crop productivity, it said. Farmers are also relying on ground water for fulfilling their water demand, leading to the reduction in ground water levels. These areas have also been selected based on availability of water for agriculture purpose, farms having nutrient imbalance, farmers implementing residue burning. It was observed in the meeting that in order to adapt agriculture to increasing effects of climate variability and change, there is a need to transform traditional agricultural practices to more climate resilient agricultural practices.

J&K govt to spend Rs 500 cr on horticulture development

► Jammu and Kashmir government will spend Rs 500 crore from the Prime Minister's Development Package for the state on development of Horticulture sector. "Under PM's package, Rs 500 crore would be spent on Horticulture sector in the state," Minister for Agriculture Production Ghulam Nabi Lone said.

Maha on top to provide soil health cards to farmers

► The Maharashtra has topped in the distribution of soil health card in the country, with 34.62 Lacs out of total 1.37 crores have been cards given. After Maharashtra, the Tamil Nadu is on second position with 24.31 Lacs farmers equipped with soil health card. Andhra Pradesh, Gujarat and Uttar Pradesh have also listed themselves in top five states in the country. Maharashtra Government has aimed to cover all its farmers with the cards by March 2017. The soil health card provides assistance to the farmers about the crops that can be cultivated for good yield. Apart from this, preventing indiscriminate use of fertilizers, the soil health card also apprises the farmers with the information about quantity and type of fertilizers for good quality and healthy production. Officials from agriculture department hope that soil health card will help in reducing use of the fertilizers and change the face of the rural economy. They said that the three consecutive droughts had badly hit the agriculture sector. On the backdrop of the expected above average monsoon this year, the farmers who have begun the sowing will be provided the fertilizer as per the prescription of the card they hold. They said, "The soil health card will save the farmers from using excess of Urea and other fertilizers. It will also help the department to save tonnes of fertilizers." Another officer said that there are 167 labs for soil health check-up including 29 district government labs. The expenditure of making of soil health card is Rs.190. It is given to farmers free of cost. The center is sharing the 60 percent of expenditure of the total cost and rest is being borne by the state government. The agriculture department has also instructed to all the divisional commissioners about effective use of the soil health card. To that end, an agriculture assistant officer of the district has been given responsibility of three villages for effective use of it. Beside, agriculture officers are also ordered to create awareness among farmers about it. A senior officer of Mantralaya said, "In the Kharif season, the impact of soil health cards will be seen in the production of the Banana, Sugarcane, Onion, Peanuts and Paddy crops in Pune and Nasik divisions as the numbers of the card holder farmers of these two divisions are highest in the state." What is Soil health card? Ministry of Agriculture and Farmers welfare of Union Government launched a scheme to provide every farmer a Soil Health Card in February 2015. The soil health card studies and reviews the health of soil or rather it can be said that a complete evaluation of the quality of soil right from its functional characteristics, to water and nutrients content and other biological properties. The card also carries measures that a farmer should adopt to obtain a better yield.



Reliance, Bajaj Allianz, ICICI Lombard to insure crops in Haryana

➤ To protect farmers from vagaries of weather, the Haryana Government has awarded contracts to three general insurance companies, namely Reliance General Insurance, Bajaj Allianz General Insurance and ICICI Lombard to provide crop insurance coverage to the farming community in the current kharif season under Pradhan Mantri Fasal Bima Yojna (PMFBY). The state government has initiated the process and soon a notification will be issued for the implementation of the scheme. For the current kharif season, the state government has notified four crops, namely cotton, paddy, bajra and maize. As per the scheme, the sum assured for paddy crop has been fixed at Rs 62,500 per hectare, cotton (Rs 60,000), bajra (Rs 27,500) and maize (Rs 25,000 per hectare). For the

effective implementation of the scheme, the state has been divided into three clusters and each insurance company has been assigned a particular cluster. According to the state government, Cluster-1 comprises Panchkula, Kurukshetra, Faridabad, Kaithal, Sirsa,



Bhiwani and Rewari. Under Cluster-2, Ambala, Karnal, Sonapat, Hisar, Jind, Mohindergarh, Gurgaon has been designated. Further, Yamunanagar, Panipat, Palwal, Rohtak, Fatehabad, Jhajjar, Mewat will come under Cluster-3. The scheme is open both for loanee and non-loanee farmers with July 31 as the last date for the deposit of the premium. In case of loanee farmers, it is mandatory for the banks to bring them under the ambit of PMFBY. If the banks fail to do so, then in case there is crop loss to a loanee farmer who is not insured, the bank will have to make good the losses. The premium paid by farmers would be reduced to 2% of the insured value for the more rain-dependent kharif crop and 1.5% for the rabi season, compared with 3.5-8% under the previous schemes.

Govt disburses Rs 12k crore crop loans

➤ While the India Meteorological Department (IMD) has predicted a favourable monsoon this year, the state government has completed the disbursement of crop loans worth Rs12,064.93 crore to over 1.9 million farmers in the state by the end of May 2016. Chief minister Devendra Fadnavis has told the officials concerned in various departments that while the monsoon predictions are good, all the departments should ensure that no farmer is deprived of any facility — be it seeds, fertilisers or crop loans that are vital for sowing seeds. Fadnavis has told the officials that since the pre-sowing season has started and farmers need to avail the seeds for sowing, banks should ensure that necessary finances are provided to the agriculture sector. The State Level Bankers Committee (SLBC) has finalised a target of Rs51,235 crore for crop loan disbursement for the year 2016-17. The SLBC has decided that out of this target, the banks would be disbursing Rs13,568 crore for the rabbi season, while Rs37,677 crore would be disbursed for the kharif season. The district cooperative banks have been earmarked for a target of Rs13,114 crore, while commercial banks have been given a target of Rs22,168 crore and rural banks have been asked to disburse crop loans worth Rs2,395 crore. There are 1.36 crore and 43 thousand registered farmers (khaatedar shetkari) in the state and the government has decided to provide crop loans to at least 80% of these farmers. Fadnavis has directed the officials to organise district-level conventions of farmers so that loan restructuring is made easy and farmers can avail the fresh crop loans.

NABARD may fund four organisations of farmers

➤ The National Bank for Agriculture and Rural Development (NABARD) is supporting promotion of four new Farmers Producers Organisations (FPOs) in Thanjavur district through the Producers Organizations Promoting Institutions (POPIs). These FPOs would improve the bargaining power, net income, and quality of life of small and marginal farmers, according to the NABARD District Development Manager K. Subramanian. He was here to review the field progress made by a POPI, the ICRISAT, near Papanasam in Thanjavur district. The companies would be promoted at the block level with a minimum membership of 500 farmers. The ICRISAT has been sanctioned as POPI to promote a FPO in Papanasam block while the Dhan Foundation has been sanctioned three FPOs in Ammapettai, Thanjavur and Kumbakonam blocks.

Rabobank-led fund to buy minority stake in Parijat

► Rabo Equity Advisors, the investment advisors for the \$200-million India Agri Business Fund-II, have announced around Rs 100 crore investment in Parijat Industries by the fund to acquire a minority stake, a company statement said. Parijat is an Indian agrochemical player with a presence in 70 countries, six international offices and exclusive distribution networks in India, West Africa, Russia and members of the Commonwealth of Independent States. "Parijat is looking to achieve sales of Rs 15,000 million (Rs 1,500 crore) by 2021 and also expand its domestic distribution network to 10,000 retail points in three years from 4,500 at present, thereby expanding its presence through the country," the statement said. "Parijat is also recognised in the industry for introducing and promoting new-age molecules." India Agri Business Fund-II is a \$200 million private equity fund targeted at expansion and growth of food and agribusiness companies in India across the value chain. It is sponsored by Rabobank along with anchors such as CDC Group and the Asian Development Bank. This is the second investment by India Agri Business Fund-II, close on the heels of the first one announced last week in the food condiments sector. "We are especially excited at the company's export forays and new products expected to be launched in the domestic market over the next few years," said Rajesh Srivastava, Chairman and Managing Director of Rabo Equity Advisors.

Crop loan helpline tops panel's suggestion for Maharashtra farmers

► A Maharashtra government appointed taskforce to address agrarian issues has suggested a five-point agenda to Chief Minister Devendra Fadnavis, to bring at least 80 per cent of farmers into the institutional credit net. Vasant Naik Shetkari Swavalamban Mission, headed by agriculture expert Kishore Tiwari, has suggested that Fadnavis direct collectors of 14 suicide-prone districts of Vidarbha and Marathwada region to start a crop loan helpline, the details of which be published in leading newspapers and the action taken report be submitted to VNSSM. He also suggested to set up village and taluka-level crop loan committees comprising of ground staff and sarpanch which will prepare a list of hardships being faced by credit-starved farmers. "Tehsildars, block development officers, taluka agriculture officers and other government and bank officers along with the local MLA should be a part of the committee. They should be empowered to take corrective action so that a smooth crop loan disbursement is done," Tiwari said. He further said all banks should put big flex boards requesting farmers to come for fresh crop loans, and contact numbers of all senior bank officials, the district collector and the VNSSM chairman should be displayed prominently. Tiwari said banks which do not comply with government norms of disbursing loans should be sent notice for criminal action and list of such banks should be sent to RBI for further action.

Govt speeds up efforts to give loan to farmers

► After imposing a Krishi Kalyan Cess of 0.5% on all taxable services from June 1, the government is now speeding up efforts to benefit farmers through this fund, DHNS reports from New Delhi. Through this cess, loans will be provided to support activities that create income to farmers to hedge against the vagaries of agriculture. The loans will be on "extremely nominal" interest rates and will be given to farmers for buying rickshaws, auto rickshaws, opening saloons, opening repair shops for vehicles and opening dry cleaning shops and the likes. "The idea is that during the agricultural lean season, the farmers can take up some other activities to earn additional income," sources said. They said that the fund will also ensure that the farmers have an alternative source of income during drought or floods. From two back to back droughts punctuated by unseasonal rains have lowered farm income and affected production of key crops such as rice, wheat, sugar and cotton among others. This has also affected rural demand for consumer durables and non-durables as shown in the government data from time to time.



Mango exporters see more shipments with UP crop

➤ A year after the European Union (EU) and countries such as Japan and Mauritius opened their doors to Indian mangoes, exporters are looking to capitalise on the opportunity.

While the peak season for varieties such as alphonso and kesar from Maharashtra and Gujarat is nearing its end, traders see a robust export opportunity in other varieties such as dasheri from Uttar Pradesh. Exporters claim that with the opening of the wider market and superiority in quality over mangoes from Pakistan, Indian mangoes have fetched better prices over last year. "As against \$14-18 per box (of 3 kg) of alphonso last year, this year, the price hovered around \$20. The market is better than last year and there is no competition from Pakistan. We have better quality with bigger fruit this year," said Bhavesh Jotangia, partner at M&J Enterprise, Vashi, Mumbai. Exports are expected to rise this year from around 36,000 tonnes in 2015-16. "The season is still on.



Different regions have a different period for mango arrivals. The crop is good this year. And exports have been good so far, we expect the exports to rise further after arrival of mangoes from Uttar Pradesh," said a mango trader from Lucknow. Interestingly,

this year, mango growers have expected an average 10 per cent rise in the crop across India. In 2014-15, India produced 185.27 lakh tonnes of mango with Uttar Pradesh being the top producer with more than 43 lakh tonnes.

Indonesia raises quality issue for groundnut export

➤ After Vietnam raised concerns over the quality of groundnut shipments from India, the plant quarantine department in Indonesia has restricted its import from India due to discovery of aflatoxins. These are poisonous and cancer-causing chemical produced by certain moulds which grow in soil, decaying vegetation, hay and grain. Indonesia has also sought testing for aflatoxin and pesticide residues in groundnut consignments from India. For which, their authorities have approved only six of 21 laboratories registered with our Agricultural and Processed Food Products Export Development Authority (Apeda). With this inadequate number of laboratories approved by the Indonesian authorities, exporters here are facing delays up to three weeks for certification of containers. "We have sought approval for more laboratories from the Indonesian authorities of the 21 registered with us. We have noticed exporters facing congestion in getting certification for groundnut consignments," said



a senior Apeda official. India's groundnut exports stagnated at 536,929 tonnes in 2015-16, after a sharp decline from 2013-14 when these were a record of 708,386 tonnes, worth \$760 million. Indonesia is the second largest destination of India's groundnut export, after Vietnam. Apeda data show groundnut export to Indonesia was 173,966 tonnes (\$202 mn) in the first 11 months of 2015-16, as compared to 183,355 tonnes (\$191 mn) the previous year. Exports to Vietnam face problems due to discovery of 'Olivier' bugs in some consignments. Apeda has urged the Vietnamese authorities to accept consignments after fumigating the container once more.

World's first tea futures contracts may be introduced in Kenya

Kenya, the world's biggest exporter of black tea, is considering introducing the world's first futures contracts for the leaves to help stabilise prices and enable growers to guarantee income from their production. "INTL FCStone Inc., based in New York, has held talks with industry representatives in the East African nation about introducing the derivatives," Stuart Ponder, Senior Vice-President for emerging markets, said in an interview on June 13 in Nairobi. "The company has prepared a report for clients in Kenya on the securities potential," he said. The Nairobi Securities Exchange is already planning to start trading equity-index and currency futures in the second half of the year and supports the proposal. "The ability for farmers to be able to hedge out their pricing risk will be a big win," Terrence Adembesa, Head of Derivatives at the bourse, said in an interview. "Another plus is the ability to provide a platform for investors who want exposure to a certain asset class that they currently don't have." Tea is the world's most widely consumed beverage, after water, according to the Food and Agriculture Organisation. Kenya ranks as the world's third-largest producer of the leaves, behind India and China, and hosts the biggest auction of the crop, in the port city of Mombasa. While there are futures contracts for commodities such as coffee and orange juice, there are none for tea because of the difficulty in standardising the plant given differences in the types and quality over seasons and harvests, the FAO says.



2015-16 tea production, exports at record high: Board

India achieved record production and exports of tea in the last fiscal year, according to the Tea Board. In a press release issued, the Board said production grew by three per cent (36 million kg) during the last fiscal to 1,233 m kg, riding on 7 per cent production growth in Assam, which contributes half of the country's total tea output. Production increased by a marginal 1.68 per cent in Bengal, and declined by 6.95 per cent in South India, both of which account for one-fourth of the total. Production declined by a sharp 15.73 per cent in Kerala due to labour unrest. Nearly one-third of total production was contributed by small growers through bought-leaf factory (BLF) routes. Small growers contributed 53 per cent of production in Tamil Nadu, 40 per cent in Bengal and 27 per cent in Assam. CTC teas dominate production, contributing 91 per cent of the total. However, production of Orthodox and green teas is rising at a faster rate. On the export front, the country breached the 230 m kg mark after 35 years by exporting 232.92 m kg of tea worth Rs 4,493 crore in 2015-16. When compared to 2014-15, export volume and value were both up by 17 per cent. India exported 231.74 m kg of tea in 1980-81, riding on Russian buying. The previous highs were 242 m kg in 1976-77 and 233.09 m kg in 1956-57.

India-EU wastewater project boosts crop yield by 40 per cent

Crops such as okra, brinjal and chilli plants — irrigated with re-used treated waste water under a jointly funded India-European Union project — have shown increased yields of up to 40 per cent as compared to those irrigated by fresh water, according to a review. The technology for integrated bio-treated wastewater reuse, developed under the joint project 'Water4Crops' launched in 2012, was put to use on a pilot basis in five States — Karnataka, Andhra Pradesh, Telangana, Maharashtra and Uttar Pradesh. "This technology of treated domestic wastewater is finding acceptance amongst the rural people and has good potential to scale-up in the country to address the issues of health and sanitation in rural areas as well as meeting the water demand for agriculture," said Suhas P Wani, project leader and director, Asia region, Icrisat. The approximate cost for developing a wetland project is between Rs 3 lakh and Rs 5 lakh, depending on its size, Wani added. Under the project, many wetland plant species such as canna indica, lemongrass, naiper, para grass, typha, water hyacinth, water lettuce and a weed species *Agaratumconyzoides*, have been identified for purifying the wastewater.

Narendra Singh Tomar takes charge of the Rural Development Ministry



➤ Narendra Singh Tomar was appointed as the Union Rural Development Minister in Modi's recent cabinet reshuffle. Replacing Shri Birender Singh, Tomar was the Minister of Steel and Mines before moving to his new assignment. Born in Gwalior District of Madhya Pradesh on 12th June, 1957, Shri Tomar was elected to the Lok Sabha for the second term from Gwalior in 2014. He was also a member of the Rajya Sabha from January 2009 to May 2009. Earlier, he also served as a Cabinet Minister in the Government of Madhya Pradesh from 2003 to 2007 and was a member of Madhya Pradesh Legislative Assembly for two terms during 1998 to 2008. A graduate from Jiwaji University, Gwalior,

Shri Tomar is Agriculturist by profession. He has special interest in helping poor, organising blood donation camps and plantation. His new role won't be his first brush with the department, having held the same portfolio in Madhya Pradesh during Uma Bharti's stint as chief minister in 2003. At the time, Tomar was credited with starting several new programmes for the rural sector in the state and his latest assignment in the union cabinet is being seen as a natural progression of that. Tomar's on-the-ground experience in handling matters related to Panchayats and their working and his deep understanding of the rural sector might have clinched the case in his favour.

Agriculture Ministry gets three new Ministers

The new cabinet reshuffle of the Modi government saw three new ministers being inducted into the Agriculture Ministry. S S Ahluwalia, Parshottam Rupala and Sudarshan Bhagat are the new Ministers of State for Agriculture and Farmers Welfare.



SS Ahluwalia, BJP Lok Sabha MP from Darjeeling from being a minister in the PV Narasimha Rao Cabinet to a 'research scholar' for BJP on various key legislations, has links cutting across party lines and is known to speak his mind. A member of the Lok Sabha from Darjeeling, Ahluwalia was previously a Member of Parliament representing Bihar and Jharkhand in the Rajya Sabha in 1986-1992, 1992-1998, 2000-2006, and 2006-2012.



Parshottam Rupala, BJP Rajya Sabha MP from Gujarat was a member of the upper house since 2008. He is currently serving his second term. He has also been a three-time MLA. When Modi was the Chief Minister of Gujarat, Rupala was a Minister for Agriculture.



Sudarshan Bhagat, a Vidyarthi Parishad leader during undivided Bihar in the early 1990s, was elected as MLA in the 2000 Assembly elections held during the undivided Bihar and became Minister of State in the Babul Marandi-led NDA government in Jharkhand. When the Marandi government fell on the floor of the House in 2003, Bhagat was made minister of state (Chief Minister' Secretariat) in the subsequent Arjun Munda government. Later in 2009 Lok Sabha elections, Bhagat defeated Congress candidate and former union minister Rameshwar Oraon.

RALLIS INDIA LTD.

Rallis India Ltd. is one of the country's leading agrochemical companies, with more than 160 years of experience of servicing rural markets. With the most comprehensive portfolio of crop protection chemicals and plant growth nutrients for Indian farmers, Rallis is known for its high-quality agrochemicals as a result of its deep understanding of Indian agriculture and sustained association with farmers.

Renowned for its branding & marketing expertise, Rallis has marketing alliances with several multinational agrochemical companies. Owing to its exceptional manufacturing capabilities and the ability to develop new processes as well as formulations, the company is a preferred partner for contract manufacturing by leading MNC's.



RALLIS INDIA LIMITED
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DOMESTIC CROP PROTECTION

Rallis' wide range of Insecticides, Fungicides and Herbicides has been designed keeping in mind the characteristics of Indian crops, particularly rice, cotton and vegetables. These agrochemicals are spread across 80% of India's districts through an extensive distribution network.

INTERNATIONAL BUSINESS

With exports to more than 70 countries around the globe, Rallis continues to expand its international presence through alliance partnerships and direct distribution.

CONTRACT MANUFACTURING

Rallis offers cost-effective products from its state-of-the-art manufacturing facilities with high emphasis on confidentiality, EHS and quality. To meet current commitments and future aspirations Rallis has recently created a world class facility at Dahej.

SEEDS

Metahelix Life Sciences, which is a Bangalore based seeds research company, (and a fully owned subsidiary of Rallis) has a commercialized portfolio of hybrid seeds.

PLANT GROWTH NUTRIENTS

Rallis has a commendable range of specialist solutions which provide micro nutrients for healthy plant growth and a flourishing crop.

AGRI SERVICES

MoPU : Building upon the concept of Farmer Family known as "Rallis Kisan Kutumb", the company has initiated a programme to boost the productivity of pulses: "MoPu - More Pulses".

The Rallis initiative of "Samrudh Krishi" which focused on imparting agriculture based knowledge right from seeds to harvest to the farmers, has now expanded to newer geographies.

GeoGreen : Organic compost is a recognized brand for soil conditioner, improving the soil health for sustainable productivity.

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CROP PROTECTION CHEMICALS INDISPENSABLE FOR INDIA'S FOOD SECURITY



Crop protection chemicals have evolved as the most common and dependable means of plant health management. Over the years, crop protection industry in India has developed to accommodate the varying needs of the Indian farmers. They have not only helped in protecting the crops from the nefarious pest and disease elements, but in the process has helped farmers in safeguarding their livelihood. Crop protection industry has played a crucial role in India's food security. But unfortunately misguided attempts of using crop protection chemicals without proper guidance have resulted in problems of pest resistance, antibiotic resistance and pesticide residue. The crop protection industry must therefore lay renewed emphasis on creating awareness among farmers on using the appropriate crop protection chemicals in the most suitable way.

India is counted as one of the largest agri producers. Food grains, fruits, vegetables and spices contribute a major share in India's food economics. Considering the burgeoning population and changing food consuming patterns, India needs to propel and maintain food production and supply. For India, which is endowed with appropriate agro ecological resources, augmenting food production may not appear to be a grueling task. However, the losses that India accrues post production and throughout the cultivation period can make this task near to impossible.

India wastes nearly a 40 per cent part of its total food production in value terms. While some of these losses can be attributed to inadequate storage infrastructure, the rest of the damage comes from the pest and diseases which ironically can very well be prevented through appropriate crop protection measures. India, a vibrant agriculture economy, has a very structured and equally robust crop protection industry that can very well cater to the demands of Indian agriculture sector.

Protecting India's Agriculture

Since the green revolution which saw the influx of many improved varieties and hybrids, crop protection has been a critical component of Indian agriculture. India's crop protection chemicals industry, which is the second largest in Asia, second only to Japan, has a size of above Rs 26,000 crore (with almost 50 per cent of production getting exported). However, the per capita consumption of crop protection products in India is amongst the lowest in the world. The per hectare usage of agrochemicals is only 0.6 kg in India, while for UK it is 7 kg and for China and Japan it is 13 kg and 17 kg, respectively.

The crop protection chemicals accounts for about 2 per cent of the total chemicals market in India. The Indian pesticides industry has been growing at 8-9 per cent p.a. during 2007-11. The Indian crop protection industry is expected to grow at compound annual growth rate (CAGR) of 12 per cent to reach \$7.5 billion by FY19, according to a paper released recently by FICCI (Federation of Indian Chambers of Commerce & Industry), in association with Tata Strategic Management Group.

Further, the paper said the exports currently constituted almost 50 per cent of the Indian crop protection industry and were expected to grow at a CAGR of 16 per cent to reach \$4.2 billion by FY19, resulting in 60 per cent share in Indian crop protection industry. While the domestic market on the other hand would grow at 8 per cent CAGR, as it was predominantly

'Develop a Policy Framework Integrated Crop Management and Good Agricultural Practices'



Shri R. G. Agarwal
Group Chairman
Dhanuka Agritech
Limited

"The country experienced low growth in farm sector due to two consecutive deficient south-west monsoons. The Indian Agriculture will have therefore, to reorient itself to meet such challenges. During the first green revolution era, the chemical pesticides use was catalytic in bringing out appreciable growth in foodgrains. On one hand, the country is facing several major challenges including emergence of new pests due to intensive agriculture

and climate change, decrease in arable area, while on other, there is the persistent need for sustainable food and nutritional security for its burgeoning population. It is all the more important to expand area and crops under assured crop protection to save an estimated ~20 to 30 % avoidable crop losses due to pests, though the range was 8 to 90% depending upon crop, season and severity of pest attack (IARI, 2008). Further, plant protection chemicals also help in yield enhancement. I, therefore, call upon the Govt. of India to develop a policy framework along with road-map to encourage farmers for large scale adoption of Integrated Crop Management and Good Agricultural Practices, and launch campaigns to demystify the misconceptions by bringing out science based facts. As agri-input dealers are the primary source of agriculture technology, recently Govt. of India has prescribed degree requirements in selected subjects for renewal of license. It is proposed that the DAESI Diploma awarded by MANAGE, ICAR Institutes/ SAUs may also be included as an alternate requirement".

monsoon dependent, to reach \$3.3 billion by FY19.

Indian crop protection industry is largely dominated by insecticides. They form about 65 per cent of the industry. Other segments like herbicides, fungicides and other (rodenticides/ nematocides) form 16 per cent, 15 per cent and 4 per cent, respectively. This is the reflection of the consumption pattern across India. This is in sharp contrast to the global consumption pattern of agro chemicals. Globally, herbicides constitute about 44 per cent of the crop protection market followed by fungicides at 27 per cent, insecticides at 22 per cent and others at 7 per cent. Tropical climatic conditions and production of crops like paddy, cotton, sugarcane and other cereals in India have driven the consumption of insecticides. Availability of cheap labour for manual weed picking has also contributed to low consumption of herbicides in India. However, the trend is expected to change in future as herbicides, now, are the fastest growing segment due to increasing farm labour wages in India.

India's Consumption Pattern of Crop Protection Chemicals

India's consumption story is a bit different from rest of the world. Insecticides form the largest segment of the domestic crop protection chemicals market accounting for 65 per cent of the total market. It is mostly dependent on rice and cotton crops. However, herbicides are the largest growing segment and currently account for 16 per cent of the total crop protection chemicals market. Dwindling labour force and increasing labour charges have prompted the farmers to depend on herbicides. Among the crops, currently rice and wheat command the lion's share of herbicides. Fungicides, another category of crop protection chemicals account for 15 per cent of the total crop protection market. They are predominantly used



for fruits and vegetables and rice. Export oriented farmers increasingly favour fungicides usage. Also, a small segment, bio-pesticides market is expected to grow in the future owing to government support and increasing awareness about use of non-toxic, environment friendly pesticides.

Crop wise, Cotton and Paddy are the major consumers of crop protection chemicals in India accounting for 50% and 18% respectively of the total domestic crop protection chemicals market. Fruits and vegetables also account for a significant share of the crop protection chemicals market. Cotton, which accounts for just 5 per cent of the cropped area consumes about 50 per cent of the pesticides. Rice grown over 24 per cent of the cropped area uses around 18 per cent, fruits & vegetables raised over 3 per cent consume 14 per cent, plantation crops covering 2 per cent of the area consume 8 per cent and cereals, millets and oilseeds extending over 58 per cent of the area consume 7 per cent. Sugarcane uses 2 per cent of pesticides and other crops grown over 6 per cent of the cropped area account for another one per cent.

State wise consumption of pesticides also differ significantly across the country. Andhra Pradesh, Maha-

rashtra and Punjab account for half of the total pesticide consumption in India. Andhra Pradesh is the largest consumer of pesticides with a share of 24 per cent.

The Indian crop protection chemicals market is highly fragmented in nature with over 800 formulators. The competition is fierce with large number of organized sector players and significant share of spurious pesticides. Recently, the market has been witnessing mergers and acquisitions with large players buying out small manufacturers. Key market participants include United Phosphorus Ltd, Bayer Cropscience Ltd, Rallis India Ltd, Gharda Chemicals Ltd, Syngenta India Ltd, BASF India Ltd, etc. Top ten companies control almost 80 per cent of the market share. The market share of large players depends primarily on product portfolio and introduction of new molecules. Maximum sales of crop protection chemicals are in rural areas. Hence for a wider reach, large manufacturers with all India presence use a three-tier sales and distribution network comprising distributors, wholesalers and retailers. Regional participants cater only to local markets.

Typically, a company with all India presence could have 400-1000 distributors catering to 25,000-

Enabling the Success of Farmers through Innovations as well as Safety

"Agriculture plays a fundamental role in fulfilling many of humanity's basic needs: food, feed, energy. The agriculture industry represents an important component of the Indian economy, both in terms of its contribution to GDP as well as for being a source of employment to a majority of the country's population. However, the last two years have been very challenging for the sector, mainly due to below-normal monsoons. This caused significant rural distress, which in turn impacted many industries dependent on rural consumption. The economy was impacted as a whole, as well.

This year, the good news is that the monsoon forecast is positive, providing much needed relief to the farm sector. But, farming today is more complex than ever before. Unpredictable weather patterns, complex pests and weeds, and market price uncertainties pose a challenge to the farmers as well as industry. Sustainable farming solutions, that address the needs of the customers, play a major role

in addressing these adversities. Safety and product stewardship also go a long way in ensuring long term success of the sector.

With a broad portfolio of fungicides, herbicides and seed treatment innovations, BASF helps farmers sustainably increase their yields and enhance the quality of their crops. We strongly believe in working together for sustainable agriculture and healthy environments. Therefore, BASF is strongly committed to sustainable development and living up to the highest standards in Product Stewardship. We actively work across geographies where we operate, to educate the farmers and spray men, about the responsible use of crop protection chemicals and personal protection measures. Our recently launched 'Suraksha Hame-sha' program helps spread this message, effectively. In summary, BASF is committed to enabling the success of farmers through our innovations as well as safety through our stewardship initiatives.



Rajendra Velagala,
Business Director,
Crop Protection,
BASF South Asia

30,000 retailers. Companies keep their stocks in warehouses or depots from where it is supplied to distributors. Multinationals, at times, enter into co-marketing and co-distribution arrangements with Indian companies. For example, Syngenta entered into an agreement with Rallis for marketing of its products in India. Mid-size and small scale companies operate through direct marketing of their products. Most companies also engage in extension services or field demonstrations to increase farmer awareness and promote their products.

Agro Chemicals Trade

India has a strong export market. Recent times have been witnessing robust growth primarily due to its competence in low-cost manufacturing and technically trained manpower. Seasonal domestic demand, domestic overcapacity and better price realization in the overseas market have also led to this trend. India has emerged as the thirteenth largest exporter of pesticides in the world. However, most of the exports are off-patent products. Currently, the total export value of crop protection chemicals amount to USD 1.9Bn (INR 11,000 Cr). America, Asia (excluding Middle

East) and Europe are the major exporting destinations.

India's excess production capacity against domestic demand is a key growth driver for exports. Besides that, low processing cost is another factor driving the export market. Availability of cheap labor and low processing costs have made India a manufacturing hub with several multinationals setting up their manufacturing facilities in India. India has a very strong presence in generic pesticide manufacturing and has process technologies for more than 60 generic molecules. However, complex registration procedures and decreasing market size for generic molecules in United States and Europe pose a major challenge for the Indian crop protection chemicals export.

Trends in Crop Protection Chemicals Market

Years to come will have increasing focus on improving the crop production. Producing more from less would be the slogan of the future. Cashing in on this opportunity many companies in this segment are making their way into the Indian market space.

Contract manufacturing is an emerging trend in agro-chemical companies. There are several leading companies



in crop protection industry, who are actively involved in contract manufacturing of agrochemicals and intermediates for global innovators. There is a strong presence of MNCs in Indian markets who have the ability and know-how to develop and launch innovative products. For small Indian players, developing capability for contract manufacturing would be easier than capability to invent new chemicals. High investment requirement in R&D for new molecule development and long gestation period of 3-5 years for registration of new chemicals. High investments have deterred Indian players from developing new molecules and have instead led to increased focus on generics. Also, there is a large pool of technically skilled manpower which enables Indian players to develop custom products at low cost. This gives an opportunity for Indian players to tie-up with large MNCs.

Another important factor that has the potential to spur the crop protection industry is the demand to meet India's food demand. India has 16 per cent of the world's population and less than 2 per cent of the total landmass. Increasing population

and high emphasis on achieving food grain self-sufficiency is expected to drive growth. India has 190 Million hectares of gross cultivated area and under the new circumstances the scope for bringing new areas under cultivation is not a possible proposition. Available arable land per capita is decreasing and the unavoidable objective to increase yield per hectare can be achieved through increased usage of agrochemicals especially when crop productivity and pesticide consumption of India is counted as one of the lowest in the world.

Indian farmers are currently showing an increasing interest towards floriculture and horticulture. This would

When the Government pegs India's total value of crops lost due to non-use of pesticides as, Rs. 90,000 Cr every year naturally it comes with an added responsibility from the government to increase awareness regarding the use of agro chemicals

quite necessarily result in increasing demand for agrochemicals, especially fungicides. Increasing agro exports have also warranted an increase in use of agro chemicals.

When the Government pegs India's total value of crops lost due to non-use of pesticides as, Rs. 90,000 Cr every year naturally it comes with an added responsibility from the government to increase awareness regarding the use of agro chemicals. Even agro chemical companies are increasingly training farmers regarding the right use of agrochemicals in terms of quantity to be used, the right application methodology and appropriate chemicals to be used for identified pest problems. So the use of agrochemicals is bound to increase.

Apart from the increase in the use of agro chemicals, better products are also evolving. With more emphasis on producing environmentally friendly molecules, market will see many technologically improved products. There is an increasing focus on development and production of environmentally safe pesticides by the industry as well as the Government.

Quite recently larger companies are focusing on brand building by

conducting awareness camps for farmers and providing complete solutions. Also, an increase in strategic alliances among large players for greater market reach and acquisitions of smaller companies globally to diversify product portfolio has become a common phenomenon. Farmers are also keen on increasing yield and quality of the output. Usage of herbicides and fungicides is on the rise due to increased focus on fruits and vegetables and increased awareness levels among end users.

Newer molecules especially low dosage, high potency molecules are increasingly invested upon. Also, increased focus is laid upon seed treatment chemicals. The advantage of these products is that they require very small volume of the compound and are more effective than the normal crop protection chemicals. Also there is an interest in the bio-pesticides segment with increasing preference for environmentally safe products in the market. With participation from leading corporate houses such as PepsiCo, Reliance Life Sciences, ITC (agri-business division) and McDonalds and Govt. initiatives in policy changes, the trend of contract farming is catching up in the Indian agriculture sector. This is leading to faster technology transfer and adoption and has led to greater market access (both domestic and global). This in turn is leading to fast development of new chemistry products.

Roadblocks

There is immense potential for the Indian crop protection industry to expand. Despite the potential, the industry is yet to expand fully. There are several areas that need to be addressed for the industry to further expand and develop.

There is a sense of lethargy in the Indian market to invest in R&D to develop new agrochemical molecules. The primary



'IPM Packages - Sustainable and Profitable'

"Validation and refinement of Integrated Pest Management (IPM) practices for major crops in varied cropping systems, agro-climatic locations in tune with the emerging problems, assimilation of knowledge base on pests, practices, products



Dr. C. Chattopadhyay,
*Director, National Research
Centre for Integrated Pest
Management, ICAR*

and personnel of the country, linking public and private institutions for effective large-scale implementation of IPM, and training-cum-consultancy in crop protection techniques shall continue to make IPM more effective across the country through higher levels of integration of multi-disciplinary technologies and of stakeholders by means of improved research, education, extension for an enhanced crop and ecological health, and sustainable agricultural growth.

The IPM packages in different crops have been found sustainable and profitable. But they involve several interventions and thereby commensurate input costs. Thus, the present emphasis is on input-wise costs vis-à-vis the specific benefit thereof, which would enable easier decision making by growers on input management for integrated crop health. This could possibly enable better affordability of profitable and sustainable technological excellence, which could lead to better adaptation of IPM technologies through spread and inclusiveness thereof, which would be important in the wake of diminishing returns from unit cultivable land. Networking with different agriculture research centres across the country is enabling provision of pest status on different crops at weekly intervals".



According to pesticides industry body, Agrochemicals Policy Group (APG), spurious and substandard pesticides accounted for about 40% of the pesticides sold in India

reasons being the huge investments and the time involved. It takes an average of nine years and investment of about Rs. 1,000 Cr. Indian companies typically have not focused on developing newer molecules and will face challenges in building these capabilities, while continuing to remain cost competitive.

Another crucial factor that determines crop protection consumption is lack of education and awareness among farmers. The main point of contact between the farmers and the manufacturers are the retailers who are generally not technically sound and are not able to provide a proper understanding of the product to the farmers. Also, very often farmers are not able to communicate their needs effectively to the manufacturers. This results in using wrong chemicals, incorrect dosages and inappropriate application techniques.

There is a significant share of spurious pesticides and spiked biopesticides in India. According to pesticides industry body, Agrochemicals Policy Group (APG), spurious and substandard pesticides accounted for about 40% of the pesticides sold in India. These products not only failed to kill pests but also inflicted damages on crops. Makers of spurious pesticides usually imitate popular and expensive brands from multi-national and leading Indian manufacturers that have better acceptance among the farmers. Some counterfeit pesticides do not contain any active plant protection ingredient and largely comprise materials like talcum powder, chalk powder, any odd solvent or just

kerosene. Others may contain some active ingredient but only a fraction of that mentioned on the label. Inadequate checks and controls are propagating such a phenomenon.

Crop protection industry may face stiff competition from several alternate methods of crop protection. There is a rising demand in the country to produce organic crops which are free from chemicals. There is intensive support from the government as well. Promotion of Integrated Pest Management (IPM), zero budget farming and usage of bio-pesticides by Indian Government and NGOs have created an impact. With increasing demand for organic food, farmers in certain states like Karnataka have reduced chemical usage and have adopted organic farming. Agrochemical companies will have to tackle the rising environmental awareness and address concerns on negative impact of pesticide usage.

India at this juncture cannot afford to fully stop the use of chemical based crop protection means. As one of the most populated country, India has an obligation to attend to the food needs of its population in a cost effective manner. By far, the only method to achieve this is to grow its own food. India has been fortunate enough to grow its own food. But in order to continue it in the foreseeable future, India needs to tighten its loose ends and prevent food loss for which crop protection chemicals are indispensable.

crops &



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'INDIAN MARKET NEEDS NEW GENERATION PESTICIDES'

DCM Shriram Ltd. is a leading business conglomerate with a group turnover of Rs. 5000 crores (approximately USD 1 billion). Over the past two decades, they have rapidly expanded their portfolio, ventured into new markets and strengthened distribution network. DCM Shriram, is probably one of the very few organisations in the country which have the ability to cater to most input requirements of the farmer and the crop. DCM's portfolio comprises of basic nutrition products, yield enhancement products, crop protection products and improved seed varieties. These are offered on a strong agronomy services platform that provides localized and customized solutions for the farmer. In an interview with Agriculture Today, Mr. Sovan Chakrabarty, Executive Director & Business Head- Shriram Farm Solutions discusses the crop protection scenario in India.

What is broad Indian and global scenario of crop protection business?

Food is the need for life. With population on the increase, and urbanization cutting into the farm land, the pressure is building up on improving crop productivity, which can be done by increasing yields and reducing losses due to pests. Researchers are bringing in high yielding varieties across various crops, which remain threatened by pest attacks. These concerns are across the globe, including India that needs to feed a growing population. The crop protection industry in India currently estimated at \$ 3.8 billion, has had a strong growth in the past, but for the exception of last two years that got affected due to insufficient rain conditions. However, the export has continued to grow at about 14%. The domestic demand is expected to grow at 8-10% p.a. Globally herbicides constitute about 45% followed by fungicides 35% and insecticides 20%. Indian tropical climatic conditions make it conducive for insect pest attack, due to which about 50% of the pesticides consumed in India are Insecticides. Unlike earlier times, the manual labour for hand weeding is getting scarce which is now rapidly increasing the use of herbicides. Also the fungicide segment is on the increase due to today's consumer being vigilant and wanting good quality spotless fruits and vegetables. Indian crop protection industry has good growth prospects. India currently has one of the lowest consumption of crop



protection products @ 0.5 kg/ha compared to world average of 3 kg/ha. Lately, with reports of crops getting heavily damaged by pests, the awareness among farmers will have to improve leading to proper judicious use of pesticides and protecting their precious crop yields from getting destroyed by pest attack. This should offer immense opportunities for future growth of the crop protection industry. India also has available opportunity for global players to tie up with manufacturing hubs in India for their export markets.

What are the major policy and regulatory issues concerning the industry?

India has a robust registration process unlike many other Asian countries. Although it is appreciable that all possible checks are in place for new product registrations, there is a need for getting some simplified norms to shorten the time taken to register new molecules in India. This will put India in the league of progressive countries where new product chemistries are available to farmers for improving their quality crop yields. We need to encourage R&D and ease registration process for development of new molecules. An effective regulatory policy, involving government and industry players together is needed to support the growth momentum. Regulators need to increase their inspection staff to ensure regular checks to contain the growth of spurious products.

What are the new trends in the Indian Crop Protection market?

The Indian market needs new generation pesticides to combat pest attack, the severity of which has also changed over the decades. The industry is seeing new products entering the market, which has been beneficial to the farming community. Apart from the MNCs that bring in their proprietary molecules, Indian companies are tying up with global research companies to introduce new products in the country. There is also a new trend of combination products (ready mix) being introduced in the market which in a way helps the farmer with a single shot application, to address complex pest problems at a given point of time. It addresses the hassle of mixing more than one product in different proportions in his spray tank. The trend of mergers and acquisitions globally still continues and is also seen among Indian players. These strategic alliances increase their marketing and distribution reach or expand into newer product categories.

What are the major challenges to Indian agriculture from the Industry perspective?

Indian agrochemicals industry faces various challenges, firstly in terms of low awareness among farmers on pest problems, agrochemicals and their correct usage. India is a large country with end users spread across the geography, to service the same by effectively managing inventory & distribution costs remains quite a challenge. To add to this, the industry faces the challenge of seasonal nature of the business, dependence on monsoon and with scarce mechanism to forecast pest attacks. We come across lot of feedback from the market including industry players, on spurious pesticides and spiked bio-pesticides which pose a major concern to the industry.

What are the product offerings and largest selling brand of the company?

DCM Shriram has been into the agriculture farming space for many decades. The Farm Solutions Business aims to offer solutions to the farmers for ensuring higher quality yield. There is a wide range of Shriram brand pesticides in the market that aims to offer product solutions for key pests of various crops. Apart from the pesticide products, SFS also offers its range of nutritional products, bulk fertilizers, seeds to the farmers.

How has been the crop protection business of DCM Shriram in the last few years? What is your expansion plan for this financial year?

Last few years have been challenging as well as rewarding for us. The business has grown by 15% CAGR in the last 5 years. In spite of having a wide range of products available with us, we are studying the possibilities of manufacturing/marketing of latest pesticides under the Shriram Brand name. We will look at all options, including development and building cooperation with manufacturing and research companies around the globe.

There is increasing integration between seed and agrochemical businesses globally. What are its challenges?

High yielding varieties coupled with the right chemistries that can protect the crop from pests makes good integration sense. This will surely bring the synergies and energies focussed to tackle the concern of food security by improving crop productivity. The challenge that one can foresee is if the integration loses the focus of the farmer and farm productivity and gets confined to research, it creates monopoly of certain business houses.

There is imbalanced use of agrochemicals in Indian agriculture. Some crops and regions account for major usages. What is industry plan on this count?

The use of agrochemicals in crops is based on crop economics and the pest occurrence and damage it causes to the crop. The awareness among farmers on pest problems and agrochemical products usage is very low. The awareness even in highly progressive regions, does not exceed 50%, whereas many areas the awareness is below 10%. The government is trying to promote farming of various crops, example the initiative on pulses. These activities need to spread to few more areas and crops, to make India self sufficient on cereals as well as other food crops. The industry plays its role by conducting various awareness programs to propagate safe use of pesticides, identify and suggest the correct use of pesticides in the correct doses. Government and industry can work together at the village levels to improve the awareness among the farmers.

How do you foresee Indian crop protection business in next five years?

The Indian crop protection business scenario looks to have a very robust growth in the coming times. The industry is expected to be about \$ 7 billion by 2021. The export business has a big opportunity in the global market with its low cost of production. A look at the policies on export registration will positively support the business. The Industry and Government together can bring about a positive change by creating awareness with farmers that will boost the domestic business and agriculture in India.

NEED FOR INNOVATIONS AND BETTER FARM PRACTICES IS THE NEED OF THE HOUR

Biostadt India Limited has been serving the farming community for over two decades maintains an impressive track record taking forward its strategy to head the leading position in the Biotechnology research-based agro inputs. This strategy has been further supported with safer and specialty chemical pesticides. The tremendous growth in the business in a span of just 6 years (from INR 100 crores in 2007 to INR 400+ crores in 2013) has itself created a story to talk about. In an interview with Agriculture Today, Mr. Juzar S. Khorakiwala, Managing Director, Biostadt India Limited discusses the broad scenario of crop protection business in India.



What is broad Indian and global scenario of crop protection business?

Agrochemicals and related input Industry is a growing business. It is approximately \$60 billion industry growing much faster in countries such as India, China and other emerging markets. Since labour cost is rising in the developing world, herbicides are experiencing greater demand. Further, a lot of consolidation is taking place in the industry. For example, Dow Dupont, Syngenta Chem China, FMC Cheminova, Monsanto etc. and a few others.

What are the product offerings and largest selling brand of the company?

Biostadt India Limited is a diversified organization in the Agriculture and Aquaculture space. Our leading brand is BIOZYME in the nutrition category. This brand over the last 20 years has gained acceptance by farmers by increasing production and quality of their farm produce. We have been recognized as a global key supplier of this product by markets and research agencies in UK. We have been exporting to many countries for 20 years. Along with this product, the farmers demand safe and niche pesticides for their crop protection. We have strategically allied with the Japanese for licensing their molecules for their superior quality. ROKO, BIOMYCIN and MAIDEN are the leading brands for their respective molecules nationally. We are also present in seeds, Aquaculture inputs. Biostadt has a large presence in Philippines which replicates our business here in India and a joint venture in Vietnam for the shrimp farmers.

How has been the performance of the crop protection industry in the last few years?

The industry in the previous two years has been at headwind with nature with the consecutive drought for two years lowering farm incomes and creating a cash flow drop in the system, creating lower sales higher inventory buildup, and high returns. However, the industry is highly dependent on monsoons and hence its fortunes are often dictated by the external factors.

What are the major policy and regulatory issues concerning the industry?

Our current government has laid great emphasis on agriculture and rightly so when 300-400 million farmers who live off the land. It is imperative to focus governmental initiative like crop insurance, drip and water irrigation, rural infrastructure etc. This government is rightly addressing this issue with great priority. On the regulatory front, the industry yet faces huge bureaucratic hurdles in registering product and related issues. The industry hopes that the ease of doing business in this area is addressed by the current government.

What is the new trend in the Indian Crop Protection market?

As the agricultural productivity in India is very low compared to countries

like Japan, need for innovations and better farm practices is the need of the hour. We at Biostadt have been highly focused on nutrition segment which is gaining attention of many companies in India and world wide. Bio-stimulant based products such as Biozyme have been in the forefront of leading this change. Horticulture farmers use more amounts of differentiated nutrition, seaweeds, reduced level of water consumption, controlled usage of pesticides and have boosted their yields to highest levels. This has come as another need to the farmer after basic fertilizers and pesticides.

How has been the business growth in the last few years and what is your expansion plan for this financial year?

Our growth in the last few years have been at double digit levels due to our nutrition business and our other diversified verticals. However, the last two years have been stressful, but we have maintained our pace of growth. This year with a very positive weather forecast we hope to grow much faster than previous years. We intend to grow organically by expanding our distribution reach, introduction of new products and new markets.

Given the high achievements in exports, can India emerge as the global sourcing hub for agrochemicals?

The 'Make in India' campaign of the government has given us an edge. The Indian agrochemical manufacturers are global players. For the great amount of investments which have been made in emerging markets in South America and Africa for registrations, India is in a very good position to compete with China in many types of farm chemicals.

There is increasing integration between seed and agrochemical businesses globally. How do you view that development?

Yes there is an increase in integration between seed and agrochemical businesses globally. However, the demand cycle for the seeds and agrochemical business are entirely different. This poses a unique challenge

on the supply chain side of this business. Though the end user farmer is the same the above mentioned challenges make it difficult for the companies to integrate the seeds and agrochemicals business.

Is the company involved in any extension activities? How do you create a rapport with your end users that is farmers?


Recently we started a new service called the ELITE farmers club. We approach large farmers with landholding of 100 acres and above, and provide them soil testing facilities, crop advice and also service their input needs. As a result, these progressive farmers patronize us and create a word of mouth marketing platform within their social and farming

circles. We also go out into interior villages with adequate infrastructure, and demonstrate our products, our company and our offerings.

What are the steps that have to be adopted for a cleaner and safer chemically inclusive agriculture?


Education is the primary factor of creating a safe environment for agrochemicals. Great amount of focus has to be given on how to use the products. We have 150 jeeps and vehicles with projectors who go around and educate and create demand for our products. Being in nutrition focused business it is projecting a very clear message of cleaner and safer means for increasing agricultural production.





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CORRIGENDUM NOTICE

Admission Notice published in Agriculture Today issue June 2016 may be read as followings:

- Selection procedure of MBA will be based on CAT-2015 score only followed by GD/ PI and work experience.
- Bachelor's degree and equivalent are eligible.
- Completely filled application will be accepted till 30-06-2016 instead of 20-06-2016.
- For further details refer our website www.niftem.ac.in

REGISTRAR





‘INDIA ENJOYS A HOST OF ENABLING FACTORS DRIVING HIGHER EXPORTS OF AGROCHEMICALS’

Incorporated in 1947, P I industries today is a leading Agri Input and Custom Synthesis & Manufacturing company in India. With over five decades of brand, experience in working with millions of Indian farmers and vast marketing & distribution set up in India, P I offers to market innovative Agri Input products in India. With highly accredited R&D, laboratory and manufacturing set up for fine chemicals, PI offers support in the process research and contract manufacturing needs of newly discovered molecules. In an interview with Agriculture Today, Mr. Salil Singhal, Chairman & Managing Director, PI Industries Ltd., discusses India's crop protection sector.



What is the market share of PI industries in crop protection chemicals sector?

On an overall basis, PI has about 5%-6% market share in the domestic crop protection chemicals sector. However, many of our brands e.g. Nominee Gold, Foratox, Rokat, Carina, Biovita, Osheen, Keefun, etc., are category leaders and enjoy substantial market share in their respective categories.

In its custom synthesis model, what are the services offered by PI Industries?

PI does Custom Synthesis & Manufacturing for agro chemicals active ingredients, intermediates and other niche fine chemicals for global innovators. PI offers following services: Contract Research, Chemical Process Development, Analytical Method Development, Synthesis of high purity Product and Impurities for analytical reference standards, 5 batch analysis under GLP conditions, Scale up studies, Chemical plant detailed engineering and turn key projects and Commercial scale production

What are the opportunities for the Indian companies to evolve

into production hub for active ingredients and intermediates of global chemical companies?

The global Innovators are focusing on discovery of new molecules and marketing and allocating their time, efforts and capital towards it. As a consequence, they are more and more moving towards outsourcing of process development of newly discovered molecules and commercial manufacturing of these products to reliable, committed and capable allies such as PI for support in commercialisation of these newly discovered molecules. As a country, India enjoys a host of enabling factors that are driving higher exports of agrochemicals. Indian companies today are highly competitive in terms of technical capabilities (chemistry and engineering), product quality, supply security, respect for IPR and regulatory compliance. The Indian Pharmaceutical Industry is an apt example within the domestic chemical industry which has highly leveraged these capabilities and thus holds a strong position in the global API manufacturing sector. Besides that, over the years, China has been ceding its dominance in manufacturing on the back of rising cost of land & labour, stronger environment & safety

regulations, industry consolidation and higher taxation. Further India's currency has turned more competitive compared to China's and against other global currencies and is likely to maintain this trend going forth. However, most Indian Companies fail on the scale of reliability and trust, because by and large wholly owned Indian Companies do not subscribe to IPR & data protection: Hence they lose out on many opportunities.

Is our policy environment conducive for such arrangements?

Although we have been hearing about the upcoming National Chemical Policy aimed to provide enabling environment, infrastructure and duty structure for the Chemical Industry in the country, there are many concerns that the industry is currently facing. To point out a few, there is lack of clarity on regulations, methodology and rationality of declaration of critically polluted industrial zones and review / revival process which is significantly impacting the growth of chemical sector due to

ongoing embargo for last one decade or so. There is clear lack of policy and more importantly, implementation of available policies to develop adequate common infrastructure for waste water treatment & disposal, cost efficient utilities generation and distribution, industrial labour training and skill development, etc.

What are the future products and services that we can expect from PI Industries?

The Company is currently evaluating and developing 12-15 agrochemical (including very interesting Insecticides, herbicides and fungicides licensed from global innovators) and biological products, for registration and then introduction in the domestic market. There are plans in place to introduce 1-2 products every year for next several years. In the custom synthesis area, at any given point, there are 18-20 products we are evaluating at R&D scale at different stages. It generally takes 1 – 1.5 years for us to synthesize chemical process, scale up and then commercialize the product

at plant scale manufacturing. Here also, PI has plans to commercialize 2-3 new molecules each year for next several years. PI is also evaluating entering into Pharma and other custom synthesis space which has lot of synergy with what we currently do in CSM space.

How effective are bio pesticides under Indian condition?

In the context of current Indian agricultural scenario, yield is of prime importance. Currently available bio-pesticides fall short in this aspect compared to synthetic ones. Further, there are many challenges that the farmers are facing today regarding bio-pesticides e.g. doubts on genuineness, lack of clarity on composition, poor efficacy, etc. Though biologicals are showcasing promise in the long-run, they seem to be not very effective under current agriculture scenario. In any case this sector is doomed given that few thousand registrations have been granted for bio-pesticides to a very large number of Companies: Hence quality management in this sector is bound to fail.



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INDIAN CROP-PROTECTION INDUSTRY PRESENTS IMMENSE GROWTH OPPORTUNITIES

The Crop-Protection segment is considered to be one of the most important segments of Agri-inputs, due to the expanding commercial cultivation of cash rich crops to meet the rising diversified food demand. With increasing population and per capita income, demand for food grains, pulses, fruits & vegetables etc. is increasing at a faster pace as compared to its production. Moreover, every year, significant amounts of crop yield is lost (>20%) due to significant pest attack. This need can be achieved only through greater emphasis on Crop-Protection (CP) products and their judicious use. The increase in output per unit of land can be achieved only when the benefits of CP products and the awareness about their optimum use reach the last farmer.

Increasing pest concerns, changing pest occurrence patterns followed by increasing awareness about CP is expected to drive the demand for Crop-Protection molecules, supported by other factors such as rigorous research, sharing of intellectual property rights, increasing R&D investments and emergence of a variety of new molecules. The growth of industry is driven by reaching untapped markets & educating farmers about importance of usage of superior quality CP products. As per TSMG, the Crop-Protection sector in the country is expected to grow at a CAGR of 12% to reach \$7.5 billion by FY19 with 60 per cent of the contribution coming from exports.

India is largest global producer of Agro-chemicals and India's crop protection chemicals industry is estimated to be the second largest in Asia, with a size of above Rs. 26,000 crores (with almost 50% of the production being exported). It has unrealized potential, as the per capita consumption of crop protection products in India is amongst the lowest in the world. The per-hectare



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A TATA ENTERPRISE

usage of Agro-chemicals is only 0.6 kg in India, while for UK it is 5 kg and for China and Japan it is 13 kg and 12 kg respectively. Low purchasing power of farmers, lack of awareness amongst them and limited reach are some of the reasons for low consumption of crop protection products in India, thus providing a great opportunity for growth of the domestic crop protection sector.

The Government has provided for higher allocations in the recent budget to agriculture, which augurs well for the current financial year. Some of the thrust areas identified as growth drivers are irrigation, soil health, pulses and crop insurance. Availability of credit facilities to purchase CP products is the primary driver for the market. The government of India has initiated several policy measures to enable farmers to gain access to credit facilities. These policies emphasize on providing timely and adequate credit support to all farmers to enable them to adopt modern technology and improved agricultural practices, thereby increasing agricultural production and productivity.

Globally, a lot of industry developments are happening like recent mergers & acquisitions. Consolidation of these big players may leave three-four companies with more than 75% of global market thus making industry more competitive & regulatory, also enhancing R&D and bringing new solutions is more possible. The global market for Crop-Protection molecules is projected to reach USD 250.5 billion by 2020, at a CAGR of 3.2% from 2015 to 2020. Asia-Pacific dominated the global market with a share of around 36.7%. The European region is expected to be the fastest-growing market in the near future, for the growing concentration of farmers towards technology driven agriculture practices.

If we have to plan to keep our food security intact for the next two decades by increasing yield per hectare and minimizing loss, promoting optimum use of Crop-Protection products is of utmost importance. Also important is reducing the farmer's dependence on the erratic monsoon, by investing on better irrigation facilities, promoting farmers for crop diversification, quality seeds & other inputs.

Being close to the farmers & working for their prosperity, companies like Rallis has a big role to play in educating them to adopt the technology. Building upon the concept of Farmer Family called 'Rallis Kisan Kutumb'(RKK), Rallis has developed a base of 1.5 million directly connected farmers spread across India. To enhance the relationship with farmers and to contribute to nation's priority, Rallis launched MoPu (More Pulses initiative) to encourage pulses production and provide end to end solutions to farmers. Several other initiatives are also undertaken under RKK like- Rallis' initiative of "Samrudh Krishi" imparting Agri based knowledge from seed to harvest has helped farmers to achieve more farm output by using optimum inputs.

GIVE AGRICULTURE ITS DUE



Mr. RD Shroff, CMD
UPL Limited

Unknown to many, India's agricultural products fetch higher earnings than trade in services or manufacturing. With proactive support, India can further enhance its farm exports and contribute to its prosperity.

Recently, Raghuram Rajan, Governor, Reserve Bank of India, had stressed on the need for increasing 'financial literacy' among Indians and proposed its inclusion in the school curriculum. Yes, financial literacy is important at the micro and macro level. But, equally important (as financial literacy) for Indians is education on agriculture.

Agricultural literacy, a contemporary phrase, describes awareness about agriculture in students and public at large. People – both young and old, need to understand the value of agriculture in their daily lives. Agriculture encompasses, biology, economics, technology, politics, sociology, international relations, as also trade and environment. Agricultural literacy is expected to bestow a person with a basic understanding of all these subjects.

Every literate Indian will know and frequently lament that India ranks second in world population. But how many literate Indians do know that India now ranks second in agricultural production, too? And, how many literate Indians know that agriculture is the largest private sector enterprise in India? Our agriculture engages over 260 million farmers and farm labourers, producing an output of \$367 billion (2014).

As per the 2011 Census, the share of female workers in the rural areas was 30 per cent whereas, in the urban areas, it was only 15 per cent. In other words, Indian agricultural sector provides more employment to women – and that too, without reservation and government intervention!

India's global rank in overall merchandize exports is a

poor 19 whereas, in agricultural exports, it is as high as 'six'. This empirically demonstrates the global competitiveness of India's agricultural goods. Again, India's foreign exchange earnings from international trade of agricultural products are higher than from services/industrial trade. Over 70 percent of the food grains produced globally are used as animal feed. But India is different. Food grains form our staple food. The average consumption of meat in the world is 46 kg/person/year, whereas it is a mere 4 kg/person/year in India. The top three foods in terms of value and volume consumed in India are: vegetables, milk, and rice. India's food economy is, therefore, different from the rest of the world.

India's agricultural production systems are different too. India's small farms (average size: 1.16 ha) are multi-functional, producing a variety of agricultural, horticultural and livestock products. The aggregate agricultural output/ha/year in India is higher than in countries like the US which practise large-scale, industrialised and capital-intensive farming.

Indian agriculture is inclusive, as the mixed crop-livestock production system is the most dominant farming method here. This model of inclusive agriculture achieves manifold biological, ecological, environmental and social benefits; it is also highly sustainable.

India's crop diversity is the highest in the world. India grows and uses a variety of crops under each category. Use of cotton is said to have originated in Harappa (Indus Valley) in India in 2300-1750 BC. India had a flourishing export trade in cotton in the sixth century BC. Cotton made its appearance in Europe from India through England, only in the 13th century AD. India is now the largest producer/exporter of cotton.

From history, let us move to the present. India has been receiving deficient rains over the last two years and many states have been hit by drought. More than 340 million people in 246 districts are facing the effects of drought. There is acute shortage of water. But, do we face acute shortage of food supplies? Food grains procurement (mainly rice and wheat) by the Central government reached a record high in 2016. Well, one may immediately think of high prices prevailing for pulses. But drought alone cannot be blamed for playing a major role in the short-fall of pulses. The latest news is that the sale of white goods such as refrigerators and air-conditioners in rural areas has registered 100 per cent growth this summer. Our agriculture is diverse and much more resilient than generally recognised.

Let us repeat the core questions: how many literate Indians know all these facts and hold our agriculture in high esteem? Few indeed!

Mass communication of more nuanced facts about Indian agriculture would certainly begin the era of informed public opinion. Here comes the need and relevance of agricultural literacy.



CHILE'S

AGRICULTURE PROSPECTS

India-Chile relations are characterized by warmth, friendship and commonality of views on a wide range of issues. The countries are committed to increasing economic relations, as is evidenced by the number of high-level visits between the two countries since 2005. Over the years, India and Chile have successfully cooperated in many critical areas. The countries have signed agreements and MOUs covering various fields of cooperation in sports, S&T, Antarctica, air services, new and renewable energy, education, outer space, geology and mineral resources, to mention a few. However, in the field of agriculture, there is a scope for more cooperation. Chile subscribed a Preferential Trade Agreement (PTA) with India in 2007, becoming the first Latin American country that individually negotiated a trade agreement with India. With a wide potential of growing ahead, both countries initiated an enhancement process in 2010 for wider tariff reduction for around 2,800 products, which was finally concluded in April this year. Taking note of Chile's agribusiness achievements and India's growing stature and making full use of the growth opportunities available, the two sides ought to foster further trade and cooperation in the arena of food and agriculture. During its visit to Chile, the Agriculture Today team met the Minister of Agriculture, senior officials, agribusiness companies, trade bodies, institutions, visited farms and interviewed other stakeholders in the sector to derive a comprehensive report.



There are number of areas identified for cooperation between the two countries. India needs to learn about best practices in commercial agriculture management, supply chain linkages including cold storage, warehousing and transport, setting up a robust infrastructure for meeting international quality and sanitary and phytosanitary norms, and strengthening the link between agriculture and industry. It is evident that given the strong industrial profile of both countries, as well as synergies arising from large number of agri-climatic zones in both countries, there is immense potential in bilateral trade.

Agriculture Production in Chile

A long, narrow strip of land in south-western South America, Chile is notable for its diverse and ever surprising geography. The desert in the north, the Andes Mountains, the Pacific Ocean, and the Antarctic ice fields are natural barriers that isolate food production from sanitary risks. It also has singular geographic and climatic characteristics that make it an island from a phytosanitary perspective. The weather conditions are also impressive: Chile has a wide range of climate types from the extreme north to the far south, the most important being the Mediterranean climate. Chile's unique characteristics provides staggered production, enabling a long export season and counter-season food production as compared to the northern hemisphere. The country produces fresh, pure, healthy, good quality food which is appreciated around the world.

Chile's principal growing region and agricultural heartland is the Central Valley delimited by the Chilean Coast Range in the west, the Andes in the east, Aconcagua River by the

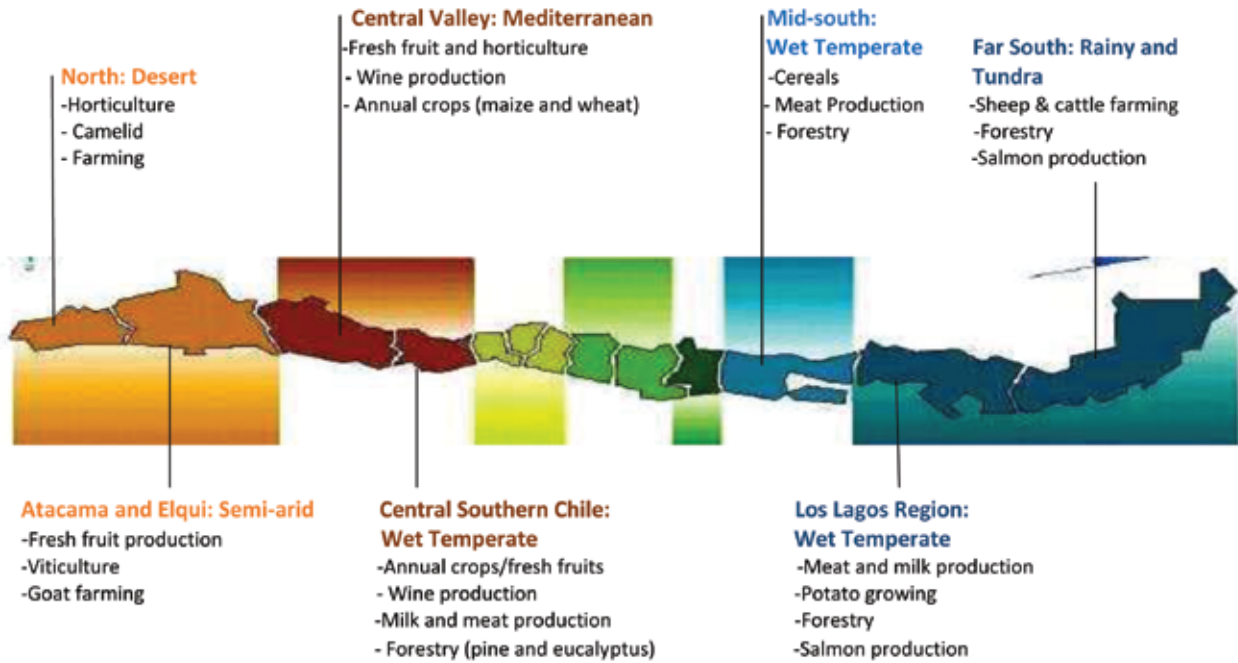
north and Bío-Bío River by the south. In the northern half, Chile cultivation is highly dependent on irrigation. South of the Central Valley cultivation is gradually replaced by aquaculture, silviculture, sheep and cattle farming.

Some major agriculture products of the country are grapes, apples, pears, onions, wheat, corn, oats, peaches, garlic, asparagus, beans, beef, poultry, wool, fish and timber. The most important domestic crops are wheat, corn, oats, potatoes, rapeseed and rice. Annual crops are mainly concentrated in the south of the country. 37% of crop sowing took place in the Araucania region, 25% in the Biobío region and 16% in the Maule region.

A broad variety of vegetables are grown in Chile, both outdoors and in greenhouses, with a total area under cultivation of approximately 76,000 hectares each year. The most important crops grown for fresh consumption are lettuces, tomatoes, long day onions, squash and carrots, while key crops produced for processing by agro-industry include corn, tomatoes, green peas, asparagus, artichokes and bell peppers.

For the different regions, the total area used for fruit plantations increased to 300,000 hectares in 2015, comprising an overall growth of 34%. Blueberries and hazelnuts showed particularly strong growth, cherries, walnuts and olives have also maintained steady growth. Fresh table grapes continue to be the leading fruit crop, making up 16.4% of the total planted area. These were followed by apples with 12.2%; avocados with 10.1%; walnuts with 9.4%; cherries with 6.9% and blueberries with 4.9% of the total area planted with fruit trees. These are impressive numbers considering that only 1.7% of the entire territory is arable. These agriculture products are sold and used in the country and also make up a

CLIMATE TYPES AND PRODUCTS



Agriculture production and climatic variation in different parts of Chile

large percentage of Chilean exports to other countries.

Chile has a total 301,376 farms. Of the 75.6 million hectares that comprises continental Chile, 51,695,732 hectares are associated with the censused agricultural, livestock and forestry holdings, although only 35.5 million hectares are actually used for agriculture, livestock and forestry. The sector is one of the country's largest in terms of employment generation, over the year, 710,000 jobs have been generated on average, including seasonal work, excluding the fishing sector. These figures mean that agriculture accounted for 9.3 % of all employment from a total of 7,627,000 jobs.

Agriculture is Chile's second largest source of exports, and is expected to grow rapidly. The value of these agricultural exports continues to grow. Chilean agricultural, livestock and forestry sector represents 2.4% of the country's GDP; sector grew a 5.6% in 2015.

Chile's agricultural sector has

played an important role in the country's economic development, helping to raise incomes and reduce poverty. The sector has benefited from a stable macroeconomic climate and an open trading environment, and exports have grown rapidly, notably for high value products such as wine and fruits. A current priority of the government is to broaden the basis of agricultural growth by successfully integrating the country's smallholders into commercial structures.

Chilean agriculture is in the firm ground with the diversity of its production and producers. It combines an innovative spirit and business like capacity to offer healthy and quality products to Chile and the world, whilst respecting the environment and sharing their benefits among the different stakeholders involved in their production and processing.

Chile on the International Scene

Through 25 free trade agreements signed with 64 economies, Chile cur-

rently has free access to major markets in the world, in five continents. Chile has become the natural gateway between Latin America and the rest of the world. The exchange continues to be the engine of economic growth. The free trade agreements and trade agreements signed by Chile allow accessing in privileged ways to markets that accounts for 64.1% of world population which correspond to 86.3% of global GDP. In 2015 total exports amounted USD 62,232 million. Main destination markets were China, the U.S. and Japan.

Chile has trade agreements with Australia, Bolivia, Canada, Central America, China, Colombia, South Korea, Cuba, Ecuador, EFTA, United States, Hong Kong, India, Japan, Malaysia, Mercosur, Mexico, P4, Panama, Peru, Thailand, Turkey, European Union, Venezuela and Vietnam and more recently with the Pacific Alliance. Chile has also taking part into The Trans Pacific Partnership Agreement (TPP), which still has not entered into force.

Food Industry: Second most important export category

EXPORTS

US\$ 8,055 MILLION

24% of Chilean Total Exports

PROCESSED

US\$ 1,545 MILLION

Fruits and vegetable Exports 2015

CANNED

US\$ 431 MILLION

Fruits and vegetable Exports

DEHYDRATED

US\$ 406 MILLION

Fruits and vegetable Exports

FROZEN

US\$ 440 MILLION

Fruits and vegetable Exports

JUICES

US\$ 197 MILLION

Fruits and vegetable Exports

Chilean Agro & Food Industry

The agro-industrial sector in Chile is mainly divided into five subsectors: Dehydrated Foods, Canned Foods, Frozen Foods, Oil and Concentrate juice. The items most produced include tinned peaches, fruit pulp, tomato paste and berries. These products are characterized by their high quality and their benefits to human health, as they have high levels of antioxidants, fibre and nutrients sought by the most demanding consumers. Some of the world's finest gourmet foods contain Chilean ingredients. During 2015 Chilean Agro-Industry exports reached US\$ 1.6 billion.

Food industry in Chile is second largest source of exports, and is expected to grow rapidly in the coming years. Today, the food industry represents 24% of Chile's economy and employs more than 730,000 people. The fruit, wine, poultry, beef, pork and dairy industries offer large export potential. Rising attention to animal welfare, traceability, productivity and excellent phytosanitary conditions

Chile: Food Exports to India

USD41,122

2014

USD 23,752

2015

are clear trends in the agro-food industry. Natural advantages, government strategies of increasing the production of value-added food products, expanding international trade networks, and rising domestic food consumption are key elements driving growth in the Chilean food and agriculture industry.

Fruit Industry in Chile

Chile is an important fruit producer and a leader in the Southern Hemisphere. The great variety of climate types enables Chile to produce a

Chilean Food in the world ranking

Category	Product	Global Ranking
Frozen	Fruits including berries	3
	Raspberry	3
	Strawberry	9
Dehydrated	Apple	1
	Plums	2
	Raisins	3
	Shelled walnut	3
	Red bell pepper	8
Canned	Peach pulp	1
	Canned peach	3
	Industrial Cherry	5
	Fruit pulp	6
	Retail Cherry and tomato paste	7
Juices	Grape juice	5
	Apple juice	5
	Cranberry juice	7

tremendous range of quality fruits, including grapes, apples, pears, clementines, lemons, oranges, avocados, kiwis, peaches, nectarines, plums, cherries, raspberries, strawberries and blueberries, to name just a few. The national fruit industry represents the country's third most important economic activity.

Close to 16,000 producers ship to more than 100 destinations around the world each year, principally the United States, Asia and Europe. The latter makes Chile a true industry leader. The industry has invested heavily in technology, to ensure strict quality control so as to guarantee the standards of health, colour, flavour, firmness and aroma. This has enabled

PHYTOSANITARY ISLAND

Chile has the most transparent skies on Earth and possesses some of the world's most significant fresh water reserves. Natural barriers at all four compass points protect Chile, converting it into a true phytosanitary island, thereby reducing the incidence of pests and diseases. The desert in the north, the Andes Mountains, the Pacific Ocean, and the Antarctic ice fields are natural barriers that isolate food production from sanitary risks.

In addition to the natural protection provided by Chile's geographic location, the country relies on a Plant and Animal Health Policy under the direction of the Ministry of Agriculture. In order to maintain the condition of Chile as a fruit fly-free country, the country initiated Fruit Fly Prevention Programme, a permanent exclusion programme in Chile. As a result, foot and mouth disease, fruit flies, phylloxera and other pests and diseases have been eradicated from Chilean farms.

AGRICULTURE – HIGHLY VALUED IN CHILE

Chile, one of the most dynamic growing economies in Latin America, emphasizes on the reduction of the inequalities along with an inclusive development. In the agriculture sector, reforms are complemented by the purposes of a more comprehensive economic, social, environmental and cultural value added at the rural field. The Ministry of Agriculture strives for the reinforcement of the instruments to promote, primarily, family farming. Another fundamental objective for this institution is to promote the development of the agrarian economy, based both on technology-innovation and on the main attributes that support the competitiveness of Chilean agriculture: quality, safety, and health of the agricultural and livestock production. In an interview with Agriculture Today, Mr. Carlos Furche, Minister for Agriculture, Chile discusses about the nature of agriculture practiced in Chile.

What is the importance of agriculture in Chile?

Chilean agricultural, livestock and forestry sector represents 2.4% of the country's GDP. This sector grew a 5.6% in 2015, a broader increase compared to the growth rate of 2.1% of the national GDP at the same year. The rapid expansion of the agricultural sector has been driven by the high dynamism of the fruit and horticulture industry, with greater production of wine grapes, dried fruits, kiwis and citrus, as well as a wider production of fresh vegetables, corn and wheat crops during the last year. As for the livestock activity, It showed an expansion of poultry meat production in 2015. In terms of employment, the agricultural sector covers an 8.6% of the national labor force, becoming one of the most important economic activities in the country, especially in the rural areas. In the same way, the sector has had a positive impact on the share in value of total exportations. Thus, the percentage of the agriculture and food exports in the total exports of Chile increased from 19.2% in 2005 to 23.2% in 2015, reaching USD 14.7 billion FOB. The trade balance for the sector was also positive last year (USD 9.5 billion). To sum up, agriculture is a strategically active and highly valued in Chile.



What are the areas in agriculture where Chile has global edge?

Chile is located in the southern part of South America, bordering the Pacific Ocean. Its latitudinal extension provides the country a wide range of temperate and Mediterranean weather and the isolated geographical position— between the Pacific Ocean, the Andean Mountains, the Atacama desert and the Antarctic— offers Chile high natural sanitary conditions that diminish the risk of diseases and even makes it a country free of some important pests as the Med Fly. Even though the arable land is relatively limited in this country, the quality and the availability of water for irrigation balance the production conditions for the different sectors. The above mentioned factors have made possible the development of an agricultural activity in Chile mostly focused on external markets. In fact, the counter season production that allow this country to reach the bigger consumer markets in the world, lead the comparative advantages of the fresh fruits industry. On the other hand, the weather conditions and the soil's quality have conducted the development of a very competitive wine industry, sustained by the adaptation capability of the grape varieties. Moreover, the good natural conditions have also led to the development of a cattle mass and a big meat and dairy industry. In the areas of more extreme climate there is also breed of ovine and camelids. As for the less fertile lands, this country has developed an important stock of forestry plantations that holds up one of the most important export industry of the country. Finally, the growth of the agricultural, livestock and forestry export potential has been encouraged and supported by the network of 25 free trade agreements that Chile has subscribed with 64 countries, enabling this sector to become more competitive and positioning the country as a world top producer and exporter of several products such as table grapes, cherries, blueberries, hazelnuts, kiwifruit, wines, pork meat and bleached wood pulp.

What are the broad priorities and thrust areas of the Ministry?

The main objective of the Ministry for the current period (2014 – 2018) is to develop a competitive, inclusive and resilient agricultural, livestock, forestry and

food industry based on sustainability and complemented by an efficient institutional framework, in order to properly respond to the challenges of the sector. These challenges are to reduce the inequalities along with an inclusive development; to add value to agricultural activities; to promote short marketing circuits; to boost good practices in terms of sustainability; to address higher levels of food safety and quality and to promote the competitiveness and internationalization of family farming. Additionally, there are 2 specific areas of concern for the Ministry of Agriculture for the next few years: improving the technification of irrigation and encouraging the investment on irrigation infrastructure, besides the reinforcement of sanitary standards by increasing Agricultural and Livestock Service (SAG)'s availability of tools and resources to comply with the sanitary commitments of Chile worldwide and facilitate the trade flow.

Given the long coast line what are the environmental challenges for Chile?

The great length of Chile along with the climate change process have resulted in a constant variability of the country's geographical distribution over time. The climate change for the next decades is expected to increase the average temperatures and reduce the rainfall between the parallels 30°S and 42°S, where most of the agricultural and forestry production is located in Chile. This is going to produce important changes over our region's potentiality, entailing the decision of relocating historical productions and develop new resilient varieties. Certainly it could also generate a social and cultural impact that we must strive to balance. Even though the water resource has been enough for the agricultural activity (except for cases of occasional droughts in the northern part of the country), the reduction of the rainfalls and the glaciers in the future might have a negative impact on the irrigation. Hence, our main challenge would be to develop efficient irrigation systems adaptable to the different types of soils and varieties.

What are your foreign

agricultural policy priorities? What are the principal challenges?

The priorities of the Ministry of Agriculture, in terms of agricultural foreign policies, are: Maintenance and enlargement of foreign markets to Chilean produce; Incorporation of added value to the export products, along the agricultural chain; Adaptation to uncertainties and Climate Change; Internationalization of small scale agriculture & family farming; Preservation and improvement of sanitary standards and Development of sustainable agriculture in terms of environment, economic and social welfare. As for the challenges related to these priorities, we can mention: The maintenance of high sanitary standards, to satisfy a more sophisticated demand; The reinforcement of innovation and development of new species to upgrade from agricultural products to high value food; The adaptation to new production conditions, given the global warming and water constraints; Deepening the current conditions of preferential access in foreign markets; The enhancement of investments in infrastructure for irrigation, roads and ports and Providing small-scale agriculture and family farming the appropriate tools and knowledge to face the internationalization process.

What is your vision for the Free Trade Agreement between Chile and India?

Chile subscribed a Preferential Trade Agreement (PTA) with India in 2007,

becoming the first Latin American country that individually negotiated a trade agreement with India. This PTA entailed a tariff reduction of around 20% for about 300 Indian products and 200 Chilean products. With a wide potential of growing ahead, both countries initiated an enhancement process in 2010 that was finally concluded in April this year. The enhancement of the PTA entails a wider tariff reduction (80% to 100% in average) for around 2,800 products, which benefits the access of some agricultural products to India such as fresh cherries, onions, avocado, table grape, kiwifruit, mandarins, fruit juices, among others. Along with this process, it would be important to work closely with the sanitary authorities of both countries, in order to arrange the protocols that will allow the exportations of the new products and the expansion of the availability of these products to consumers. Moreover, from Chile's point of view, the enhancement of the bilateral trade with India still does not reflect the potential of the relation among our countries. It would be necessary to upgrade the status of the Agreement, in order to reach similar levels of access than those granted to the countries of the region.

Which are the major trade partners in food and agriculture for Chile? How do you view Indian agriculture and India as market for Agro food products?

The major trade partners of Chile



in food and agriculture are the United States, China, MERCOSUR countries (mainly Argentina and Brazil) and the European Union. However, our main destination countries in terms of agro-food exportations are the USA, China and Japan. Last year, the exports of agricultural, livestock and forestry products to the USA reached USD 3.24 billion, meanwhile the exports of food (including fishery, processed fruits, juices and wine) to that country accounted for USD 2.2 billion. As for China, the agricultural, livestock and forestry exports in 2015 were USD 2.43 billion whereas the food exports were close to USD 600 million. India is a very important market for Chilean agriculture and food products. Last year the total amount of agricultural, livestock and forestry exports to India was USD 87.59 million, mainly due to the exportation of wood pulp, apples, wines, food preparations and table grapes. In addition, the exports of food to India were approximately USD 5 million over the same year. In terms of imports, India supplied USD 15.3 million from the total agricultural and livestock imports of Chile in 2015 (USD 5.2 billion). The main agricultural products imported from India were tobacco, pickles, seeds and spices. Undoubtedly, India is a very significant market for Chile in terms of its big population and the potential complementarities in the area of technological cooperation. Thereby, this country should be in the top 3 partners of Chile in the future.

What are the main welfare schemes for farmers undertaken by the ministry? What are the strategies adopted to increase profitability for agricultural enterprises; and the various ways of increasing profit in farm business?

Since the family farming has become a priority for this Ministry, we have strategically adopted 5 action lines to increase the profitability and the benefits of the agricultural business. These programs are oriented to:

1. Improve the production by extending the productive season, enhancing the installed capacity, increasing the productivity, diversifying the

production offer, raising the safety standards of the products, maintaining the cultivated area despite the climate contingencies, increasing the production yields and reducing the unitary cost of production.

2. Progress to better conditions of commercialization by granting access to new markets, adding value to primary production, increasing the average price of selling, expanding the sales volume, reducing the unitary cost of transaction and diminishing the stock losses.
3. Improve the land management by developing and implementing a system to register the production, determining the main economic results of the land, enhancing the management and business capabilities, and helping the farmer to regularize the land domain and to comply with the law of harnessing of water.
4. Promote a sustainable production by encouraging the conservation of the local genetic resources, promoting the right management of chemical and organic residues, improve the availability of water resource, preventing the soil degradation, respecting the biodiversity and fostering the usage of green energies.
5. Knowledge generation and capacity building by supporting the collaborative work, establishing working networks between farmers, reinforcing the existent associations, participating in economic and productive planning bodies and encouraging producers to cooperate among themselves.

What are the major trends in agriculture and what scenario you foresee for the farm sector in the next 10 years or so?

In the next years, we expect to continue developing the fruitculture, increasing from 10% to 15% of the planted area and slightly expanding the activity to the south, as a result of the climate change. This tendency will also affect the grapevine plantations, for which we will need to seek for better quality and competitive prices. It is also expected to increase the production and commercialization of value added products and varieties, such as organic products. On the other hand, cereal production should be maintained, meanwhile the reproduction of seeds for exports should continue to grow and the quality of the national wheat

and oatmeal would be improved. The bovine cattle will also expand during the years, making the dairy industry more competitive in domestic and international markets. The expected rise of the national consumption of dairy products will promote diversification of the industry, while the production of bovine meat will probably decrease. The cattle industry is going to expand south and the production of pork and poultry meat will continue growing and meeting a demand with higher environmental standards and requirements. The forestry sector is going to experience lower growing levels, due to the lack of new plantations, but it will continue to be one of the main pillars of the export agriculture of Chile. To finalize, the agriculture in Chile for the next decade will remain as a driving force of the economic activity, increasing its share in total exports and doubling the volume and value of food exports by 2025.

What message would you like to convey to the food and agriculture community in India?

India and Chile started a preferential trade relation almost 10 years ago. This relation has had a positive impact on agriculture for both countries, but currently this relationship still has a strong potential to grow and to be complemented by the capabilities and the advantages of our agricultural sectors. Once again, it would be important to upgrade the status of the preferential trade agreement to obtain greater benefits of the bilateral trade. Chile is able to supply India very high quality fruits, vegetables, seeds, forestry and livestock products, accessing the Indian market in a very cooperative, responsible and respectful way. This can be assured by the good commercial trajectory that Chile has shown worldwide, backed up by almost null trade defense measures applied to the country. Our countries will certainly can gain on the counter season production of each other and we will need to take advantage of the logistic facilities, to enhance and improve the agricultural trade flow.

SPEARHEADING CHILE'S TRADE PROSPECTS

Chilealimentos is the association of companies of Food in Chile, it is a private entity of an industry line, that gathers and represents companies and manufacturers of mainly canned and preserved foods, dehydrates, juices and frozen products. It equally includes exporters of all types of foods, distributors for the internal market, suppliers of services, machinery and equipment manufacturers. The association promotes the development of its associates' activities and look after its daily routine in Chile and abroad. In conversation with Agriculture Today Mr. Carlos Descourvieres Gomez, Director of Corporate Development of Chilean Food Industry Association talks about potential of food industry in Chile.



In the food industry, Chile has earned the appreciation of the international community. Strengthening this is one of our main activities, which adds to the development technology, innovation, sustainability, human resources, food policies and many other topics that are key to food production. Our main objective is to expand our members' operations in Chile and abroad. Our members enjoy several benefits including promotion of their operation and safeguarding the interests of the industry in Chile and abroad; defence of those markets where Chilean products are traded and approaches to increase our members' market share; vigilance and development of food policies in cooperation with Chilean and foreign authorities; market intelligence, providing members with information on market dynamics; personalized support on foreign trade, sustainability, food policy, attendance to trade shows and project development.

I believe our work has been full of achievements. In trade, companies achieved substantial sales increases. In the last decade, exports of processed foods have doubled. The promotion of our exports has contributed to this. The presence at international trade shows such as Anuga or SIAL have been another important tool. Year after year, the number of exhibiting companies has increased, said Mr. Descourvieres.

Food Industry

The Food industry has seen quantitative and qualitative evolution during the last 10 years. Doubling our export value

has not been easy, but we've done it, thanks to the competitive edge that Chile has in food production. In terms of quality, I see companies that are much more integrated in foreign retail than before. The rapid spread of quality control systems, both from foreign buyers and from our companies, has facilitated strongly our supply, by eliminating middlemen. This has led to a decrease in costs and an increase in efficiency. On the other hand, with a network of 24 trade agreements with 63 countries and 63% of the world population, Chile has gained an upper hand in exports that was never seen before. This led to a radical change in the number of countries and companies dealing with Chilean firms on a daily basis. Decades ago, we used to trade only with Latin America and parts of Europe.

Challenges

The main challenges the processed fruit and vegetable industry is currently facing in the short term will be the economic instabilities on the international stage, which has affected trade growth in most economic activities this year. In the long term, however, we see a food market characterised by strong growth for Chilean exports products. There is a growing interaction between Chilean producers and international retailers. We will work as an association to make the most of these opportunities. Another challenge is to spread the word on the extent of Chile's food industry. Our country is in the top 10 for over 50 product

categories and, still, most international buyers are not aware of it, despite our exports reaching 190 countries worldwide. In dehydrates, where Chile is the leading exporter in dehydrated apple and prune, the second-largest in walnuts and hazelnuts, the third-largest in raisins and the tenth in almonds, a main concern is how to create products with higher added-value, starting from the abundance of raw material that we have, given the global demand towards these products as part of healthy eating.

International Market

Food Industry is the second most important export category in Chile. The Chilean food industry is recognized internationally for its quality and safety. In every sector, there are companies offering retail products. Our expectation is to double exports over the next 10 years. Chile's main destination for food export is USA followed by Japan, Brazil, Russia, China and Mexico. Our food export to India was USD 2.9 million in 2014 and USD 3.2 million in 2015. Some of our food exports to India are apple, cauliflower, refined fish flour, food preparations, grapes, wine mixes, margarines and others. Chile has signed partial trade agreement with India in 2007. The agreement includes a list of 170 food products with tariff reduction. Chile has confirmed a new agreement upgrade with India, that will include a new list with 1.100 food products and is awaiting to be signed in order to start.

Chile's Phytosanitary Safeguards



Agricultural and Livestock Service, SAG, is the official Chilean State body responsible for supporting the development of Chile's agriculture, forestry, and livestock industries by protecting and enhancing plant and animal health. SAG works towards the preservation of Chile's plant and animal health status, in order to create better conditions for incorporating farmers into productive processes in order to achieve the country's export objectives by facilitating the trade of animal and plant products by complying with the plant and animal health requirements of destination markets and the regulations applicable to them. In conversation with Agriculture Today Mr. Angel Sartori, National Director of Agricultural and Livestock Service, SAG discusses the mandates of SAG and phytosanitary conditions of the country.

versation with Agriculture Today Mr. Angel Sartori, National Director of Agricultural and Livestock Service, SAG discusses the mandates of SAG and phytosanitary conditions of the country.

In Chile, plant and animal health border controls have been put in place to prevent the introduction of diseases or pests from other countries that could affect animals or plants and seriously harm Chilean agriculture. These Controls operate at terrestrial, air and maritime points of entry to Chile. Products, means of transport, passenger and crew luggage, and commercial forestry, agriculture and livestock cargo (fruit, milk, cheese, etc.) are inspected at these border controls to check compliance with established health regulations. The Agricultural and Livestock Service is present throughout Chile with 15 regional offices, 65 area offices, 94 plant and animal health border controls, and 16 diagnosis laboratories with advanced analysis technology.

"SAG participates in certifying the health of animal or plant export products. This certification is internationally recognized and reflects the rules and standards that regulate world trade. We have signed agreements with other countries to obtain this recognition", said Mr. Sartori.

SAG works to conserve and improve renewable natural resources that impact agricultural, livestock and

forestry production, and control pollution in irrigation water, conserving wild flora and fauna, and improving soil to prevent erosion and maintain its productivity. Another of SAG's role is to ensure that animal food and medication is safe, and does not negatively impact their health, and that the chemical and biological products used in the control of plant pests comply with their manufacturing standards. All of the above has been possible due to the advantage provided by Chile's excellent health status for plants and animals of economic importance, considered by Chile to be a highly valuable commodity, mentioned Mr. Sartori.

The Division of Agricultural and Forest Protection works consistently in generating phytosanitary policies and regulations in order to protect the interests of Chile and its resources. The division work for controlling forestry and agricultural resources; issuing export certificates for forestry and agricultural products; control and regulation of agricultural inputs and outputs; and food safety control. Whereas, livestock protection division of SAG is responsible for the protection

of heritage herd animal health and assurance of health and safety of commodities of animal origin, through activities and regulations. Our activities enable producers and manufacturers of products of animal origin to ensure the safety of their products in a competitive manner, considering the food chain vision from feed inputs to wholesale marketing at the national market and export to foreign markets, said Mr. Sartori.

Chile is a member of various multilateral organizations related to the field of phytosanitary, technical barriers to trade, intellectual property and environment. Participation in this type of agreement seeks to assure that regulations implemented by international markets do not harm the country's export activities and that no unjustified barriers are set up without scientific grounds. "In the field of international negotiations, we consistently contribute to the implementation of international agreements and commitments in the agricultural and forestry field, its proper implementation and profit maximization by eliminating unjustified barriers to international trade, and helping to get new and better market", said Mr. Sartori.



Chile to become the Southern Hemisphere's prime fresh fruit exporter and the world's number one exporter of table grapes and blueberries.

Exports continue to account for more than 60% of national fruit production in most species, reaching increasingly sophisticated consumers and highly demanding markets. The counter-seasonal production for the northern hemisphere, opening up of new markets and the expansion of traditional markets through free trade agreements have played a pivotal role in the Chilean fruit industry's capacity to maintain a strong position in international markets.

The investment in the fruit industry in Chile, complying with international standards, is aimed at modern infrastructure and technology. Today, there are 385 cold storage centers, more than 100 large fruit centers and around 1,000 packaging facilities at orchard level.

Dried and Dehydrated Fruits and Nuts

Chile is currently one of the world's top dried fruit and nut exporters, and is the largest producer and exporter in the Southern Hemisphere. The country trades 95% of its production abroad. Chile is the world's number one exporter of prunes and dehydrated apples and number two in hazelnut exports. Chile is also the biggest exporter in the Southern Hemisphere of walnuts and third in the world. Chil-

THE WORLD'S BIGGEST EXPORTER

- Fresh blueberries
- Fresh grapes
- Fresh cherries
- Prunes
- Dehydrated apples
- Frozen whole salmon
- Mussels

THE WORLD'S SECOND BIGGEST EXPORTER

- Shelled walnuts
- Fresh plums
- Unshelled hazelnuts

THE WORLD'S THIRD BIGGEST EXPORTER

- Raisins
- Frozen raspberries
- Grape juice
- Inulin

ean dried and dehydrated fruits and nuts have superior organoleptic characteristics, so they are able to enter



even the most demanding markets.

Chile's principal dried and dehydrated fruits and nuts are walnuts, almonds, hazelnuts, prunes, dehydrated apples and raisins, which have experienced very dynamic development in the recent year. The industry's exports have tripled in the space of just one decade, going from shipments valued at USD 287 million in 2005 to USD 871 million in 2014 and they continue to grow strongly. Today they are one of the Chile's main food export sector. During 2015 Chilean Dried and dehydrated fruits exports reached USD 887 million.

Premium Chilean Walnuts

The country has strongly grown its walnut production, adding up to over 65,000 MT in 2015 and 37,500 planted hectares, which are also growing by about 2,800 new hectares a year. The plantation region stretches from Valparaíso to Maule. This area has an exceptional Mediterranean climate and unique geographic, climate and soil conditions, all of which allow for the production of a top quality walnut with regards to size, color and flavor. Considering all of this, the country expects production to double over the next five years. In order to face a growth of this magnitude, Chile has to open new markets.

The Chilean walnut stands out due to its light color, flavor, freshness and health benefits. A few of its nutritional benefits include: High antioxidant content; Reduction in heart risk; Improvement in bone health; Helps to fight diabetes; Contributes toward the brain's motor and cognitive abilities.

Asia holds the greatest potential for Chilean walnuts

With more than 30 years in the sector, Valbifrut evolved as a leading walnut company in Chile. The company is producer, processor and exporter of Inshell and shelled walnuts. It is leader in technological innovation and development and delivers pioneer and qual-

PROMOTING CHILEAN FRUITS AT INTERNATIONAL PLATFORM



The Chilean Fruit Export Association (ASOEX) is a private non-profit trade organization that represents 96% of the country's fresh fruit exports and its 350 associates accounts for 63% of the nation's fruit production. ASOEX performs a number of roles in the Chilean fruit industry, including ensuring high quality and phytosanitary standards and promoting Chilean fruit at the international level. It also disseminates technical information, supports research, development and innovation. Furthermore, its industry sustainability program known as Chile G.A.P. is considered a key and inherent element of food safety, corporate social responsibility and environmental protection. In conversation with Agriculture Today Mr. Ronald Bown, Chairman of ASOEX discusses the achievements of Chilean fruit industry.

Please brief us the legacy of the Chilean Fruit Exporters Association of Chile (ASOEX).

The Chilean Fresh Fruit Exporters Association (ASOEX, from its Spanish name) was established in 1935 as a non-profit private entity, which represents the growing and exporting sector. The 351 company members are exporters who have their own fruit or are traders of third parties fruit, all together we represent 96% of the total fruit volume exported and 57.1% of the fruit tree plantations. Our mission has been, since the beginning, to facilitate and support the productive process and the international trading of our products, defending our associates interest, in a generic way, non discriminatory and stimulating the free competition of the internal and external stakeholders, without getting involved in commercial matters. Some of the most important tasks we engage in is the development of generic promotion campaigns in the main destination markets, to promote and organize training activities to their field and packing workers, to grow the sustainability policy of the industry with consumers and workers at the centre, social business responsibility and environmental care, among others.

Please tell us about agriculture in Chile and major fresh produce of the country.

The Chilean food Industry exported more than 16 billion dollars last year, being fresh fruit export the biggest part of this industry representing 32% of these values. The main species being exported are table grapes, apples, stone fruits, citrus, kiwifruit, pears, avocado, blueberries and cherries among other 20 species. The total volume exported last season reached more than 100 different markets, and represented 2.4 million tonnes.

Which are the major trade partners for Chilean Fruits? What potential do you foresee with India and how this can be boosted?

The main destination for the Chilean Fresh Fruit is the United States of America, which represents 32% of the total fruit exported by Chile. India has a huge potential considering its population and their consumption of fresh fruit; actually it's the fifth most important destination in the Far East. First the entrance barriers of some of our fruits needs to be lowered, and then we have to build relationship among Indian importers and the Chilean exporters.

What are the agricultural products that are currently exported to India? What is the current trade volume between Chile and India in this segment?

Chile is exporting mainly apples to India, which represent 93% of the total Chilean Fresh Fruits export to that market, followed by kiwifruit and table grapes. Last season, Chile exported 21,254 tonnes to India, this season, which is not ended yet, Chile has already exported more than 30,000 tonnes, representing an important growth in this market.

What are the impediments that Chile has encountered in trading with India?

Chile has been trying to promote exports of blueberries and avocados for at least the last 10 years, both products have the phytosanitary protocol approved but with high entrance barriers, it is difficult to enter the Indian market.

ASOEX takes part in extensive national and international collaboration. Have you got any major tie-ups with India?

ASOEX has been doing international promotion of their fruit since 1994. In 2004, we did campaign in India, since then we have been monitoring the different opportunities to develop this market. This year the commercial office of ProChile in India participated in the event Fresh Produce India, which was a new beginning for joint activities in this important market.

How does ASOEX support producers who cater to global trade?

ASOEX is working together with ProChile, the government agency in charge of promotion of exports, to position the Chilean Fresh Fruit industry as a “world class” fruit supplier in terms of reliability and market regulation compliance at the international level. We have 13 active promotional activities in different markets, their objective being increasing consumption of fresh fruit when the fruit supply is available in the market, through different mix of activities like produce fairs, point of sales activities, product sampling and importers meeting.

There is an increasing competition in the market. How the Chilean Fruit industry is constantly raising its bar to meet better quality and exponential export growth?

The Chilean Fresh Fruits export industry is focused on maintaining and developing the highest standards in product quality and food safety, in order to use them as a differentiator driver against competition. Market Research and Innovation are key on accomplishing these attributes, especially for being able to commercialize the Chilean fruit in the very far away markets.

How do you ensure compliance of Good Agricultural Practices, food safety, sustainability,

ity products. Valbifrut market both shelled and inshell walnuts, as well as halves, quarters and manually or mechanically cracked, a variety of colors ranging from extra light to amber, depending on the clients’ requirements. In conversation with Agriculture Today the Today Mr. Remi Decottignies, Executive at Valbifrut processing plant discusses the Chilean walnut industry and its challenges.

As the leading producer and exporter of walnuts in the Southern Hemisphere, Chile is also one of the largest exporters of walnuts in the world. Additionally, walnuts are one

of the most profitable crops in Chile and consistently fetch good prices, and growers anticipate a vigorous growth in the production of the next few years. “One of the reasons is the quality coming from Chile is so high, because taste and quality are valued highly, there is willingness to buy Chilean walnuts. Chilean product has also a better color. The walnuts here have a lighter and brighter color, and that makes for a very attractive product. The flavor profile also has very little bitterness, and that, along with good oil content, which enhances flavor and shelf life, makes for a

premium product,” explained Mr. Decottignies.

Chile has good walnut growing conditions. The weather, the soil and the natural conditions all contribute to quality, but Chile is also known for the high standards in processing. Five years ago, the use of machines for cracking nuts was just starting out in Chile, however, today, more than 60% of walnut cracking is done mechanically, a fundamental trait when it comes to facing the growing demand this product has experienced as of late. “There is still an important percentage of walnuts which



Dr. MJ Khan, President of Agriculture Today with Mr. Ronald Bown, Chairman, ASOEX and Mr. Carlos Cruzat, President, Chilean Kiwi Committee

traceability by the producers and exporters of fruits and vegetables in Chile?

Chile since the mid eighties has been working in building sustainability of the fresh fruit industry. In the year 2000 the first international certification program Chile G.A.P (which is equivalent to Global G.A.P) was established, so were also different certifications like British Retail Consortium (BRC), HACCP, Good Manufacturing Practices and many others, considering traceability from farm to packing facilities, transport to the ports and to the entry ports of destination is guaranteed. Most of exporters companies use GLS1 code bar system, according with their importers.

What message would you like to convey to the food and agriculture community in India?

The Chilean fresh fruit industry is commercially very reliable as their products are healthy and safe for consumers.

are cracked by hand, and that extra attention, though labor-intensive, can bring good prices for growers. The hand cracked walnut is a niche market that will continue being very important for Chile", said Mr. Decottignies.

"Due to the excellent characteristics of Chilean walnuts from natural conditions through to processing, the product is known internationally to the high quality standards demanded from the strictest markets"

All these natural conditions, bolstered from the work ethic of Chilean workers and the highest quality standards throughout the productive process, allow the country to have the best product. For years Chile has been building an industry with stable volumes and high quality, which has today positioned Chile as the number one exporter in the Southern Hemisphere and the third globally.

Challenges, Opportunities and Changes

Over the last five years, Chile's walnut industry has consistently increased its production volume, scoring around a 15% annual growth on average. Chile has left its days as a counter season alternative behind. Today it is positioned as a serious year round supplier capable of supplying markets with a year's stock that also meet the highest quality standards.

The focus on markets, development of processed products, industrialization and process mechanization have allowed Chile's industry to compete on a global level. "Due to the growing production volumes, a hefty investment in specialized machinery is needed to pair with today's manual labor, in order to guide growth into the future", said Mr. Decottignies.

"The crowning opportunities are always orientated towards opening new markets, especially those with high consumption and that also offer tariff benefits compared to our competitors," stresses said Mr. Decottignies. From this perspective, we need to maintain the characteristics and

quality standards of our produce. He adds that global trends toward living a healthy lifestyle, playing sports and eating well, helps and increases the consumption of this product as well as the entire dried fruit family.

"Chilean walnuts are known worldwide for their flavor, clear color, prolonged freshness, and their compliance with the highest quality standards"

Shipments Abroad

Chile is currently the third largest walnut exporter in the world, achieving a high degree of differentiation in terms of quality compared to its main competitors. Chile meets the highest international standards for walnut harvesting and processing, thus being able to export its products to more than 40 countries on all five continents. The key markets for walnuts are Turkey, Brazil, Italy, Germany, South Korea, Spain, Hong Kong, Holland and the United Arab Emirates, among others.

"With Chile set to raise walnut production in the coming years, it will need to find new market outlets. Whereas, India has huge market size and potential which need to be tapped and monitored. The major constraint we face while exporting to India is fumigation requirement. India demands methyl bromide fumigation, but in Chile we are open to explore other less harmful alternatives, such as phosphine. We need to solve this issue on priority for entering the large Indian market. Long term, we believe that China, India, Japan and other Pacific Rim markets offer the best opportunities for Chilean exporters to compliment traditional business in the EU and to other mature markets," informed Mr. Decottignies.

India, China and Turkey are complex walnut producers, importers and exporters, with high walnut demand potential as their increasingly wealthy consumers look to purchase more healthy products. Gaining more knowledge of consumers in these markets and their usage/attitudes to

walnuts would be a strategic resource for the Chilean industry that would allow them to tailor their product offering to specific consumers' needs, occasions, etc.

Dairy industry in Chile

Chile has one million hectares of grazing land, twenty large milk plants and almost one hundred small and medium-sized cheese production plants. The dairy industry produces in an exceptionally natural and disease-free environment. The milk and its derivatives are processed using state of the art technology and under strictly controlled hygiene standards. Chilean dairy products have the true taste of the countryside; they are flavoured, healthy and innovative.



The industrial plants hold ISO 9000 and 14000 certification for care and respect for the environment, as well as certification with regard to quality, food safety and Hazard Analysis and Critical Control Point (HACCP). They also maintain a continuous quality control of raw materials to ensure traceability and best manufacturing practices (BMP).

Chile exports dairy products to more than 40 countries, including Mexico, Venezuela, China, Peru, Colombia, Brazil, the United States, South Korea, Costa Rica, Algeria, Cuba, the United Arab Emirates, Nicaragua, Panama and Guatemala.

The following are among the products produced and exported: Powdered whole and skimmed milk, condensed milk, UHT milk, infant formula milk, cheese and milk serum. They also export butter, butterfat, manjar (spread

CHILE'S PRUNE DOMINANCE

For 70 years in the prune production and packing industry, PRUNESCO is characterized as a growers' company. Founded in 1941 by a handful of producers seeking better export conditions for their products, the company has grown to be the biggest producer in Chile and all of Latin America. Today the company produces pitted and unpitted prunes, without any added preservatives, prune juice and prune puree in both retail and bulk formats. Prunesco has become the biggest exporter in Southern Hemisphere and in the top three of the world, exporting to more than 50 countries. Commercial Manager Mr. Pedro Monti assesses the state of the global market and where Chile is positioned to exploit the existing opportunities in a n engaging discussion with Agriculture Today.

Plums grow in an exceptional environment in Chile. Around 11,000 hectares of plums are planted in Chile for dehydrating, and close to 75,000 tonnes are produced annually. The plantation area is from Valparaíso to Maule, which has an exceptional Mediterranean climate and unique geographical, weather and soil conditions. This permits a top-quality product in terms of size, color, aroma and taste.

"Prunes are available year-round. The plums are harvested in February and then go through the drying and softening process. Chilean prunes are differentiated because of their color, taste and contribution to health. Some of their nutritional benefits are: Good source of energy; high content of antioxidants (over 20 compounds) vitamins and minerals; good fiber content which helps to restore bone mass and protect teeth, as well as preventing gastrointestinal illnesses, bladder stones, diabetes, cardiovascular problems and high cholesterol", informed Mr. Monti.

Prunesco produces and exports more than 20,000 tonnes of prunes and related products of the highest quality to more than 50 countries throughout the world. This accounts for approximately 30% of the volume and value of Chilean exports.

A company in constant innovation

With the highest quality standards, Prunesco is certified by worldwide consultants. Its factory and machines are constantly innovating to improve the fruits' quality and the service delivered.

"We assure traceability in each product batch, from the orchard to the consumer table. Our company holds different certifications such as HACCP, IFS (International Food Standards), HALAL which refer to the quality and safety of products, ISO 9001: 2000 for quality of the management systems and BCS social compliance. We have the best laboratory in prune industry in Chile and state-of-the-art equipment in all our lines", said Mr. Monti. The firm has acquired a new system to produce prunes without potassium sorbate at any



moisture level; potassium sorbate is an inhibitor to the growth of mould widely used on prune production. This produces an item that is pathogen-free and can be packed in any format, with a longer shelf life of up to 24 months.

PRUNESCO has installed important systems and methods to comply with environmental demands. The firm has set out to increase its sustainability profile, installing a system that cleans and dries the prune pits,

which are then sold to third parties or used in the plant as fuel. Through the initiative, Prunesco has now 30-40% of its total energy produced in-house via pits burning.

Varied format

In response to customer needs, Prunesco exporters sell pitted and unpitted prunes. They also offer the option of sale in bulk and in retail packs, in accordance with the requirements of each customer and market. "The company has invested strongly in the development and acquisition of state of the art technology for every stage of the production process, this has given us the opportunity to deliver our customers with the best products and packaging solutions that range from bulk prunes to modern polypaper canisters to fit every requirement", said Mr. Monti.

Main Markets

Chilean prunes have conquered the market with their exquisite taste in more than 50 countries on the five continents, and also have high quality standards. Some of the major markets are Russia, Mexico, Poland, Germany, United Kingdom, Brazil, Spain, Holland, Peru, Denmark, Colombia, Lithuania, Vietnam, Egypt, Finland, Sweden, and the Czech Republic; among others.

Prunesco is one of the three biggest companies in the prunes industry worldwide. Today, the company exports over 98% of our prunes production. "China is one of the biggest windows we have. Other destinations in the regions that harbor opportunities are South Korea and Japan. Dubai and the Middle East are mainly buyers of Chilean almonds and walnuts, whereas demand for prunes is low due to competition with dates and other factors. India is the "biggest and challenging" market or us. The hindrance for us to export is the methyl bromide fumigation requirement, We would be open however to explore other alternatives and in such case phosphine might be an option that could be analyzed,. Despite those issues, Chile has the clear aim to further boost its prune production and reach out to the leading ranks of the global trade", said Mr. Monti.



EXPORLAC is an association of dairy companies in Chile. It partners competitive and innovative companies exporting products ranging from pure milk -liquid, powdered or condensed to the most delicious and delicate cheese. Its efforts assist healthy Chilean dairy products to feed the world. Some of the major dairy companies under Exporlac are Colun, Soprole, Watt's, Surlat, Nestle, Quillayes.



"Chilean consumers have become more sophisticated and interested in higher-quality and gourmet flavours, this interest has been built over a good economic performance, and is dependent on disposable income. The health and

wellness trend continues to positively impact sales for drinking milk products in Chile. Along with traditional fat-free or reduced-fat products, several other new developments have surfaced in the country to satisfy an increasingly higher number of consumers interested in health and wellness offerings. In particular, there are products available for consumers with conditions such as lactose-intolerance or coeliac disease. Also, lactose-free products are being consumed by a larger number of people, and not only those with lactose-intolerance, since these products are perceived as healthier and wholesome. Actually there is a niche for specific health and wellness milk, such as almond milk, rice milk and coconut milk, and these products became available in supermarkets and hypermarkets".

Mr. Guillermo Iturrieta Cattan, President of Exporlac, on the trend in dairy sector in Chile.

able sweet paste made from milk) and UHT cream. Chile's dairy industry exports to markets whose consumers require value added, healthy and highly nutritious products. During 2015 Chilean dairy exports reached USD 117 million.

Prochile: The Chilean agency for international business development

ProChile comes under the aegis of the Ministry of Foreign Affairs of Chile in charge of promoting exports of products and services. ProChile contributes to dissemination of foreign investment opportunities and tourism promotion. It has a network of over 50 offices worldwide and 15 Export Centers in Chile which have experience and tools to help boost the export sector and position Chile's attributes in international markets.

In a globalized world with highly competitive markets, ProChile, in its role as trade facilitator is able to provide international consumers a wide range of products and services from the most diverse sectors. ProChile presents business opportunities to thousands of international buyers thus improving the quality of life for millions of people around the world.

It offers a comprehensive range of products and services aimed at accompanying Chilean-based companies in their development on export markets. ProChile essentially fulfills two missions:

- Provide knowledge-based products and services, from business information to consultancy and monitoring services, in order to help companies elaborate a strategy for international expansion
- Promotional operations in order to foster partnerships with companies outside Chile.

In addition, ProChile has also been staging actions targeting India in order to foster partnerships, business, mergers and trade. It facilitates access to the Indian market by providing the Chilean companies with a complete range of services and tools starting from market analysis to

implementation. Along with that, it brings assistance to Indian entrepreneurs and businesses sourcing Chilean products and services.

La Vega Market in Chile

A sprawling landscape of stalls and carts in the center of Santiago, Chile, La Vega Central Market vibrates with the brilliance of the country's agricultural bounty: fat yellow onions stuffed in mesh sacks, gigantic corn, squash in every shape and hue; avocados, kiwi, custard apples, and other fragrant fruits; wild potatoes from Chile's Chiloé Island ranging in color from pale yellow to purple. It is the best place in the country to get to know the universe of Chilean food and to fall in love with it.

La Vega Central is a market located in Santiago, Chile. Here one can find extensive arrays of vegetables

"Chile's economy, support to entrepreneurship, political stability, public security, ideal climatic conditions allow Chile to develop products and services with a unique quality in the region, which added to strict adherence to fair trade practices and sustainability, make our exports attractive with reliable suppliers and a high level of innovation. We are interested in identifying strategic partners, distributors, traders and consumers in international markets who see in Chilean products and services the opportunity to enhance their business strategies."

Ms. Jennyfer Salvo, Assistant Director Chilean Promotion Bureau, ProChile





and fruits grown in the Central Valley of Chile, not to mention all of the spices, nuts, fish, cheeses, meats, and household cleaning supplies, all found at the cheapest prices in Santiago and open seven days a week, 365 days a year. The market is bustling and crowded, especially in the mornings and on the weekend.

Chile's mild climate and varied landscape makes it the perfect place for growing a rich variety of fruits and vegetables. While grocery stores certainly carry standard fruits and veggies, at La Vega, one can find some of the freshest, cheapest, and most varied fruits that Santiago has to offer. The prices for produce at La Vega are often three or four times cheaper than prices in the supermarket. Vendors aggressively compete here for business and sell in bulk, so prices are normally posted per kilo.

The market is a fantastic display of Chile's rich agricultural bounty, receiving hundreds of thousands of visitors daily at La Vega's 60,000 square meters of stalls. La Vega Central has now achieved iconic status in Chile's capital. The market houses thousands of individual stalls selling fruits, vegetables, meat, dairy prepared foods, dried goods, and various ethnic specialties from neighboring countries. The market is popularly known as a

destination for the myriad of delicious and affordable restaurants housed throughout the complex. Not only it is a practical place to find the freshest foods at a great price, it is arguably one of the best cultural experiences in Santiago.

Chile's Leading Institute for Education and Research in Agricultural Sciences

Founded in 1842, the University of Chile located in the capital city Santiago is the main and oldest institution of higher education of the State, with a national and public character. All the areas of knowledge are elaborated and taught in the campus and today the university is at the top of the Chilean university system with regard to teaching, research, creation and outreach.

The university is organized around 14 faculties namely Architecture and Urbanism, Arts, Agricultural Sciences, Sciences, Physical and Mathematical Sciences, Forestry Sciences, Chemical Sciences and Pharmacy, Social Sciences, Veterinary and Animal Sciences, Law, Economy and Business, Philosophy and Humanities, Medicine and Dentistry, and four Interdisciplinary Institutes for Public Affairs, Communications, International Studies and Nutrition and Food Technology, dis-

tributed in five campuses and several experimental stations in Santiago and other regions of Chile. The University of Chile has 29,884 undergraduate students, 8,195 graduate students in doctoral programs and masters programs and 3,450 faculty members.

Faculty of Agricultural Sciences of University of Chile is spread into various departments namely Agricultural Production; Animal Production; Plant Health; Engineering and Soils; Agricultural Industry and Enology; Agricultural Economics; and Environmental Sciences and Renewable Natural Resources. The academic programs at Faculty of Agricultural Sciences include Bachelor of Science in Agriculture and Engineering in Renewable Natural Resources. Master of Science in four domains: Agricultural Sciences; Soil and Water Management; and Aquaculture Sciences.

The University of Chile has collaborative agreements with higher educational institutes and international organizations and participates in networks, consortia, associations and alliances in the world, such as APRU, SYLFF, OUI, CNRS/OEA, UNESCO, ERASMUS ECW, European Union Frame Program (EURO), ALFA, among others. The University participates with foreign university in thesis co-tutorship, double-degree programs, joint post-graduate programs, double title at the pre-graduate level and in research activities.

At the forefront of cutting-edge research and education in South America, University of Chile is placed among the 400 best higher educational establishments in the World Ranking of Universities (University Shanghai Jiao Tong) and in 10 place among its Latin-American peers and first place in Chile in the Ibero-American Ranking of Research Institutes.

Chilean Kiwifruit: Ripening is Key

Born under the auspices of the Chilean Exporters Association (ASOEX) and the Fruit Growers Federation (Federfruta), the Chilean Kiwifruit Commit-

Mr. Roberto Neira, Director of the Faculty of Agriculture Sciences, University of Chile.

“The University of Chile has collaborative agreements with higher educational institutes and international organizations. We are proud to welcome a lot of international degree seeking students, exchange students from different countries. We want more Indian students to come and study in the University of Chile. The University receives foreign students for pre-graduate and post-graduate level. Our Student Mobility Program offers opportunity to international university students to undertake undergraduate or graduate studies at University of Chile, for one semester or one academic year, and a similar opportunity to regular University of Chile students at foreign higher education institutions, as a way to incorporate an international dimension to their university training. Each personal program of studies is determined once the student is in Chile and has been admitted in the selected courses. Around 275 foreign students came to University of Chile in 2015 and we expect enrollment of more students this year”.



Dr. MJ Khan, President, Agriculture Today in conversation with Mr. Roberto Neira, Director of the Faculty of Agriculture Sciences, University of Chile

tee guarantees the world consumers a consistent good quality product throughout the whole season. The Kiwi Committee is a voluntary membership organization made up of equal numbers of producers and exporters of kiwi and the organizations that represent them. The committee currently gathers over 80% of the Kiwifruit production in Chile with over 50 exporters members that represent more than 600 growers. In conversation with Agriculture Today Mr. Carlos Cruzat, President of the Kiwi Committee talks about various attributes that increases Chilean Kiwi’s competitiveness in destination markets.

The main objective of the Kiwi Committee is to increase and ensure the competitiveness of Chilean kiwi-

fruit in major export markets. Also improve the supply with consistent and uniform quality products and post-harvest practices in addition to fielding marketing and promotion programs. “Our organization has been working for the past years in defining and monitoring growing procedures and quality standards in order to assure consumers high satisfaction along with aiming towards best results for our growers”, said Mr. Cruzat.

Flavour, productivity and shape

People look for obvious characteristics like homogeneity and nutritional content with all the new varieties but Chile’s number one requirement is excellent flavour at the point of consumption, followed by productivity

and shape. “What we are looking for is a certain amount of crop per hectare, shape and flavour. The fruit must be able to naturally deliver a good amount of sugar. Also, because the business is based on kilograms per hectare, we are looking for productive varieties, and fruits that have a good shape from an aesthetic perspective. In the case of green kiwifruit specifically, we hope to find a good-sized variety whose skin colour is more green than brownish”. Many of these characteristics can be accomplished in part by having good genetics and good pollination, according to Mr. Cruzat.

Ripening

Kiwifruit, just like bananas, mangoes and avocados, needs to be ripened. If the product is not properly ripened, it runs into a considerable risk of being deemed bad fruit. “The quality standards for our kiwifruit are based on the Maturity Guarantee Program, where we have set minimum harvest standards, stage where the final quality of the fruit can be established, and by following them we guarantee the



final consumer's satisfaction. For the outcome to be consistent, kiwi ripening does not take place on the plant, so a transforming process is necessary. The key to achieving it lies in maintaining a clear and well-organised process, where exporter and recipient have clearly demarcated functions and responsibilities", explained Mr. Cruzat. In Chile, the Chilean kiwi committee, alongside a group of experts from the PUC University, has carried out in-depth research to identify the critical variables so that the outer skin, heart and pulp all ripen evenly.

Current State of Play

Chile may well have developed a solid counter-seasonal kiwifruit supply to over 60 countries worldwide, but the South American nation is not resting on its laurels. The industry pushes ahead with a two pronged breeding programme to develop new varieties that it hopes will strengthen the country's global export position and shore up profitability for growers.

Chile is approaching the world of new varieties as a "future necessity" as the country faces stiff competition from New Zealand in terms of both price and productivity. The Hayward variety continues to account for the vast majority of the 10,337 ha of production and around 200,000 tonnes of kiwifruit exported from Chile each year between May and October. Despite not being bred for Chile's growing conditions, Hayward has proven to be a very stable and valued variety, according to Mr. Cruzat.

To that end, the committee is looking for new green and yellow varieties, as well as genetic crosses of varieties that will be developed in Chile. In particular, the growers want yellow varieties that are adapted to Chile's growing conditions. Furthermore, they are interested in red varieties ideally those that can complement Hayward with other attributes.

The World's Largest Organic

& Biodynamic Vineyard: Chile's Emiliana Vineyards

Located in Chile's main wine valleys, Emiliana is characterized by production of organic and biodynamic wines that helps to preserve the natural life balance, human beings and the environment. This results in healthier, unique and better quality wines. Emiliana Organic Vineyards has positioned itself in Chile and the rest of the world as the most important organic and biodynamic vineyard. Mr. Guillermo Beltramin, Export Manager



Asia of Emiliana explains the various sustainable practices taking place at the vineyard.

Organic and biodynamic agriculture is the best way to get more balanced, healthy and productive vineyards, which results in better quality of grapes and therefore wines. Each of vineyards in Emiliana is a true reflection of organic practices they use, which are based on promoting biodiversity and the absence of pesticides, herbicides and synthetic fertilizers in order to produce healthier foods.

"We firmly believe that using sustainable, organic, and biodynamic agricultural practices, it is possible to obtain better-balanced, healthier, and more productive vineyards, which results in better quality grapes and therefore unique wines. Thanks to the passion and the way we do things in Emiliana, our vineyards produce wines with unique character and personality, always getting the

maximum expression of terroir", said Mr. Beltramin.

Emiliana owns vineyards throughout the valleys that make up Chile's best winemaking areas including Maipo, Rapel, Casablanca, Colchagua and Bío-Bío - each of which possesses different qualities suited to certain grapes. "Emiliana is currently the main organic vineyard in the world, with more than 800 certified hectares organic in the best wine regions of the country, ending the year with 580,000 organic boxes exported with presence in over 60 countries.

Our organic - biodynamic program is comprehensive and implemented as per Rudolf Steiner's three basic principles of biodynamics that respect the land, follow the calendar cycle and use homeopathic preparations", mentioned Mr. Beltramin.

The result of the philosophy and processes is that all of Emiliana's vineyards teem with natural life, a perfect blend of predators and prey that forms a balanced vineyard ecosystem. In fact, a perfect example is the silbador an insect-eating bird found in the vineyards. They also have hens, geese and alpacas roaming the vineyards, and they sow flowers between the wine rows to attract insects that prey on other, wine-harming species. The birds, bees and bugs act as a natural pesticide and weed killer, and the compost is made of grape leaves, stalks and stems, as well as manure from the animals that roam the vineyards.

Emiliana was also certified Carbon Neutral for the first time in 2008, after employing methods such as reducing their packaging, investing in solar panels and running their tractors on biodiesel. However, their biggest commitment is to the people that work for them. Besides fair wages, they also offer employees scholarships to universities and colleges, and allotments on which they can grow their own fruit and vegetables. Their workers are also given responsibility and the profits for the sale of subsidiary products like olive oil and honey.

TRADE BOOST

The General Directorate of International Economic Relations is a public entity part of the Foreign Affairs Ministry. DIRECON executes, coordinates and implements the Government's trade policy into all international economic relations. This entails collaborating with the country's exports development, participating in bilateral and multilateral negotiations, and in all international commissions where Chile is participant, and promoting and negotiating economic international treaties and agreements. In Agriculture Today's interview with the Director General of International Economic Relations, Mr. Andres Rebolledo, details about the country's latest performance in trade and new opportunities in other markets were revealed.



How did agro-industrial exports perform in 2015?

The agro-industrial sector in Chile is today the second-largest export in the country after copper. During 2015, Chilean Agro-Industry exports reached US\$ 1 billion. Chilean agri-businesses keep being a strong driver of Chilean exports. The country went through an agricultural revolution in exports, but in industrial production as well because these are not basic products, but processed foods.

Why is Chile favorable place for doing business?

It is a nation of democratic institutions with an open and stable economic model, favorable for investment, which has remained as one of the most competitive economies in the region. It stands out for its strong institutional framework, the strength and transparency of its public institutions, infrastructure, and for having one of the most efficient and sophisticated financial markets. The keys to the success of the Chilean model are associated with stable macroeconomic policies, a close cooperation between the public and private sectors, transparent rules, and competitiveness. It is a good place for investing in agribusiness due to its geographical and climatic advantages. We maintain excellent phytosanitary conditions as a result Chilean products are present all around the world.

What is the current status of trade agreement with India?

The Partial Trade Agreement (PTA) between Chile and India was signed in New Delhi in 2006 and entered into force in 2007. The PTA around 470 products, which enjoy fixed margin of preference an important percentage of the trade exchange between both countries. We have negotiated an Enhancement the PTA will enlarge the coverage of the

Please brief us about Chile's trade policy

Chile has chosen an open economy, competitive and free-trade oriented that is subject to international regulations and a trade policy compatible with efficiency and efficacy in macroeconomic management. Our strategy is focused in an open regionalism that integrates unilateral openness, multilateral negotiations and bilateral agreement negotiations. Chile follows a low-tariff policy currently 6%. In the multilateral aspect, Chile keeps an active role in the World Trade Organization (WTO), APEC and in the Organization for Economic Co-operation and Development (OECD) among others. In connection to openings performed bilaterally, over the last 20 years Chile has become a party of 25 trade agreements with 64 economies reaching approximately 90% of our foreign trade.

Agreement to almost 2800 products. Furthermore, the Enhancement considers the negotiation of chapters related to Sanitary and phytosanitary measures and technical barriers to trade. It should be noted that Chile is the first Latin American country individually managed to sign a trade agreement with India. India is very important for Chilean trade, because in recent years India has become a leading player in the global economy with renewed institutional and high growth rates stability, becoming the third economic power from Asia.

What is the maximum number of products that you would like to include in the trade agreement?

Our approach is to have maximum number of products without exclusion. We export around 12,000 different products. It is a technical matter depending on the timeline. In our trade negotiations we aspire to get comprehensive agreements. We want not to only deal in products but different areas and chapters. We have the products but we would like to have the provisions as well. We are pragmatic about India and we can have limited number of products at different stages.

What is the status of trade with India?

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Dr. MJ Khan, President of Agriculture Today in conversation with Mr. Andres Rebolledo, Director General of International Economic Relations

individually managed to sign a trade agreement with India. India is very important for Chilean trade, because in recent years India has become a leading player in the global economy with renewed institutional and high growth rates stability, becoming the third economic power from Asia.

What is the duty imposed in India on export of food products?

It is higher than Chilean standard. It varies from 30-50 percent. In wine sector it is 100 percent. The food sector is very interesting and is one of the areas in which Chile has interest in moving forward.

What is the way forward and how can we boost up the trade and cooperation between the two countries?

Our country has consistently widened the number and reach of the subscribed trade agreements. Thus, the Free Trade Agreements have incorporated new and complex dimensions of international trade such as trade in, services, investments, intellectual property, among others. A comprehensive trade agreement between India and Chile will generate a new dynamic in our bilateral

trade relationships.

What is the state of foreign capital being invested in Chile?

Chile is not only Latin America's best evaluated economy but also one of the best evaluated emerging economies internationally. Its hallmark, stability, transparency and competitiveness and excellent business prospects position the country as the best destination for foreign investment in Latin America and one of the world's leading destinations. Chile's sustained growth is explained by its economic openness and the reliability it has among foreign investors. It has positioned it as a growing export center and an attractive place to do business. The country has made advances in digital connectivity and new technologies. In addition, the country has a modern network of roads, hospitals, ports and airports, among other works. It has bilateral treaties in force to avoid double taxation with over 20 countries, and its tax system is transparent, competitive, and extensively computerized. The flow of FDI attracted by the country has maintained an upward trend, which has played a decisive role in the economic growth and development.

ICFA and AARDO Join Hands for Mutual Cooperation

Indian Council of Food and Agriculture entered into a Memorandum of Understanding (MoU) with the African-Asian Rural Development Organisation on 1st July 5, 2016 for collaborative ventures especially in the field of capacity building, promoting technology transfer, undertaking research, consultancy, organising seminars, conferences, entrepreneurs development, studying successful farming and agribusiness models for adoption on larger scale, etc. The MoU was signed in New Delhi between Director General of ICFA, Mr. Alok Sinha and AARDO Secretary General, His Excellency, Mr. Wassfi Hassan El-Sreihin.

African-Asian Rural Development Organisation (AARDO) is an inter-governmental Organization with its headquarters at New Delhi. AARDO is mandated to develop understanding among members for better appreciation of each others' problems and to explore collectively, opportunities for coordination of efforts for the welfare and eradication of thirst, hunger, illiteracy, disease and poverty amongst rural people in the African-Asian region. The Organization comprises thirty member countries – fifteen each from Africa and Asia and one Associate Member. AARDO enjoys Observer status with various UN and other international and regional organizations like Food and Agriculture Organization (FAO), International Fund for Agricultural Development (IFAD), United Nations Conference on Trade and Development (UNCTAD), International Cooperative Alliance (ICA), Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP), etc.

Indian Council of Food and Agriculture (ICFA) with headquarters in New Delhi is a national level apex Not for Profit Platform. ICFA has a mandate for policy research and advocacy, trade, technology and investments facilitation in food and



agriculture sector towards empowering the farmers and addressing the issues of agricultural development, global food security and environmental sustainability. ICFA through its proactive policy and trade agenda and global partnerships, is creating opportunities for growth and value addition to help improve income of farmers. Besides trade and industry, ICFA focuses equally on farmers and farm-entrepreneurs towards helping them connect with the market opportunities, while addressing their policy, technology, trade, marketing, financing and partnership related issues.

Considering that AARDO and ICFA have commonalities in their respective mandates, their association is expected to foster collaborations in the fields of rural development, agriculture and food for implementing programmes on food security, environmental sustainability and accelerating the growth in farm productivity and agri-business. Both the organizations will together pursue the development of common programmes which shall enable them to effectively and efficiently utilize the available resources for concrete actions to achieve the objectives of their respective mandates. They provide assistance to farmers and agri-entrepreneurs by addressing their

technology, marketing and financing related issues.

Their scope of cooperation may extend organising programmes and events which are country or continent specific or subject specific. The capacity building and entrepreneurship programmes would also be undertaken in India and African member countries of AARDO. The visits of delegations from various AARDO member countries to India would also be arranged for training and exposure to agriculture, horticulture, livestock, farm mechanization, marketing, agri-business, etc. Besides this, the association may establish linkages between AARDO member countries and ICFA and its National Working Group on policies, business associations jointly promoting investments and technologies in farm sector by forging global partnerships with internationally recognised organizations and organising training and entrepreneurship development to accelerate growth in productivity, agribusinesses, etc. The collaboration would also be visible in marketing of farmers' produce and investment opportunities in various AARDO member countries, including India.

MoU signed will remain in effect for three years and both the organizations may later enter into supplementary agreements as the need arises in future.

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SIMAASEANThailand

SIMA ASEAN THAILAND 2016

IMPECT, COMEXPOSIUM and AXEMA (the trade association of the French Agricultural Equipment industry) have teamed up with Thailand's Ministry of Agriculture and Cooperatives (MOAC) to co-organize the 2nd edition of SIMA ASEAN Thailand 2016 - the first regional agri-business trade show in Southeast Asia - which is scheduled to take place in Bangkok, Thailand from 8th to 10th September 2016.

IMPACT exhibition management Co., Ltd. is the leading exhibition organizer in Thailand. IMPACT organizes and manages professional trade and public exhibitions, conferences, meetings and training course, working hand-in-hand with international trade associations, organizers and corporations across a broad spectrum of industries. COMEXPOSIUM, one of the European leaders in events organisation, is involved in 114 events for the general public and professionals, covering 18 sectors of the economy. Every year it plays host to 36,000 exhibitors, a third of which are from outside France, and 3.3 million visitors including 330,000 from abroad. With more than 400 employees, COMEXPOSIUM organises five of the ten biggest events held in France, namely SIAL (food trade fair), Intermat, Emballage (packaging), SIMA (agricultural machinery) and the Foire de Paris. AXEMA is the professional organization bringing together the French and international equipment manufacturers of parks and gardens equipment, as well as agricultural machinery dedicated to crop and livestock production. AXEMA gathers 250 companies (69% of manufacturers and 31% of importers) representing 90% of the French Agricultural Equipment offers in France. The Ministry of Agriculture and Cooperatives (MOAC) of the Kingdom of Thailand, a Cabinet ministry in the Government of Thailand, is responsible for the administration of agricultural policies, forestry, water resources provision, irrigation, promotion and development of farmers and cooperative system, including manufacturing



process and agricultural products. As Thailand is a mostly agricultural country with a strong agrarian tradition, the ministry is one of the most important departments in the government.

The involvement of MOAC in organizing the trade show points to the high degree of relevance attached to SIMA ASEAN Thailand 2016 as a key industry platform in the region and Thailand's status as the HUB of ASEAN's agri-business sector. The growth of the agricultural industry goes with the most advanced innovations and technologies to boost productivity, reduce costs and increase competitive edges. SIMA ASEAN Thailand places the event as a direct answer to the needs to the sector.

In charge of the implementation of Thailand's agricultural policies and the development of the cooperative systems, all the divisions of MOAC will be actively involved in SIMA ASEAN Thailand 2016 by leading a series of conferences, seminars and workshops to help farmers achieve greater productivity and management. The institution will also invite farmers, cooperatives and government to attend the event. "The Ministry reaffirms that SIMA ASEAN Thailand 2016 will help the development of Thailand's agricultural sector and act as a knowledge platform for farmers to adopt the latest technologies and solutions in their agri-businesses. SIMA ASEAN Thailand is clearly a good example of strategic partnership between the government and the private sector."

Over 20 leading agricultural trade associations has already confirmed their support to the show: Thai Machinery Association, Agricultural and Food Marketing Association for Asia Pacific, Agricultural Mass Media As-

sociation of Thailand, Horticultural Science Society of Thailand, Thai Society of Agricultural Engineering, Thai Rice Mills Association, Thai Fertilizer Producer Trade Association, Taiwan Agricultural Machinery Manufacturers Association, etc. Recognized as a major event, SIMA ASEAN Thailand is the most well-supported agri-business trade exhibitions in Southeast Asia.

80% of the exhibiting space has already been booked by over 120 exhibitors from 15 countries: Thailand, France, Italy, Korea, China, Taiwan, Turkey, etc. 200 international brands will be on display and 40% of the exhibitors are international companies, reinforcing SIMA ASEAN Thailand as the leading international exhibition platform for the ASEAN agri-business market.

With 10,000 sq meters of working space, the new demonstration area will allow the farmers to analyze the performance and effectiveness of the material and use this knowledge for product purchases in future. A real experience to find the best equipment displayed at SIMA ASEAN 2016.

Close to the demonstration zone, the visitors will also discover the first Thailand outdoor agriculture festival with educational and recreational activities: agricultural competitions, farm cultural performances, horticultural area and agricultural end products from Thailand. The visitors will enjoy a complete event from the field to the plate.

As the regional platform of exchanges & networking for the agri-business sector in ASEAN, SIMA ASEAN Thailand 2016 will showcase number of international conferences, such as "Sustainable Value Chain International Conference" organized by the Agricultural and Food Marketing Association for Asia Pacific and the Food and Agriculture Organization of the United Nations or "The Thailand Agricultural Engineering Congress" organized by the Thai Society of Agricultural Engineering. Seminars and workshops will also be organized by the Thai Machinery Association, and the Agricultural Mass Media Association of Thailand.

DYNAMIC DIDI

Mamata Banerjee, the Chief Minister of West Bengal since 2011 and the first woman to hold the office, was named as one of the "100 Most influential People in the World" in 2012, by Time magazine. Founder of All India Trinamool Congress, Ms. Banerjee pulled off a landslide victory for the TMC Congress alliance in West Bengal by defeating the 34-year-old Communist Party of India (Marxist)-led Left Front government, the world's longest-serving democratically-elected communist government. In 2012, Bloomberg Markets magazine listed her among the 50 most influential people in the world of Finance and in 2013, she was voted as India's most honest politician in an internal poll by members of India Against Corruption, India's largest anti-corruption coalition.

Born on 5th January, 1955, in Calcutta in a Bengali Brahmin family to Promileswar Banerjee and Gayetri Devi, Banerjee graduated with an Honours degree in History from the Jogamaya Devi College and later a Master's degree in Islamic History from the University of Calcutta. She also earned a law degree from the Jogesh Chandra Chaudhuri Law College, Kolkata and she was honored with DLitt from Kalinga Institute of Industrial Technology.

Her foray into politics happened when she was as young as 15. While studying at the Jogamaya Devi College, she established "Chhatra Parishad Unions", the student's wing of the Congress (I) Party, defeating the Democratic Students' Union of the Socialist Unity Centre of India. She continued in Congress (I) Party in West Bengal serving in a variety of positions within the party and in other local political organizations. She quickly rose in the ranks to become the General Secretary of the State Mahila Congress.

Mamata Banerjee, the dynamic and mercurial leader of West Bengal has remained a true people's champion. Her involvement in people's causes has earned her an indisputable position in the political landscape of West Bengal. Her dedication and her non nonsense approach in many of West Bengal's burning political issues has made her people's favourite and instituted her as a strong willed politician.



In the 1984 general election, Banerjee became one of India's youngest parliamentarians ever, beating veteran Communist politician Somnath Chatterjee, from the Jadavpur parliamentary constituency in West Bengal. She also became the General-Secretary of the Indian Youth Congress. Losing her seat in 1989 in an anti-Congress wave, she was back in 1991 general elections, having settled into the Calcutta South constituency. She retained the Kolkata South seat in the 1996, 1998, 1999, 2004 and 2009 general elections.

In the Rao government formed in 1991, Mamata Banerjee was made the Union Minister of State for Human Resources Development, Youth Affairs and Sports, and Women and Child Development. In 1997, Mamata Banerjee left the Congress Party in West Bengal and established the All India Trinamool Congress. It quickly became the primary opposition party to the long-standing Communist government in the state. In 1999, she joined the BJP-led National Democratic Alliance (NDA) government and was allocated the Railways Ministry. In early 2001, Banerjee allied with the Congress Party for West Bengal's 2001 elections, in protest of the corruption charges. She returned to the NDA government in January 2004, and held the Coal

and Mines portfolio till the Indian general election of 20 May 2004, in which she was the only Trinamool Congress member to win a Parliament seat from West Bengal. Before the 2009 parliamentary elections, she forged an alliance with the UPA led by Indian National Congress. The alliance won 26 seats. Banerjee joined the central cabinet as the Railway Minister (second tenure). In 2011, Banerjee won a sweeping majority and assumed the position of Chief Minister of the state of West Bengal. Her party ended the 34-year rule of the Left Front. Banerjee was sworn in as Chief Minister of West Bengal on 20 May 2011. As the first woman Chief Minister of West Bengal, one of her first decisions was to return 400 acres of land to Singur farmers.

She had initiated various reforms in education and health sectors. She was instrumental in the rollback of the petrol price hikes and the suspension of FDI in Retail Sector until a consensus evolved. In 2012, Bill Gates sent a letter to the West Bengal government praising Mamata Banerjee and her administration for achieving a full year without any reported cases of polio. The letter said this was not only a milestone for India but also for the whole world.

In 2016, West Bengal Legislative Assembly election, All India Trinamool Congress won the elections with a landslide two-third majority under Mamata Banerjee who was once again elected as Chief Minister of West Bengal. All India Trinamool Congress won with an enhanced majority contesting alone and is the first ruling party to win without an ally since 1962 in West Bengal.

Mamata Banerjee throughout her political life has remained a true leader dedicating her existence for the people of West Bengal.



At the time of India's independence, India, due to her weak agriculture sector, had to import food grains. However, soon enough, due to proper planning and synergy between science and public policy, the excellence of our scientists and the selfless toil of our farmers, our country saw a revolution in agricultural productivity

PRANAB MUKHERJEE
President of India



“Drastic steps are needed to revamp the economy and there need to evolve fiscal strategies to align the prices of food grains in general and the MSP of paddy and wheat in particular with market realities”

PARKASH SINGH BADAL
Chief Minister, Punjab



“Agriculture, the backbone of our economy, is the only way to augment our economy and to generate employment opportunities in a big way”

SARBANANDA SONOWAL
Chief Minister, Assam



100 per cent FDI be it in pharmaceutical, agricultural or manufacturing sectors will have an adverse impact on Indian brands. We have to look after the Indian brands. We need to do the branding of our own products

MAMATA BANERJEE
Chief Minister, West Bengal

“The agriculture scenario is going through difficult times and to overcome it more efforts have to be put in by the officials so that the benefits of the different schemes percolate to the agriculture fields”

RADHA MOHAN SINGH
Agriculture Minister

