JUNE 2017, ₹45/-

AGRICULTURE TODAY

The National Agriculture Magazine

LIVESTOCK AND POULTRY

THE INCOME BOOSTERS

JUNE 2017 | VOLUME XX | ISSUE 6

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

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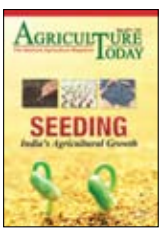

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Pages in the magazine: 60

Livestock and poultry – Drivers of Rural Income

Livestock and Poultry have become undeniably crucial segments with respect to their contribution towards agricultural income. The multispectral advantages offered by the animal husbandry enterprise to the practicing farmers have encouraged many to take up livestock farming as their priniciple source of income. The mixed crop-livestock farming system have also shown better results prompting more farmers to take up this mode of income generation.

Indian dairy segment is a success story and continues to impress the country with higher milk production targets maintaining its ace position in the world. Poultry segment which is yet another critical sector, for the rural economy has also been registering positive growth rates. The demand for animal protein has been consistently increasing. This has spurred the activity in meat industry as well.

The consumption of livestock products has increased considerably in the country over the past years. India is seeing a new trend of increased animal proteins in diet. A mix of consumerism, better income, health consciousness, omnipresent retail chains, access to meat and dairy products in various formats have made this transformation possible. The trend has stirred up the demand for animal products more so in rural areas than in urban centers. An analysis of consumption data originating from National Sample Survey (NSS) rounds suggest that over time there has been a gradual shift from vegetarianism to non-vegetarianism, the change being more visible in rural areas than in urban centers.

Whilst livestock and poultry sectors are registering impressive growth, there are a host of issues plaguing the productivity and efficacy of these sectors. Currently, low productivity per animal hinders development of the dairy sector. The low productivity is a result of ineffective cattle and buffalo breeding programmes, limited extension and management on dairy enterprise development, traditional feeding practices that are not based on scientific feeding methods, and limited availability and affordability of quality feed and fodder.

The changing global economic scenario will result in an increased demand and a high buying power across consumer segments, compelling industry players to invest in research and development efforts. Product innovation will be the key area where most of the developments are bound to happen. As companies make a foray into new product categories and venture into new markets, there will be a heightened focus on supply chain expansion –procurement and distribution. Similarly, health foods is another area that has been making some fast progress. The increased awareness of good health and well-being among consumers is widening the scope of the industry in terms of product variety. The increasing demand has put immense pressure on companies to ensure availability of dairy and poultry products across categories, across markets. This accentuates the need to have flexible and adaptable production systems for processing different product categories – milk, cheese, beverages, infant nutrition, and so on – for dairy producers.

Livestock and poultry sectors in India are emerging as a potential source of dependable income for the rural population. India has been improving its position in the world trade and this has been possible by a host of positive policy interventions and emerging markets. But India still has a long way to go especially in transforming this sector into a sustainable and productive system.

Anjana Nair

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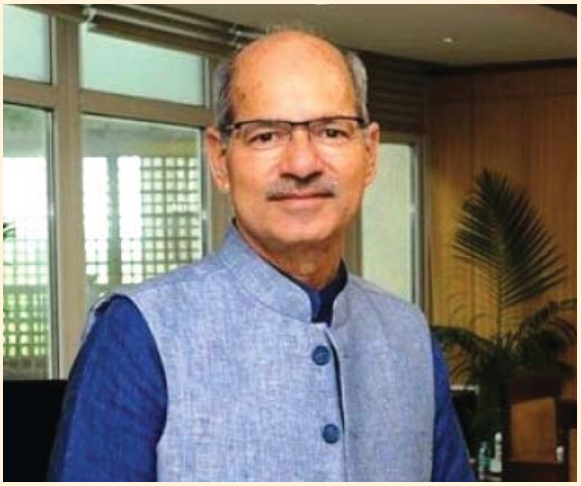

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Anil Madhav Dave

NATIONAL INSTITUTE OF FOOD TECHNOLOGY ENTREPRENEURSHIP AND MANAGEMENT

Deemed to be University (De-novo Category) under Section 3 of the UGC Act, 1956 and an autonomous Institution under Ministry of Food Processing Industries, GOI,
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REGISTRAR

Editorial Comments

GM Mustard – Wilting in Political Heat

GM Mustard has the remote possibility of getting clearance for commercial cultivation

The Genetic Engineering Appraisal Committee's (GEAC) nod to GM mustard for commercial cultivation has again opened the doors for debate. Although the fate of the GM mustard lies in the hands of the Environment Ministry, the entire country has took to heated deliberations. There lies a very slim chance for this technology to be replicated in farmers' fields, as political compulsions may not side with this technology. It would most probably enjoy the same fate as that of Bt Brinjal which got shelved under immense public and political pressure despite having bright prospects.

But the case of GM mustard is quite different from that of GM Brinjal, which was developed by Mahyco and vehemently opposed due to the involvement of corporate interests. GM mustard (DMH-11) however, was developed by a team of scientists at Delhi University led by former vice-chancellor Deepak Pental under a government-funded project.

The GM mustard developed is scientifically a break through. Mustard is a self pollinated crop and hence attempts to hybridize them to evolve superior breeds economically has been a real challenge for the scientists. The genetically modified mustard uses genes from soil bacterium to render the parents male sterile and hence amenable to hybridization. According to Deepak Pental, the GM technology used in mustard has been used extensively for hybrid seed production in rapeseed which is widely cultivated around the world. The oil from rapeseed internationally branded as Canola, imported by India from Canada is made from the GM rapeseed. So technically, the Genetically Modified Foods have already entered India. The GM mustard in question unfurls a host of opportunities apart from the purported yield increment. For instance, the said variety can double up as a parental line for conventional plant breeder to create his own creations.

What makes the discussion on GM mustard or the likes is the pertinent issue of edible oil imports. India's edible oil economics is in disarray considering the mounting import bill. The amount of money spent on importing edible oil is bound to increase in coming years considering India's expanding population and increasing per capita income. India, a country which has etched its own green revolution, should atleast be able to meet a part of the burgeoning demand, if not completely. When the conventional technology fails to make up to the new challenges, it is natural to look for other ways. Even plant breeding was in one way fiddling with nature's ways.

The constant criticisms that GM technology has been facing is its unnatural way of approaching breeding, fear of contamination of biodiversity, human safety and the lack of faith in the scientific data released. It is depressing to find that the authority that has been entrusted with the responsibility of assessing the safety of GM products, has few takers. Neither the government nor the political parties seem to trust the veracity of the findings of GEAC. Successive governments have played no heed to the findings of this body whose authority has been sequentially diminished and now from being an approval body, it has merely become an appraisal institution. If this is the case, there is no point in maintaining it and instead it should give way to more reliable system satisfying the stakeholders. Instead of tweaking with the authority of an existing system, GEAC must be disbanded to a more independent and reliable office.

Beyond the flaws and faults pointed out in the GM technology, the air surrounding it is thick with political agendas. The environment ministry, hence, would not risk the support of the majority to support GM Mustard. It would most likely follow the steps of Bt Brinjal and would vanish into oblivion. The irony is we are ready to pay billions of dollars on importing edible oil including those derived from genetically modified oilseeds but wouldn't want them to be cultivated here.

India cannot sustain on this model of development if augmenting farmers' income and food self sufficiency are our objectives. We need to break the ice somewhere and let newer and better technologies seep into the system. Public perception should not be our guiding light on policies but well founded scientific evidences should drive policies on matters like this.

Editorial Comments

Vexing Taxes

Taxing agriculture incomes is a premature and rash proposition

India is a country of anomalies. At one hand the country deals with farmers who take the extreme step of taking their lives on account of debts accrued from the non profitable agriculture, while on the other hand, talks are rife to impose tax on agriculture incomes. In the same breath, we mention the non profitability of agriculture and also, the urgent need to tax agriculture incomes. The Prime Minister's ardent proposition to double farmers' income has most probably invited the attention of a few policy makers to at least contemplate the proposition of taxing incomes derived from agriculture.

The population of Indian farmers run into millions. Majority of them survive on area less than one hectare. Some of them are landless. Economies of scale has never helped them to carve a decent and stable income from this proposition. Then comes the curious case of rich farmers which in the terms of our Finance Minister is a "Rarity". Considering the rarest of the occurrences, it comes as a surprise, why there was a sudden interest in levying taxes from probably the most underpaid category in the country.

Some has accused agriculture as a major conduit for channeling black money.According to data put out by the income tax department, during 2006-07 up to 2014-15, 2,746 income tax cases declared Rs. 1 crore (10 million) plus agricultural incomes. Agricultural income declared by taxpayers, in returns filed up to November 28, 2014, for exemption in the 2014-15 assessment year, stood at Rs. 9,338 crore (Rs 93.38 billion). The latest National Sample Survey, 70th round, reveals that a vast majority of the agricultural households have marginal holdings of below 1 hectare, and only a very small percentage – to the tune of 0.4% cultivates on lands of over 10 hectares. Logically the lion's share of the agriculture income must have come from these biggies. This has raised doubts from different quarters regarding the reliability of this number and the possibility of it being faked as agriculture income to evade taxes. With the government's crack down on black money, the guns have been trained on agriculture sector as well.

While the intention of taxing agriculture income just to stymie the evasion of income taxes is very patriotic, but why the haste towards agriculture? Have all the frontiers of tax evasion been tightened and just agriculture is the only one left? At a time when efforts are afoot to increase the country's agricultural productivity by expanding area under profitable agriculture, policies should be influencing promotion of agriculture. The revenue increase upon imposing taxes on agriculture income will yield less when compared to economic advantage of being able to produce enough food for a nation's population. Already the country is dependent on imports amounting to billions of dollars for pulses and edible oil. Indian agriculture needs alluring policies for not only farmers but also for those who are genuinely interested in taking up agriculture as a profession irrespective of its scale of operation. Tax exemption is a lucrative proposition for upcoming rural entrepreneurs who can play valuable roles in areas such as value addition and processing.

Agriculture has been a rural vocation which has started emerging as an enterprise. Thanks to pro agriculture policies, technology driven growth and an expanding market, this profession has slowly started to explore better technologies and have been registering admirable growth rates. Being an economic activity deeply linked to seasonal fluctuations and unpredictable markets, a stable income in agriculture is still a distant dream. Taxing the income from farming may be lucrative for the country, but would act negatively on the agriculture business of the country.

India has today emerged as a world leader in agriculture. Even this year, we are expecting bumper crops. But the work on agriculture front is far from over. Still the country lags behind in many areas in this sector. Until and unless, a sense of stability and security is brought to the farmers and hence to their incomes, taxing would amount to injustice.

Editorial Comments

Harmonizing Agriculture and Environment

Agriculture and Environment are interdependent and inclusive

World Environment day, annually celebrated on June 5 is a reminder of the degradation and denigration that the environment has undergone at the hands of the humans. The illogical, unsustainable and untenable means of extracting resources from the environment for human consumption has eroded the environment of its sustainability and integrity.

UN General Assembly had designated 5 June as World Environment Day (WED), marking the first day of the Stockholm Conference on the Human Environment and the first World Environment Day was celebrated in 1974.Since then, the day has been celebrated and has remained UN's principal vehicle for encouraging worldwide awareness and action for the protection of the environment. A flagship campaign for raising awareness on emerging environmental issues from marine pollution and global warming, to sustainable consumption and wildlife crime, WED has grown to become a global platform for public outreach, with participation from over 143 countries annually. Each year, WED has a new theme that major corporations, NGOs, communities, governments and celebrities worldwide adopt to advocate environmental causes. This year, the celebrations would be centered on the theme, 'Connecting People to Nature'. This year's theme invites people to think about how they are part of nature and how intimately they are dependent on it.

One way the people are deeply connected to the environment is through agriculture. Agriculture is a very important segment that is closely associated with the environment and has been one of the biggest benefactors of resources from the environment. Having said that, agriculture has been also on the fore front when it comes to inflicting irreparable damages to the environment. Form monoculture to exploiting resources to the fullest, from pollution to erosion, the sector has emerged as one of the biggest threats to the environment. Feeding billions of humans in the planet sometimes sacrificed the interests of the environment. This has led to irreconcilable damage to the environment and consequently the effects of the same has been felt by agriculture segment as well. Dwindling levels of ground water table, unfertile soils, drought, unseasonal rains and new pests and diseases are some of the palpable threats that have emerged out of misuse and abuse of environmental assets. Agricultural production provides the lion's share of greenhouse-gas emissions from the food production system. Some allege the increased percolation of technology into agriculture has been instrumental in neglecting the environmental concerns and has been instrumental in deepening the crisis. True to some extent, the benefits accrued from the technology adoption has quite often accentuated the harms suffered by the environment.

While technological advance is indisputably indispensable for agriculture, environmental integrity is also crucial. A little prudence, however, can go a long way in ensuring the delivery of technology without compromising environment. The farm segment has woken up to this new challenge and concepts of sustainability has now assumed center stage in agriculture. Farmers have also realized the perils of injudicious use of agro chemicals and exploitative use of groundwater. Organic cultivation, water harvesting, groundwater recharging, indigenous varieties, Biocontrol have now become popular among the farming community. Minimal use of resources for maximum gain has become the face of many campaigns to increase agriculture production.

So this environment day, the agriculture sector can reorient itself to embrace policies that can effectively curtail the rapidly increasing human encroachment on environment and assign environment the status of a living entity. The two ministries – Agriculture and Environment – usually are at loggerheads and divergent on their views and objectives. For effective harmony between the two interdependent and inclusive faculties, the two Ministries must evolve a common platform, derive policies that engender productive growth and sustainability of agriculture and environment and thus ensure advantage to the stakeholders.

Editorial Comments

GST Beckons Agriculture

Impact of GST on agriculture looks largely positive

The goods and services tax (GST) rates schedule has been out and a sigh of relief can be heard across the farm segment. The essential food commodities have been untouched, and given that this is a uniform tax structure across the country, a possible fall in the price is also expected in some food categories.

Post the first day of the 14th round of meetings, the GST Council finalised the fitment into tax slabs of most of the 1,211 items. Cereals, foodgrains, milk and jaggery have been wholly exempted from GST, while sugar, tea, coffee, edible oil and coal will be taxed at 5 per cent. Under the current tax structure, rice, sugar, salt, wheat, flour had been exempted from Central Value Added Tax (CENVAT). However, under the state VAT,cereals and grains are taxed at the rate of 4%. Agricultural products go through a lot of licensing, indirect taxes(VAT, excise duty, service tax) under the current tax laws. State VAT is currently applicable to all the agricultural goods at each state, it passes through prior to final consumption. Although there are certain exemptions available from state VAT for certain unprocessed food products like meat, eggs, fruits, vegetables etc.

Agriculture products are taxed differentially in each state and this results in difference in the prices of the same products in different regions. This was considered as one of the impediments in materializing National Agriculture Market. e-NAM (National Agricultural Market) is a pan-India electronic trading portal launched by Ministry of Agriculture & Farmers' Welfare, Govt of India, to facilitate farmers, traders, buyers, exporters and processors with a common platform for trading commodities. The current marketing structure in India divided a state into several market areas, each of which is administered by a separate Agricultural Produce Marketing Committee (APMC) which imposes its own marketing regulation (including fees). This fragmentation of markets, even within the State, hinders free flow of agri commodities from one market area to another and multiple handling of agri-produce and multiple levels of mandi charges ends up escalating the prices for the consumers without commensurate benefit for the farmers. NAM was designed to address these challenges by creating a unified market through online trading platform, both, at State and National level and promoting uniformity, streamlining of procedures across the integrated markets, removing information asymmetry between buyers and sellers and promoting real time price discovery, based on actual demand and supply, promoting transparency in auction process, and accessing to a nationwide market for the farmer, with prices commensurate with quality of his produce and online payment and availability of better quality produce and at more reasonable prices to the consumer.

The differential tax structure, however, was a major hindrance to the success of this idea. Thus GST becomes pertinent for the successful implementation of NAM. Most of the indirect taxes levied on agricultural products, would be subsumed under GST. This will create a transparent, hassle free supply chain which would lead to free movement of agri-commodities across India. Most of the agricultural commodities are perishable in nature. An improved supply chain mechanism due to GST, would reduce the time taken for inter-state transportation. Benefit of reduction in time would be passed on to the farmers/retailers.A better supply chain mechanism would ensure reduction in wastage and cost for the farmers/retailers. Moreover, in general it augurs well for the agribusiness. It ensures better Investments in logistics infrastructure. With participation from big players in this segment the entire supply chain will be efficient guaranteeing no lapses or leakages ensuring benefit for farmers, retailers and consumers, both in terms of quantity and quality. However, processed food items were not that benefited from the new tax regime. The processed food products fell in different tax slabs from five per cent to 28 per cent. This would again limit the possibilities of expansion of food processing industry.

In the long run, GST hailed as India's biggest tax overhaul since independence would bode well for agriculture segment. It would see flow of agriculture commodities in a more transparent and smooth manner removing market distortions.

TAFE launches 'JFarm Services' – a custom hiring platform for tractors and implements

TAFE – Tractors and Farm Equipment Limited, India's second largest tractor manufacturer, has announced the launch of 'JFarm Services App' – a mobile app-based aggregator platform which facilitates hiring of tractors and modern farm machinery for farmers in Rajasthan, at the Global Rajasthan Agritech Meet (GRAM), Kota. Available on Google Play Store, the JFarm Services App is free and will connect Custom Hiring Centres (CHC) operated by tractors and equipment owners directly to farmers who need farm mechanization services and solutions, thereby facilitating a fair and transparent rental process while focusing on quality, dependability and timely delivery. The JFarm Services App is a stellar example of the Digital India initiative, tailored to benefit the Indian agricultural landscape. This service by TAFE will foster digital empowerment of Indian farmers while creating a breed of new rural entrepreneurs and significant job opportunities. JFarm Services will also be available to farmers on call through a dedicated toll-free number 1800-4-200-100.

Out of the 95 CHCs allotted through subsidy to TAFE, 38 have been identified across six zones in the State – Bharatpur, Jodhpur, Jaipur, Jalore, Kota and Sikar.

In November 2016, TAFE inaugurated 'JFarm Rajasthan', an advanced agri-research centre in Bhawanimandi in the Jhalawar district. As a next step, the launch of the JFarm Services App along with the identification of these physical CHC franchisees creates a hub where farmers gain access to specialized equipment and JFarm Rajasthan's agri-extension services including modern farm practices, technical know-how, high-yielding crop varieties, crop protection, organic and sustainable farming, besides customized and specially designed training programmes by leading agri-scientists.

JFarm Services – the aggregator platform in its pilot phase has enrolled over 450 Custom Hiring Centres and suppliers and has connected them to over 25,000 farmers. Speaking on the app launch, Ms. Mallika Srinivasan, Chairman & CEO - TAFE, said, "The JFarm Services App is a milestone in TAFE's journey of Cultivating the World. With the JFarm Services mobile app, TAFE aims to empower the farming community by creating a viable model for the farmers and the Custom Hirers to conduct transactions in a fair and transparent manner. These initiatives are directed towards building a sustainable livelihood for farmers, while preparing them to remain self-sufficient by increasing farm productivity."Mr. T R Kesavan, President & COO - TAFE, said, "As a trusted brand among the farming community in Rajasthan, TAFE through its JFarm Services aggregator model, plans to enrol 10,000-15,000 Custom Hiring Centers in the first two years of operation and positively impact the farming community by reaching out to 500,000 farmers."

About JFarm

TAFE established JFarm India in Chennai, Tamil Nadu in 1964 with an objective of empowering farmers with advanced farm technologies to increase farm productivity and meet India's growing food demands. Over the years, JFarm has worked through several challenging situations from limited water availability, to inputs costs to shortage of labour, and has developed a viable and sustainable model that contributes to improved farm productivity and livelihood opportunities.

In November 2016, TAFE inaugurated JFarm Rajasthan, an advanced agri-research centre in Bhawanimandi, Jhalawar District. The company also signed an MoU with the Rajasthan Government to set up CHCs in six zones across the State.

About TAFE:

The world's third largest tractor manufacturer and second largest in India by volumes with an annual sale of over 150,000 tractors; TAFE is one of the leading exporters of tractors from India with a turnover in excess of INR 93 billion. TAFE manufactures a range of tractors in the sub 100 hp segment in both the air-cooled and water-cooled platforms and markets them under its three iconic brands - Massey Ferguson, TAFE and Eicher. Its over 1000 strong distribution network covers the entire length and breadth of India. Apart from India, its products have found excellent acceptance in over 100 countries across the world, including developed countries in Europe and the Americas.

Besides tractors and farm machinery, TAFE manufactures diesel engines, silent gensets, batteries, hydraulic pumps and cylinders, gears and transmission components, and has business interest in vehicle franchises and plantations. TAFE is committed to the Total Quality Movement (TQM) and three of its tractor plants are certified under ISO 9001 and ISO 14001.

TAFE was named the Best Employer in India 2013 by Aon Hewitt. It has also been presented, the TPM Excellence Award from the Japan Institute of Plant Management several times, the Frost & Sullivan – IMEA Award for significant progress towards reliable processes, the Regional Contributor Award for quality supplies from Toyota Motor Company, Japan, the Manufacturing Supply Chain Operational Excellence - Automobile Award at the second Asia Manufacturing Supply Chain Summit, the Agriculture Leadership Award by Agriculture Today magazine, the Corporate Citizen of the Year Award by Public Relations Council of India, and has also received Commendation for Significant Achievement on the journey towards Business Excellence by the CII-EXIM Bank - Business Excellence Award jury, etc. to name a few.

Swaroop Agrochemical aims over 100 cr turnover in 5 years

Nasik based Swaroop Agrochemical Industries, which manufactures around 50 products which find application on almost all types of Field Crops, Vegetables, Cash Crops, Floriculture and Horticulture crops has launched Green Kidz Project. The ISO 9001:2015 company which currently has a turnover of Rs 30 crore aims to reach 100 crore in the next five years. The company which currently exports to over 10 countries plans to export to Europe and US soon. As a social obligation program to teach children the art of gardening Swaroop Agrochemical Industries' Home Garden Division Swaroop Home Garden Shoppe launched this project with an aim to create awareness towards a green environment. In Green KIDZ, Swaroop Agrochemicals will undertake gardening workshop in societies in Mumbai on weekends. Swaroop has been awarded PATENT for their product G-5 Bio-organic Granules by Government of India in 2005. Swaroop manufactures Certified Organic products as well as 100 % Natural Organic products under certification from a prestigious certification agency NOCA (PUNE) affiliated to APEDA

FMCG, agri-input stocks soar on better rain prospects

With Indian Meteorological Department's first monsoon forecast on April 18 for 2017 June-September monsoon rains pattern, FMCG and agri input stocks are on investors radar. They witnessed brisk activity, as a top IMD official's statement watered down earlier fears of El-Nino developing in the second half of the monsoon period based on April data. "IMD has not officially come out with an update on El-Nino weakening and next IMD update on Monsoon is due in the first week of June," an analyst tracking agriculture sector at broking firm said. As a result some of the FMCG and agri-input stocks that soared on better rain prospects in the coming monsoon season on Wednesday saw some profit taking recently. FMCG and agri-input stocks are expected to be volatile, as news flow on monsoon progress will be tracked now very closely, said an analyst. Top FMCG stocks by market capitalisation have shown return in the range of 5 to 20 per cent since April 18 as investors are betting on consumption theme with rural economy doing well on normal monsoon forecast, an analysis of their returns based on Capitaline data showed.

Krashal Goshthi' for 'Doubling Farmer's Income Organized by Dhanuka

A 'Krashak Goshthi' has been organized by Dhanuka Agritech Limited for 'Doubling Farmer's Income' on the occasion of 100 years of Mahatma Gandhi's first movement against British Raj – Champaran Satyagraha. The event, held in Motihari was inaugurated by Shri Radha Mohan Singh, Union Minister of Agriculture and Farmers Welfare on April 17th at Motihari (East Champaran). During the Event Union Minister of Agriculture and Farmers Welfare has emphasized the importance of new technology in agriculture for doubling the farmer's income by 2022.

He also stressed on breed improvement of livestock and the government initiatives which have been taken for good agricultural practices and farmer's welfare like PMFBY, PMKSY etc.

Dhanuka Group is also approaching harmonically in-line with the government vision and working towards establishment of 'Technical Agricultural Flow Center' in Champaran soon. On this occasion, Mr. R G Agarwal, Group Chairman, Dhanuka Agritech has shown his commitment to provide world class agro-solutions to farmers across the Indian geography. Dhanuka Agritech is advocating 'Dhanuka Kheti Ki Nai Takneek (DKKNT)', a holistic approach of Integrated Crop Management for higher yields and in turn income. Shri Agarwal said "this is in our blood that we treat our land as our mother and taking care of our mother is our prime duty so in this pedagogy Dhanuka is continuously educating farmers to do the soil testing of their land and accordingly apply recommending fertilizer to produce healthy crop and maintain healthy fields. Pradhan Mantri Fasal Bima Yojana (PMFBY), the flagship scheme of government of India is minimizing the risk of farmers and Dhanuka is promoting this scheme in various platforms also. Role of Hybrid and improved Seed & Seed treatment in modern agriculture practices is most important and Dhanuka is regularly promoting seed treatment. We have given slogan "Har Beej ko Suraksha Ka Teeka, Jaise Har Bacche Ko Polio Ka Teeka.

After Wheat, FCI to Set up Rice Silos

The Food Corporation of India, on a pilot basis, will set up rice silos in the country to drive modernisation and technology adoption for mechanised preservation of food grain. In the past, the country's only centralised food procurement agency has set up wheat silos, with technology and grain movement in bulk for the crop, for a while. Rice silos are different from wheat silos in size: They are smaller, and require chilling units. "In Kaimur and Buxur regions of Bihar, we will be setting up 12,500tonne capacity rice silos on a pilot basis. The tenders have been issued and in the next three months, the results will be out," says Aseem Chabbra, general manager (silos), FCI. The silos will be developed in proximity to private freight terminals, so that grain could be transported by specialised rail wagons in bulk form. "This will prevent loss, damage and degradation of grain quality," says Chabbra. Officials say they were exploring the possibility of setting up rice silos in Chhattisgarh and Andhra.

Centre, basmati exporters looking at alternative fungicides to treat ric'

The Centre is working with basmati exporters to identify alternatives to tricyclazole — a fungicide used to treat rice — as the European Union seems inflexible in its decision to bring down the tolerance level for the chemical next year, effectively banning its use. "If alternatives are not found, India's basmati exports to the region could get hit drastically as the levels of tricyclazole in Indian rice is mostly much higher than the default level of 0.001 ppm (parts per million) that the EU wants," a government official informed. The Agricultural and Processed Food Products Export Development Authority (APEDA), under the Department of Commerce, together with basmati rice-exporting companies, is looking at possible solutions to the problem, the official added.

GEAC Clears GM Mustard for Commercial Use

In a major move, the key central government authority on genetically-modified (GM) crop issues -Genetic Engineering Appraisal Committee (GEAC) -have given the go-ahead for commercial release of GM mustard with a number of conditions. If approved, GM Mustard could be the first genetically-modified food crop to be cultivated commercially in India. So far only GM cotton is commercially cultivated. Cultivation of GM crops is a hugely sensitive issue and is bound to invite both political and social protests. The final decision on GM mustard's commercialisation will ultimately lie, however, with the environment ministry, headed by Anil Madhav Dave. Still further, the issue is also caught in litigation at the Supreme Court and the environment ministry will also take the facts to the apex court before its final approval. The GEAC approval to GM mustard comes a full year after it put the risk assessment report on it in public domain for comments over 700 comments were received. The report categorically stated that the variety does not "pose any risk of causing any adverse effects on human and animal health and safety". Delhi University's Centre for Genetic Manipulation of Crop Plants (CGMCP), led by researcher Prof Deepak Pental, had applied for the approval of environmental release of genetically engineered mustard (Brassica juncea) hybrid DMH-11 and use of parental events (Varunabn 3.6 and EH-2 modbs 2.99) for the development of new generation hybrids to the GEAC.

Centre approves buying of red chillies under MIS

The Centre has come to the rescue of distressed chilli farmers of Andhra Pradesh and Telangana, who were forced to sell their agricultural produce at throwaway prices. After rounds of discussion between Urban Development Minister M Venkaiah Naidu and Agriculture Minister Radha Mohan Singh, the Centre has finally decided to procure red chillies under the market intervention scheme (MIS) during 2017 season. According to the government order, the market intervention scheme will remain in force until the end of this month starting from May 2 and a maximum quantity of 88,300 MTs of red chilli in Andhra Pradesh and 33,700 MTs in Telangana would be procured under the scheme by the state agencies. "The MIS will be Rs 5,000 per quintal of red chilli with the overhead expenses of Rs 1,250 per quintal," the release said.

Commenting on the decision, Naidu said that he was happy that with this decision of the Centre farmers will not resort to distress sale at astronomically lower prices. The UD Minister also hoped that states would immediately swing into action and provide succour to the agitating chilli farmers. On the decision, Agriculture Minister Radha Mohan Singh said that the Centre is always ready to address the grievances of farmers in distress.

Cabinet approves 6,000-cr mega agro-processing scheme

The Cabinet approved a Rs 6,000 crore mega agro-processing scheme to streamline the ongoing initiatives by the government in the food processing sector. It also decided to restore the subsidy for states to ensure sale of 1 kg of sugar at a cheaper rate to the poorest of the poor, under the public distribution system (PDS). Targeted at being completed by 2019-20, t he SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters), to be administered by the Ministry of Food Processing Industries will subsume a host of other schemes under the ministry. These include the Mega Food Parks and Integrated Cold Chain schemes along with the those dealing with Value Addition, Infrastructure building, Food Safety and Quality Assurance, among others. It is expected to leverage investment of Rs 31,400 crore and ensure the handling of 334 lakh million tonnes agro-produce valuing Rs 1,04,125crore, a press release said. It is also expected to benefit 20 lakh farmers and generate 5,30,500 direct and indirect employment in the country by the year 2019-20.

NAFED 'spent Rs10,000cr to procure pulses'

The National Agricultural Cooperative Marketing Federation of India (NAFED) has spent about Rs10,000 crore in procuring pulses and creating a national buffer-stock of 20 lakh tonnes. NAFED Managing Director Sanjeev Kumar Chadha said that the Finance Ministry provided the budgetary funds over the past 18 months, spread over two fiscals. In the next 12-15 months, this stock will get liquidated and the proceeds from the sale will help NAFED rotate the funds.

1,600 acres of paddy, other crops damaged in Telengana

Hailstorm hit paddy and other crops in about 1,600 acres in six districts in Telangana State. Bags of paddy stored in markets at some places were also affected. However, the damage was limited as the rains mostly lashed areas in and around Hyderabad. Agriculture secretary C. Parthasarathy, who held a video conference with district agriculture officials, especially those surrounding Hyderabad district, confirmed the same. "Ninety per cent of the damage is to paddy crops in the affected areas. But overall the damage is negligible," Mr. Parthasarathy said. Crop damage was reported from Jayashanker Bhupalapally (1,245 acres), Mahabubnagar (184 acres), and Vikarabad (93 acres) besides sporadic damage in Ranga Reddy, Nagarkurnool and Jangoan. Heavy rains also lashed Burriguda, Munugode, Nampally, and Chundurmandals in Nalgonda district. A part of the paddy crops stored in agriculture markets in the area were submerged in the water. Due to heavy gales, covers of paddy bags flew off exposing the crops to the rain. In Suryapet district, heavy rains and gales hit many villages, uprooted trees and damaged power lines. Suryapet town was plunged in darkness last night. About 2,000 paddy bags stored in IKP centres in Yandlapalli, Ramaram, Tekumatla and Raigudem were drenched by the rain.

Kerala to promote coconut farming

The Kerala government has decided to set up 44 'Kera Villages' to promote coconut farming by planting high-yielding varieties, Agriculture Minister VS Sunilkumar. The proposal was to consider a 250-acre coconut farm as one unit and promote 44 such units under the programme, he said during question hour in the state Assembly. Sunilkumar said the objective was to increase coconut production, for which an amount of Rs. 33 crore has been earmarked.

Maha's pvt agri markets register Rs 4,200-cr revenue in 2 years

The Maharashtra government's move to relax norms and deregulate agriculture markets seems to have paid off. In the last couple of years, private markets in the state have earned around Rs 4,200 crore in terms of revenue while direct marketing licences earned some Rs 4,800 crore worth revenue in the same period. Until now in the traditional system, farmers sold produce to Agriculture Produce Market Committees (APMCs,) whereas the government's move to deregulate markets was meant to boost direct retail sales of fruits and vegetables to ensure stronger farm-to-fork linkages and in the process ensure better prices for producers and lower rates for consumers as well. The state government, through the Maharashtra Agricultural Produce Marketing (Regulation) (Amendment) Act, 2005, began the liberalisation process by providing for the creation of private markets, farmer-producer markets, direct marketing and contract farming. Sunil Pawar, director, marketing, Maharashtra had earlier said that the government has begun direct marketing licences, private marketing licences and single licences with the aim of encouraging multiple channels for marketing agri-produce and inviting bids through an online system. Such a move is directed towards allowing companies to purchase directly from farmers, bypassing intermediaries.

Army organizes mega farmers' fair in Baramulla

In its effort to facilitate the farmers to avail latest technologies available to increase their annual yield, army in collaboration with Department of Agriculture organised a 'mega Kissan Mela-cum-exhibition' at Agriculture Extension Office in Wagoora area of Baramulla district. The highlights of this mega event were series of awareness lectures and 20 display stalls providing a wide array of information on agriculture equipment and technology, Sheep Husbandry, Beehive, Mushroom, Pot plants, Sericulture, Horticulture and Animal Husbandry (including live animals with Disease Diagnostic Kit) and various loan schemes available to farmers from J&K Bank. Apart from this, saplings of willow and popular trees and seed packets were distributed free of cost to over a thousand farmers & villagers who attended this event, he said. The Kilo Force Commander Major Gen AK Singh and other prominent officials from Srinagar and Baramulla districts interacted with people who had turned up in large numbers to benefit from such an initiative. A series of lectures and demonstrations were organised to provide awareness and educate the farmers on the advancement, researches and development in the field of agriculture especially in the areas of low fruit productivity, diseases and pest control, awareness on solar energy, promotion of apiculture, loan schemes to the farmers and other related agriculture schemes.

Drastic fall in TN jasmine output

The production of jasmine has fallen drastically in Sathyamangalam, which is noted for its cultivation of the bloom, this year. This is despite many farmers in the villages around this part of Tamil Nadu's Erode district cultivating jasmine. The Jasmine season commences in mid April. The crop is generally grown over an area of around 860 hectares and more than 20 tonnes is harvested every day. "But this year, due to drought and failure of rains many jasmine plants have withered. Consequently production has decreased sharply and just above 4 tonnes of jasmine has been harvested so far . We have lost 75 per cent of the production On Friday a kilogram of jasmine was sold at Rs 150 and the quality is not up to the mark. Similarly, only 1.5 tonnes of Mullai arrived for sale and fetched Rs 100-110 a kilogram. Other flower varieties such as marigold have seen a decrease in price and production due to severe drought", said SR Muthuswamy, President of the Flower Sellers Association. He added that the association has requested the Tamil Nadu Government to grant sufficient compensation for jasmine, mullai and other flower production loss. He also wanted the Government to start a Jasmine perfume Manufacturing unit in Sathyamangalam so that output can be sold for perfume production during the season. He also said that flower farmers need sufficient rainfall for atleast 15 days continuously for standing jasmine plants to survive, failing which all the plants will perish, leaving farmers with a huge loss.

Maharashtra government likely to deregulate foodgrain prices

Enthused by farmers' response to the delisting of vegetables and fruits from the purview of the Agriculture Produce (Marketing and Regulation) Act, the Maharashtra government now plans to deregulate foodgrain to facilitate a direct market between farmers and consumers. Currently, tur dal and other food grains are sold by farmers only at designated procurement centres at APMC markets. Maharashtra's Minister of State for Agriculture and Marketing Sadabhau Khot announced this at the inauguration of a "farmer-consumer foodgrains and mango market" in Thane near Mumbai.The move assumes significance in the wake of the tur dal procurement crisis in Maharashtra. Under current APMC (Agricultural Produce Market Committee) regulations, tur dal and other foodgrains are sold by farmers only at government-designated procurement centres at APMC markets.

Manipur to promote organic farming

Manipur's Urban development Minister Thounaojam Shyamkumar Singh announced that the Horticulture Department is planning to promote organic farming and it will open an organic outlet (shop) at Sanjenthong in Imphal soon considering the potentials of organic products in the state. In fact Manipur's agricultural system is organic by default as the people of the state hardly use pesticides and other chemical fertilisers.

Water conservation: Nabard to help 1,00,000 villages before monsoon

Ahead of the monsoon, the National Bank for Agriculture and Rural Development (Nabard) will be reaching out to 100,000 villages with its water conservation programme. The Nabard will be working with villagers on better use of water for agriculture and household purposes. Amid a drought-like situation in several areas, the Nabard targets to help farmers extend water availability and usage by at least two months. It also asked banks to provide advances to farmers if any demand comes for irrigation after the campaign. Currently, the Nabard is providing training to 8,000 volunteers. The campaign will start next week and end in mid- June. These volunteers will select 11 people from each village and train them which in turn will create a force of 1.1 million for the programme. India is dependent on rain water for agriculture and drinking water. There are several areas where ground water level has gone down. Mostly, after January or February, water shortage starts in villages.

Crop insurance sector eyes 25 percent growth this year

The crop insurance sector is expected to see 20-25 per cent growth in FY18, as the government's thrust and increasing awareness levels are leading to the rise in acreage and sum being insured under crop insurance. According to the observation of agriculture insurance companies, while the premium of Rs 5,700 were collected under crop insurance and 3.09 crore farmers were covered in FY16, the amount of premium collected rose four-fold to Rs 21,500 crore in FY17 and the number of farmers covered rose to 3.90 crore. "Post Pradhan Mantri Fasal Bima Yojana (PMFBY), the number of farmers availing crop insurance has increased. However only 27 per cent farmers in the country opt for crop insurance. Majority of farmers are still out of crop insurance coverage, which gives us scope for further growth. The government aims to cover 50 per cent of farmers under crop insurance in the next three years, which will lead to crop insurance companies' growth," said Dhyanesh Bhatt, vice-president — government solutions group at ICICI Lombard General Insurance Company. Right now, about 18 players, including five public-sector firms, are offering crop insurance in the country and low penetration in the segment offers scope for all to grow. The changed rules post PMFBY and the mandatory deductions from all farmers who take crop loans towards payment of crop insurance premium, are leading to increasing coverage of crops under insurance.

Crop failures, high debt driving farm suicides, finds govt-commissioned study

Abject poverty, high levels of indebtedness, crop failures and pressure to repay loans are among the leading causes behind farmers committing suicide, according to the preliminary findings of a study commissioned by the Union agriculture ministry. The broad findings of the study conducted by the Institute for Social and Economic Change, Bengaluru, has been included in an affidavit submitted by the Centre to the Supreme Court on 28 April, in an ongoing Public Interest Litigation (PIL) on farmer suicides. The PIL was filed by Citizens Resource and Action and Initiative, a Gujarat-based non-profit, seeking higher compensation for families affected by farmer suicides and for crop loss in Gujarat. In January the Supreme Court made all state governments, Centre and the Reserve Bank of India (RBI) party respondents in the case, noting that the issue is of wider public interest. Based on interviews of 528 families affected by farmer suicides in 13 states, the study highlighted a trend among young farmers—of less than 30 years—taking their own lives. "It is very unfortunate that farmers who were not even 30 years' old with less than a decade of farming experience had lost their hopes and committed suicide," the study said. While the Centre in its affidavit listed schemes designed to check farm distress, such as crop insurance, credit and market reforms, it also said that their implementation is in the hands of states as agriculture is a state subject.

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Export of agri commodities declines sharply in FY17

Weak global prices have cast shadow over the export of major agri commodities from India. Except for non-basmati, the volume of exports of major commodities such as basmati, wheat, pulses and other cereals have witnessed a significant decline in 2016-17 as compared to 2015-16. The export of basmati dwindled by 4.90%. The share of basmati in exports is around 20%. According to provisional data, in volume terms, basmati shipments were estimated at 40 lakh tonne against 40.46 lakh tonne in the previous year. According to sources in Agricultural and Processed Food Products Export Development Authority (APEDA), the lower price of basmati in export market and reduced offtake from Iran has not only resulted in lower realisation but also affected the volume. Officials said since Iran had imposed a minimum export price of $850 per tonne, many exporters were not keen to ship at that price, which resulted in decline in volume.

Natural rubber imports decline 7% in 2016-17

The fall in natural rubber (NR) imports as announced by the Rubber Board has much to do with the increased domestic availability of the commodity, according to the tyre industry. Recently Rubber Board had released fresh data for the financial year 2016-17 that showed NR imports declining by 7% as production moved up by 22% during the year. Commenting on the latest release of numbers by Rubber Board, Satish Sharma, chairman, Automotive Tyre Manufacturers Association (ATMA) said, "With improving availability of NR in domestic markets, there is a perceptible drop in NR import. "That lends credence to the industry's position that NR imports are taking place to meet the domestic deficiency or in view of non-availability of certain grades of rubber on quality parameters." Certain NR growing interests have been alleging that the domestic NR production in India has been declining in view of imports contracted by the industry while industry has been maintaining that this was the other way round, he said, in a release by ATMA.

Oilmeal exports rise 19% in April

India's oilmeals exports for April 2017 increased 19 per cent to 135,474 tonnes as compared to 113,978 tonnes in the corresponding month last year, the latest data shared by the Solvent Extractors' Association of India (SEA) revealed. AT 1,24,374 tonnes, soybean meal exports held the largest share in overall oilmeal exports from India. Shipments of soyameal and other value-added products in April registered an eight-fold increase as against 12,295 tonnes in the corresponding period last year, according to provisional estimates released by The Soyabean Processors Association of India. The export of Indian Soymeal and its other value added products in the current Oil year from October 2016 to April 2017 stood at 12.43 lakh tonnes as against 2.51 lakh tonnes during the same period last year, showing an increase by 395.22 per cent.

India's soyameal exports rose on continued strong demand from countries such as Bangladesh and France, said a separate statement issued by the Soyabean Processors Association of India (SOPA).

Kesar makes entry into Australia

For the first time, Australia will sell `kesar' variety of Indian mangoes with the inaugural consignment of nearly 400 trays landing in Sydney, but marketing firms called it a "little disappointing" as the fruit was a little blemished and unevenly coloured. The first consignment was received by Perfection Fresh Australia (PFA), Australia's largest fresh-produce marketing company, after recently revised protocols that allowed Indian mango imports if the fruit was treated with irradiation prior to export.

'Globally, acreage under GM crops at a new high of 185.1 m hectares'

Amid the debate over Genetically Modified crops and their acceptance, a new report has revealed a sharp surge in the area under GM crops to 185.1 million hectares, in 2016, indicating a 110-fold jump in the adoption rate over 21 years. A report by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) named, 'Global Status of Commercialized Biotech/GM Crops: 2016,' stated that GM Crop cultivation has touched a new peak showcasing the 110-fold increase in adoption rate of biotech/GM crops globally from 1.7 million hectares in 1996 to 185.1 million hectares in 2016. In the past, ISAAA, a pro-biotech organisation funded by Monsanto and Mahyco, among others, has been accused of inflating numbers to show growing support for biotech crops. India, too, is seen adopting GM crops at a rapid pace. The year, 2016 was the turning point for GM crops in India as it transcended from the shadows of the moratorium on Btbrinjal imposed in 2010 towards commercial release of GM mustard.

Fruit Exports Rise 18.5% on Good Summer Harvest

A good harvest of summer fruits like mangoes, grapes, oranges, pomegranates and watermelons has pushed up the country's fresh fruit exports by 18.5% in value terms from a year ago. According to Agricultural Produce Export Development Authority (APEDA), the country exported 7,682 containers in 2016-17 compared with 6,462 a year ago, aided by good weather conditions that reduced the burden of pest and disease and helped increase per acre productivity of agricultural produce. The bumper production, however, has led to lowering of prices of fruits in the domestic market.

Cotton imports at record high of 30 lakh bales

India's cotton imports have touched an all-time high of 30 lakh bales this season. The last time cotton imports touched a record high was in 2001-02 when they were 25 lakh bales. In the 2015-16 season, India had imported 20 lakh bales of cotton. Buoyed by the good prices this season, farmers are expected to plant 20% more cotton in the 2017-18 season. The market and international rates of cotton have almost been on par and most cotton mills, especially in south India, have found it feasible to import, MM Chokalingam, chairman and MD in charge, Cotton Corporation of India (CCI) said. Cotton exports which were brisk at the start of the season touching 30 lakh bales, has become subdued with international rates coming on par with India, he added. Usually, there is a difference of 7 cents between domestic and international rates but with rates on par, the realisations from international cotton are higher, Chokalingam points out. From high moisture level to contamination and adulteration, Indian cotton faces a number of quality issues, forcing textile companies to depend on imports. Moreover, continued dollar inflow into the Indian market is seen to keep the rupee strong, which would encourage imports. Cotton rates in the domestic market are currently in the Rs 5,200-5,300 per quintal range. In the middle of the season, rates had breached the Rs 5,800-6,000 per quintal mark.

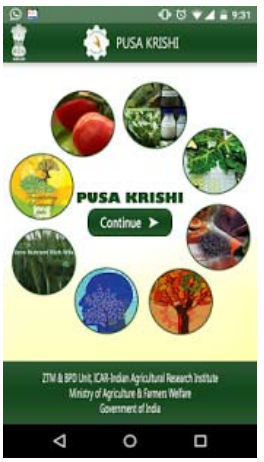
Influx of Chilean grapes spoils Indian exports to Europe

Though the start of the export season for Indian grapes turned out to be pretty good, the heavy influx of Chilean grapes into the European market has hit international rates hard, making the season's close tough for exporters. According to top officials of the All Indian Grape Exporters' Association, although there is good movement, and exports from the country to Europe are higher compared to the previous season, rates have dropped almost 50% this season to Rs 35 per kg. Last year, Indian exporters were getting Rs 65 per kg the same time. Europe is one of India's biggest export markets for grapes. This season, the country has exported around 1.13 lakh tonne to Europe compared to 84,384 tonne last season.

Dr R L Kapoor felicitated

Dr R L Kapoor was awarded & felicitated during 52nd Annual Group meeting of All India Coordinated Research Project on Pearl Millet at PAU, Ludhiana from April 28-30, 2017 for his vast contributions in the area of pearl millet research and development. Hybrids - HS-1, HHB45, HHB46, HHB94, Hybrid blend developed by Dr. R L Kapoor have played significant role in Indian agriculture. The breeding of short duration early yet productive hybrid HHB67 is unique in itself. The normal life of a bred variety/ hybrid is about 5 years. As against that, even after 28 years of its release, Dr R L Kapoor's HHB67 is still under cultivation and more relevant today in the wake of climate change . It is in the seed chain and the breeder seed indent is also received. The wonder hybrid HHB 67 has not only changed the financial position of resource poor pearl millet farmers but has crossed international borders making India proud . On the eve of International conference, standing on the stage at Vigyan Bhavan, New Delhi, Dr R. S. Paroda proudly remarked, we are pioneer in the world in breeding the shortest duration pearl millet hybrid HHB67.

An app to help farmers increase crop yields



The Pusa Krishi app was inaugurated in March 2016 during the Krishi Unnati Mela and is among the finalists in the Early Stage Category of the Digital Empowerment Foundation's awards in 2016. IARI has two stakeholders: industry and farmers. So far the team at IARI had been conversing with industry only through conferences, business meets, industry meets, etc. But the reach was limited. Conversations with farmers were infrequent. The app was developed with the aim of bringing information from lab to land so that they could reach out to both stakeholders at the same time. The Pusa Krishi app gives information about the varieties of products available to farmers, technology that can be used to yield better crops, information about produce and the region it is best suited for, information about animal feed and bio-fertilizers, among others. The app gets updated regularly and showcases any new developments in the product or technology segment. There is also a feedback section which enables them to have a real-time conversation with the stakeholders.

Innova Agri gets approval from Australia to export mangoes

Innova Agri Bio Park, a third-party gamma irradiation facility at Malur, near Bengaluru, has received the Australian government's approval to process and export Indian mangoes Down Under. Mangoes treated at Innova's facility will now qualify for the phytosanitary and food-standard requirement for entry into Australia, and the first shipment is expected to begin next week, said KS Ravi, Director, Innova Agri Bio Park. "In the current mango season, Innova Agri Bio Park aims to export nearly 300 tonnes of gamma-irradiated mangoes to Australia from its Malur facility. Besides, our exporters are using our facility to export to Europe and West Asia," Ravi said. Innova's facility has also been approved by the US Department of Agriculture and the Agricultural and Processed Food Products Export Development Authority in India.

New safflower strains promise same benefits as olive oil

India's search for a healthy edible oil has received a boost with a team of scientists at the Indian Institute of Oilseeds Research (IIOR), Hyderabad, developing new varieties of safflower that can yield oil with beneficial properties comparable to that of olive oil. The three new safflower cultivars, currently being tested by IIOR scientists, have oleic content as high as 75 per cent, which is similar to the levels in olive oil. Safflower oil brands available in India have only 20 to 25 per cent oleic fatty acid and this low oleic content makes them less suitable for deep frying. Besides, the new varieties — developed by crossing a high-oleic safflower variety accessed from the US and a safflower crop traditionally grown in India called A1 — have seed and oil yields of up to 15 and 27 per cent, respectively. The IIOR scientists, led by K Anjani, tested the new varieties in 10 different locations in Andhra Pradesh, Maharashtra, and Madhya Pradesh under both rain-fed and irrigated conditions in the 2014-15 and 2015-16 seasons. The scientists reported their work in the online version of Industrial Crops and Products journal. The institute, a constituent of the Indian Council of Agricultural Research, has developed the high-yielding high-oleic varieties for FMCG major Marico Limited, which funded the work.

Foodgrain Output Projected to Reach Record 273 MT

India's foodgrain production is forecast to hit a record in the crop year ending June 2017, with good monsoon rains last year boosting the estimated output of wheat, rice, coarse cereals, and pulses. The agriculture ministry's third advance estimates of major crops pegged the production at 273.38 million tonnes (MT), 0.51% higher than the second advance estimate. This year's output betters the record production of 2013-14 by 3.15%. The first advance estimate was issued in September 2016, followed by the second in February. The final assessment is released in August. As per the second advance estimate for 2016-17, total foodgrain production was pegged at 271.98 MT.

Genome sequencing can spin disease-free jute, soon

India's agricultural researchers have mapped the genome of a popular jute crop grown in the country, making it possible for them to breed newer varieties endowed with better traits. In a work published in the journal Genomics Data, scientists predominantly from the Indian Council of Agricultural Research (ICAR) said that the sequencing has helped them identify several thousands of genes that are capable of conferring disease resistance, yield improvement, and better fibre quality. For the mapping, the scientists led by Nagendra Kumar Singh, project director of ICAR- National Research Centre on Plant Biotechnology, in New Delhi, used a dark jute variety called Navin, which is popularly grown by farmers in India and Bangladesh. Navin is a cross between a jute variety sourced from Sudan and an indigenous one. It has been in cultivation for more than a decade.

Bezbaruah named Tea Board chairman

P. K. Bezbaruah will take over as the chairman of the Tea Board of India, filling up a post lying vacant since M.G.V.K. Bhanu left three years ago. His appointment would mark the first such instance of an industry representative being appointed to the top-post of the regulatory body. He is presently the chairman of the Tea Research Association

टी बोर्ड भारत
भारत सरकार वाणिज्य एवं उद्योग मंत्रालय के अधीन
TEA BOARD INDIA
Under Ministry of Commerce & Industry, Government of India

"I will act as a bridge between all the stakeholders" Mr. Bezbaruah told The Hindu from Assam. An alumni of IIM Calcutta and the Wharton School of Business, he joined his family's tea business after a stint with the Bank of America. "There has to be a positive correlation between price and quality. The role between the estates and the STG should be that of a partnership rather than adversarial," he said. He also flagged the development of the small tea grower sectors as an important focus area.

Andhra Pradesh's Banganapalle mango gets GI tag

The succulent Banganapalle mango has got a Geographical Indication (GI) tag, making Andhra Pradesh the proprietor of the variety. OP Gupta, Registrar of Geographical Indications Registry, Chennai, has accorded the registration following an application from the Horticulture Commissioner, Andhra Pradesh. A GI tag certifies the origin of a product or produce from a particular region as the quality or other features of the product is attributable only to the place of its origin. The tag helps farmers get a better price in the market. Banganapalle mangoes have been grown for over 100 years in the State. It also known as Beneshan, Baneshan, Benishan, Chappatai and Safeda, among other names. The fruits retain their quality under cold storage even up to three months, the Andhra Pradesh government said in documents seeking GI certification. The primary centre of origin of the fruit is Kurnool district, comprising Banaganapalle, Paanyam and Nandyal mandals, according to the Andhra Pradesh government. According to an affidavit furnished in 2011 by the then Andhra Pradesh Commissioner of Horticulture, I Rani Kumudini, nearly 7.68 lakh families, were involved in the production of Banaganapalle mangoes. While the annual turnover of Banaganapalle mangoes was approximately Rs 1,461 crore, exports were to the tune of Rs 20.68 crore, she had said.

Livestock and Poultry

THE INCOME BOOSTERS

Indian Livestock and Poultry segment have expanded from being a component of mixed farming and has started to enjoy the benefits of a stand alone enterprise. Now the livestock and poultry sector has fully established itself into independent entities and in the process have become good business avenues for entrepreneurs. The domestic as well as international markets are expanding and this has opened up new market opportunities for Indian livestock products. Although the country boasts of having the largest livestock popoulation, we lag behind in productivity and efficiency. To meet future demands, India should tune up its production machinery and become more sustainable and dependable.

According to the Agriculture Ministry's recently released integrated sample survey, the total milk production has increased from 52.21 Million Tonnes during 2015-16 (Rainy) to 54.50 Million Tonnes during 2016-17 (Rainy) registering a growth 4.38%

Livestock, dairy and poultry segments have undeniably elevated the income levels of the farmers. The persistent and proliferating demands form the Indian consumers have increased the scope and extent of animal husbandry in India. The income from these segments have put crop husbandry way behind, sometimes inviting suggestions of carving out dairy segment from the shadows of Agriculture. Animal husbandry has over the years evolved as a back up plan as it served them well during periods of distress in their crop cycle. However, the smaller scale of activity had constrained the true potential of the segment. The latest call to double farmers' income serves as a good launchpad for dairy segments to develop as a more technology oriented and economical activity.

Livestock and poultry Development

In India, where fragmented and smaller landholdings dominate the agricultural scene, livestock and poultry has assumed a major role in stabilizing farm incomes. According to the National Sample Survey Office's (NSSO) 70th round survey, more than one-fifth (23 per cent) of agricultural households with less than 0.01 hectare reported livestock as their principal source of income. The animal husbandry sector offers multispectral advantages to the farmers as they ensure supplementary income, employment, draught power as well as manure for crops. In fact, reports even suggest that households following mixed crop-livestock farming system were better off during distress due to extreme weather conditions.

Indian dairy sector is nothing short of a success story. The world's ace milk producer, India has continuously clocked higher milk production targets notwithstanding the current year. According to the Agriculture Ministry's recently released integrated sample survey, the total milk production has increased from 52.21 Million Tonnes during 2015-16 (Rainy) to 54.50 Million Tonnes during 2016-17 (Rainy) registering a growth 4.38%. As against the targeted production of 163.74 Million Tonnes during 2016-17, the total estimated production in two seasons, summer and

rainy, is 105.42 Million Tonnes showing an achievement of 64.38%. Further, as compared to previous year's (2015-16) rainy estimates, the average milk yield per day has marginally improved for indigenous category of cows and buffaloes. The average yield rates of exotic and crossbred cows are estimated to be as 10.85 Kgs and 7.40 Kgs per animal per day respectively and the average yield rates of indigenous and non-descript cows are estimated to be as 3.56 Kgs and 2.29 Kgs per animals per day. The average yield rates of indigenous and non-descript buffaloes are estimated to be as 5.86 Kgs and 4.04 Kgs per animals per day respectively. The first five highest milk producing States are Uttar Pradesh, Rajasthan, Madhya Pradesh, Gujarat and Andhra Pradesh during the Rainy Season.

Poultry segment which is another critical sector, considering their contribution to the farm incomes has also been registering positive growth targets. The total egg production has increased from 27.33 Billion during 2015-16 (Rainy) to 29.09 Billion during 2016-17 (Rainy) registering a growth of 6.42%. As against the targeted production of 87.05 Billions of eggs during 2016-17, the total estimated production in two seasons, summer and rainy, is 55.11 Billion showing an achievement of 63.31%. The production of egg is largely contributed by commercial poultry farms with nearly 75.75% and remaining production is from household/backyard poultry. The first five highest eggs producing States are Tamil Nadu, Andhra Pradesh, Telangana, West Bengal & Haryana during the Rainy Season.

The demand for animal protein has been consistently increasing. This has spurred the activity in meat industry as well. The total meat production in India has therefore increased from 2.24 Million Tonnes during 2015-16 (Rainy) to 2.43 Million Tonnes during 2016-17 (Rainy) registering a growth 8.74%. As against the targeted production of 7.37 Million Tonnes during 2016-17, the total estimated production in two seasons, summer and rainy, is 4.67 Million Tonnes showing an achievement of 63.28%. Nearly, 47.86% of the meat production is contributed by poultry and 20.11% is from buffaloes. The first five highest Meat producing States are Uttar Pradesh, Maharashtra, West Bengal, Andhra Pradesh, &Telangana during the Rainy Season.

The total wool production has decreased from 5.91 Million Kgs during 2015-16 (Rainy) to 5.78 Million Kgs during 2016-17 (Rainy), a decline of 2.16%. As against the targeted production of 44.07 Million Kgs during 2016-17, the total estimated production in two seasons, summer and rainy, is 20.66 Million Kgs showing an achievement of 46.89%. The first five highest Wool producing States are Karnataka, Gujarat, Maharashtra, Himachal Pradesh, & Jammu & Kashmir during the Rainy Season.

Developing Dairy

Indian dairy segment has seen phenomenal growth. The white revolution portended the rise of Indian dairying segment making India the largest milk producer in the world. Indians' natural inclination to dairy products and the increasing demands from an expanding population made the rise of the industry mandatory. The years succeeding intensively developed Indian dairy segment to successfully cater to the needs and demands of the world's second

most populous country.

Indian dairy segment is still dominated by women and marginal farmers, most of whom do not own land and contribute effectively to the Indian milk pool. Cooperatives working at different levels have generously helped in maintaining the efficiency and profitability of these individual units. About 15.46 million farmers have been brought under the ambit of 1,68,000 village-level dairy corporative societies up to March 2015. The cooperative milk unions have procured an average of 39.2 million kgs of milk per day during the year 2014-15, as compared to 34.2 million kgs in the previous year, recording a growth of 14.6 per cent. The sale of liquid milk by the cooperative sector has reached 29.9 million litres per day during the year 2014-15, as compared to 28 million tonnes, registering a growth of 6.8 per cent over the previous year.

The phenomenal rise in the milk production of the country had its genesis in the integrated co-operative system of milk collection, transportation, processing and distribution, conversion of the same to milk powder and products, to minimize seasonal impact on suppliers and buyers, retail distribution of milk and milk products, sharing of profits with the farmer, which are ploughed back to enhance productivity. Inspired by Khaira District Cooperative Milk Producers' Union, better known as AMUL, such cooperative organisations

The cooperative milk unions have procured an average of 39.2 million kgs of milk per day during the year 2014-15, as compared to 34.2 million kgs in the previous year, recording a growth of 14.6 per cent

"India became self-sufficient in Poultry Breeding supported by broad and strong genetic base in which productivity levels of FCR of Broilers and Eggs per hen of Layers are in no way inferior to those found in developed countries such as the USA and the EU.Poultry Farmer is given the highest attention in selection process of breeding resulting in consistent growth in performance of both broilers and layers over last three decades. There are many factors that have positively influenced the growth and expansion of Poultry segment in India such as Availability of raw materials as India is an agri based economy; Low water requirement when compared to Agriculture;Internationally known breeds with best performance; Poultry technology development such as top quality vaccines, latest equipment and acceptance of Contract farming which has helped small farmers to take up broiler farming in integration model".

Ranjit Reddy
President - TPBA
SR Hatcheries,
Hyderabad

Consumer preference for chicken meat has been increasing owing to increasing income levels, and changing food habits

sprung up in many states. A wide variety of institutions have contributed including the National Dairy Research Institute, Karnal, agricultural universities, veterinary colleges and the National Dairy Development Board (NDBD). Over the span of three decades, India has transformed from a country of acute milk shortage to the world's leading milk producer. This phenomenal success is attributed to 'Operation Flood' (1970–1996) and its intense focus on dairy development activities. In that initiative, rural milk shed areas were linked to urban markets through the development of a network of village cooperatives for procuring and marketing milk. And milk production and productivity were enhanced by ensuring the availability of veterinary services, artificial insemination (AI), feed and farmer education. The investment paid off, promoting production gains of 4–5 percent per annum.India ranks first among the world's milk producing Nations since 1998 and has the largest bovine population in the World. Milk production in India during the period 1950-51 to 2014-15, has increased from 17 million tonnes to 146.3 million tonnes as compared to 137.7 million tonnes during 2013-14 recording a growth of 6.26 %.

Identifying the potential benefits entailing dairy production in enhancing rural incomes, government has been very keen on popularizing the same through schemes such as "National Programme for Bovine Breeding and Dairy Development", National Dairy Plan (Phase-I) and "Dairy Entrepreneurship Development Scheme". The restructured Scheme National Programme for Bovine Breeding and Dairy Development (NPBBDD) was launched by merging four existing schemes i.e. Intensive Dairy Development Programme (IDDP), Strengthening Infrastructure for Quality & Clean Milk Production (SIQ&CMP), Assistant to Cooperatives and National Project for Cattle & Buffalo Breeding with the budget provision of Rs.1800 crores for implementation during 12th Plan. Dairy Entrepreneurship Development Scheme (DEDS) was launched in September 2010 to promote private investment in the dairy sector to increase milk production in the country and create self-employment opportunities and, therefore, help in reducing poverty.

This scheme is being implemented through NABARD, which provides financial assistance to commercially bankable projects with loans from commercial, cooperative, urban and rural banks. The National Dairy Plan Phase I (NDP-I) was approved in March 2012 by the Government of India, for implementation from 2011-12 to 2016-17. The total investment is about Rs 2,242 crores. The NDP-I envisages to meet the projected national demand of 150 million tonnes of milk by 2016-17 and around 200 million tonnes by 2021- 22 through productivity enhancement, strengthening and expanding village level infrastructure for milk procurement and provide producers with greater access to markets. The strategy involves improving genetic potential of bovines, producing required number of quality bulls, and superior quality frozen semen and adopting adequate bio-security measures etc.

Promoting Poultry

Indian poultry segment has reported enormous progress in the recent years. In fact, Poultry is one of the fastest growing sub-sectors of animal husbandry; the annual growth rate of eggs being pegged around 6 per cent. India is the third-largest egg producer after China and USA and the fourth-largest chicken producer after China, Brazil and USA. The per capita eggs consumption has gone up from 30 to 68 and the chicken from 400 gm to 2.5 kg. Despite being plagued by occasional glitches such as avian influenza, the sector has bounced back registering positive growth rates. Consumer preference for chicken meat has been increasing owing to increasing income levels, and changing food habits. In India, however, there is a very limited affinity towards frozen or processed chicken meat. The

The per capita eggs consumption has gone up from 30 to 68 and the chicken from 400 gm to 2.5 kg. Despite being plagued by occasional glitches such as avian influenza, the sector has bounced back registering positive growth rates

The poultry products for export also include table eggs, egg powder and other egg products. India exported 647 million eggs, a value of $51.1 million, (in shell fresh, preserved or cooked under HS code 0407) in 2015 to neighboring countries in South Asia, the Middle East and Africa

live market sales of broiler meat hence constitute more than 90 percent of total sales volume whereas the processed chicken meat segment comprises only seven to ten percent of total production.

Existed primarily as a backyard enterprise in rural India, poultry segment has now become more organized and structured. Within a span of 25 years, the egg production has gone up to 70 billion from few millions and the broiler production has gone to 3.8 million tonnes from nowhere. Poultry is the most organised sector in animal agriculture, worth rupees one lakh crores. More than 80 percent of India's chicken output is produced by organized commercial farms. Major poultry companies have vertically integrated operations which comprise approximately 60-70 percent of the total chicken production. These major companies, also called integrators, own hatcheries, feed mills, and slaughter facilities and may also provide credit, extension services, and veterinary medicine. Integrators contract with multiple smaller farmers who raise the chicks to slaughter weight primarily in open air sheds. The live birds are then either purchased by the integrators for slaughter and further processing or by a wholesaler who distributes them via live markets. Broiler production is mainly concentrated in the states of Tamil Nadu, Andhra Pradesh, Maharashtra, Uttar Pradesh, and Telangana.

India's consumers' preference for freshly butchered chicken meat has

"As per 2014 data, Poultry sector contributes approximately one percent to GDP of India. One third of this comes from egg production and the rest from broiler segment. Poultry is one of the fastest growing sectors of Indian agriculture, with annual growth rates of around 8% (5.57% and 11.44% in egg and broiler production respectively). Today, India is the third largest egg producer in the world (after China and USA). Several factora have contributed positively to the expansion of poultry segment in India such as Increase in per capita income; Shift in consumption pattern from vegetarian foods to non-vegetarian; Consumer awareness, perception and acceptability of eggs and chicken as healthy food; International and private sector participation; Relatively better organization (compared with the rest of livestock sector); Relatively low prices of poultry products in comparison to mutton; Religious restrictions on beef and pork, limited availability of fish outside coastal regions; Genetic progress in poultry strains; Better understanding of nutrition fundamentals and Disease control. Indian poultry was limited to backyard venture before 1960s. Backyard poultry lacks the scale of economy and government policies can be framed to encourage setting up of farmers' cooperative and ensure timely supply of chicks, feed, medicines etc., at competitive prices. Also there should be arrangements to buy their produce in a manner similar to milk cooperatives in Gujarat. Government policies relating to support in poultry are miniscule and limited to backyard poultry so far. There are many schemes on paper. But, due to complex procedures, bureaucratic lethargy, most of these are not easily available to small and marginal farmers. Poultry industry in India faces several challenges such as Poor infrastructure and incentives for export; Competition from International players, lifting of trade barriers; Lack of processing facilities (during low demand period, excess production neither can't be stored for long, nor diverted for processing); Lack of Government incentives (compared to other neighbouring countries); High interest on borrowed capital; Huge fluctuation in feed (maize, soyameal etc) prices; Stagnant prices for poultry products against ever increasing expenses towards staff and labourers and Occasional disease outbreaks"

Bablu Kundu,
Managing Director,
Bharati Poultry Pvt. Ltd, West Bengal

however not curtailed the growth prospects of processed chicken meat and it is growing between 15 to 20 percent per year. This has driven sales not only in retail, but also fast food restaurants as well as the hotel, restaurant, and institutional sector. To meet this increased demand, the major poultry companies have been expanding their slaughtering and processing facilities, and they are offering the retail sector a wider range of processed chicken products such as frozen chicken burgers, salamis, nuggets, sausages, and tikkas. Chilled and frozen chicken parts are also now available in certain high-end groceries where more affluent consumers are willing to pay the 30 to 40% premium over wet market prices.

India's minimal poultry imports include prepared or preserved turkey mainly from EU countries and Thailand. India exports are also limited to small quantities of frozen whole chicken and cuts to neighboring countries in South Asia, the Middle East and Southeast Asia as it is constrained by inadequate slaughtering and processing facilities, inadequate cold chains, and periodic avian influenza outbreaks. The poultry products for export also include table eggs, egg powder and other egg products. India exported 647 million eggs, a value of $51.1 million, (in shell fresh, preserved or cooked under HS code 0407) in 2015 to neighboring countries in South Asia, the Middle East and Africa. Export of eggs not in shell /egg yolks in 2015 was 12,247 tonnes, worth $53.3 million, mainly to Germany, Japan, the Middle East and Southeast Asia.

The Government of India's Food Safety and Standards Authority of India (FSSAI) regulates the domestic poultry slaughter and processing sector through the Food Safety and Standards Regulations (FSSR 2011). FSSR 2011 enforces sanitary standards and controls at all stages of poultry production, including sanitary standards for slaughterhouses and maximum residue levels (MRLs) for animal drugs; it also requires registration and licenses for poultry processors and other food operators in the poultry value chain. The FSSAI also regulates imported poultry products and tests imported poultry product shipments. In 2015, FSSAI notified a Draft Order on Meat and Poultry Products in the Indian Market, applicable to both domestic and imported poultry products. The draft order noted that a procedure will be developed to inspect and monitor slaughtering and processing plants before granting market access to exporting countries; it also requires an exporting country's competent authority to certify to Indian import requirements. However, to date FSSAI has not notified a final order to revise any existing regulation. With the scope of processing bright, the Ministry of Food Processing Industries (MFPI) is providing assistance to establish

"The Broiler meat production has been growing at CAGR of around 8% (7.7%) over the last 10 years. Growing income levels and changing food habits are expected to drive the growth of Broiler meat production in the coming years. Protein deficiency is quite common in India and many are shifting from calorie based diet to protein based diet. This gap in demand in protein can only be met by poultry. The per capita consumption is estimated to grow to 4.3 kg from the existing levels of around 3.2 kg. Hence the poultry business is a good income proposition in rural settings especially contract poultry farming which has currently emerged as a safest business proposal. More over available Indian breeds are far superior to breeds from abroad as they are open house breeds and performs efficiently. However, in terms of policy support poultry segment is far behind dairy. Provided with right support from the Government, India has the potential to become the largest exporter of chicken meat".

Ashok Kumar
President, Karnataka Poultry Farmers & Breeders Association

modern abattoirs and to modernize existing abattoirs through a program entitled: Modernization of Abattoirs. MFPI's program on Cold Chain, Value Addition and Cold Storage Infrastructure provides assistance to create integrated cold chain and cold storage facilities. It covers pre-cooling facilities at production sites, reefer vans, mobile cooling units, as well as service centers. India permits 100 percent foreign direct investment in the food processing sector.

Scheming Livestock Development

Indian government has been receptive towards the livestock sector and has constantly supported the practitioners of this segment through relevant schemes and policies. It is one of the reasons for the rapid and consistent growth witnessed by the Indian Livestock and poultry segment.

The National Livestock Mission (NLM) has commenced from 2014-15. The Mission is designed to cover all the activities required to ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders. The Mission will cover everything germane to improvement of livestock productivity and support projects and initiatives required for that purpose subject. This Mission is formulated with the objective of sustainable development of livestock sector, focusing on improving availability of quality feed and fodder.

The Sub-Mission on Fodder and Feed Development addresses the problems of scarcity of animal feed resources, in order to give a push to the livestock sector making it a competitive enterprise for India, and also to harness its export potential. The major objective is to reduce the deficit to nil.

A Centrally Sponsored Scheme for the conservation of threatened breeds of livestock (whose population is below 10,000) and of indigenous poultry/ducks (whose population is below 1,000) was started during the Tenth Five Year Plan. During 2014-15, the Conservation of Threatened Breed scheme was subsumed under the

The "Rashtriya Gokul Mission" has been launched by the Government for conservation and development of indigenous breeds in a focused and scientific manner.

National Livestock Mission. During 2014-15, two projects on the conservation of threatened breeds were undertaken in Arunachal Pradesh. These were "Establishment of Nucleus Breeding Farm for Yak" and "Establishment of Pony Breeding Farm".

The "Rashtriya Gokul Mission" has been launched by the Government for conservation and development of indigenous breeds in a focused and scientific manner. The Mission also envisages the establishment of integrated cattle development centres, or "Gokul Grams", to develop indigenous breeds including up to 40 per cent nondescript breeds.

Integrated Development of Small Ruminants and Rabbits was approved in April 2009 for implementation during the Eleventh Plan. The scheme envisages the setting up of intensive small ruminant development clusters with venture capital through NABARD as well as infrastructure development and institutional restructuring through the State Implementing Agency. During 2014-15, the Integrated Development of Small Ruminants scheme was subsumed under the National Livestock Mission .

For the development of poultry segment the National Livestock Mission has the following components - Central Poultry Development Organizations (CPDOs), Strengthening of Breeding Infrastructure of State/ University Farms and Rural Backyard Poultry Development. The CPDOs located at four regions (viz. Chandigarh, Bhubaneswar, Mumbai and Hessarghatta) have been playing a pivotal role in implementing Government policies with respect to poultry. The mandate of these organizations has specially been reoriented to focus on improved birds, which lay on an average 180-200 eggs per annum, and have vastly improved feed conversion ratio in terms of feed consumption and weight gain. Rural Backyard Poultry Development is envisaged to cover beneficiaries from BPL families to enable them to gain supplementary income and nutritional support.

There has been persistent demand from the North Eastern States seeking support for the all-round development of pigs. Therefore, in the North Eastern Region, pig development is being implemented as a sub-mission of the NLM. The sub-mission strives to forge synergies of research and development organizations through appropriate interventions, as required for holistic development of pigs in the North Eastern Region, including genetic improvement and health cover.

The Entrepreneurship Development and

Employment Generation (EDEG) component of the National Livestock Mission (NLM) encourages commercial rearing of poultry, small ruminants and pigs by the adoption of scientific methods and the creation of infrastructure. During 2014-15, a total number of 14,488 units of poultry, small ruminants and pigs have been assisted for the above activities under the NLM. During 2015-16, 5547 units have been assisted during the first quarter.

Sagging Zones

The current livestock scenario in India, although calls for jubilation, there are certain weak spots which cannot be overlooked if we are aiming at a sustainable and steady development of the segment.

India has the largest livestock population in the world and is also the largest milk producer. But India's livestock productivity is 20-60 per cent lower than the global average. On an average, Indian cows yield only half litre of milk per day and a buffalo gives one and a half litres of milk per day, whereas in some of the advanced countries of the world, a cow produces 8 to 11 litres of milk per day. In India, mostly local, non-descript breeds are used by the farmers. Poor quality diet has been haunting the Indian dairy sector for ages. The problem becomes severe during lean periods such as drought.

The low productivity is a result of ineffective cattle and buffalo breeding programmes, limited extension and management on dairy enterprise development, traditional feeding practices that are not based on scientific feeding methods, and limited availability and affordability of quality feed and fodder. In addition, the limited supply of quality animals is exacerbated by policies limiting inter-state movement of animals. Indigenous cattle and buffalo make up 45 per cent of the country's total milch population, in contrast to the cross-bred cows at 10 per cent.

Animal health and breeding services provision, veterinary infrastructure development and vaccinations are the responsibility of the state government. These services have traditionally been provided for free or at a very subsidized rate. In the past few years, there has been increasing awareness that the state pays heavily to offer these services, which are easily available to farmers. Consequently, many states have instituted partial or full-cost recovery fees for providing the services. In addition to the State Department of Animal Husbandry, Dairying and Fisheries, the milk cooperatives and NGOs (BAIF, JK Trust) provide services in many states. So do trained private sector AI technicians, although for a fee. As well, state livestock development agencies are being set up as autonomous bodies to offer services in animal breeding in the form of procurement, production and distribution of breeding inputs (such as semen and liquid nitrogen), training and promotional activities. Despite these initiatives, the availability of services remains limited. Currently, AI services cover only 15 per cent of the breedable animals. Cattle and buffalo breeding programmes have been initiated but have not had the desired impact because of a lack of coordination between the different state departments. And extension activities in dairy management are woefully lacking. Disorganization, credit deprivation, lack of awareness, disorientation among many other factors has been pulling back the industry from reaching its true potential.

The livestock industry is an emerging enterprise in India. With the livestock wealth at its advantage, the country can rise and become a formidable force. The intent and aim of the farmers and policy makers can bring a big difference in the outlook and probably the future of the sector.

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'PRODUCTIVE POTENTIAL OF ANIMAL DEPENDS ON QUALITY OF HEALTH SUPPORT SERVICES'

Virbac Animal Health India Private Limited markets high quality, safe, effective medicines and feed supplements for Livestock, Poultry, Equine, Companion Animals and Aquaculture. Operates in all the therapeutic segments like Parasiticides, Disinfectants & Sanitizer, Hormones, Antibacterial, Topical, antibloat, Tonics, and Vaccines. Virbac also specializes in feed supplements for maintenance of health and productivity in Bovines, Poultry, Sheep, Goats, Pigs, Aquaculture, Equine and Companion Animals. In an interview with Agriculture Today, Satish Pasrija, Managing Director, Virbac Animal Health India Pvt. Ltd., elaborates on the animal health care market of India and its outlook in coming years.

What is the market for Animal Health medicines in India?

The total Animal Health Products market in India is estimated to be approximately Rs. 39,200 Million. Out of that, animal health medicines for treatment, prevention or control of diseases accounts for nearly 60%, that is approximately Rs. 23,500 Million. Animal health medicines includes, vaccines, anti-invectives, parasiticides, anti-inflammatory, antiseptics & disinfectants and hormones. Rest 40% market (15,700 M) is contributed by Feed Supplements that play a major role in maintenance of health, productivity and performance of animal.

How significant are the health care medicines in promoting animal productivity?

Any health issue has direct impact on productivity of animals. Therefore, significance of animal health care medicines is very high. Food animal production has intensified over the last few years, this is mainly because of increase in per animal productivity. Increase in efficiency is the result of several factors including preventive medicine. Veterinary medical care in food animals consists of the use of: (1) vaccines and prophylactic medication to prevent or minimize infection; (2) antibiotics and parasiticides to treat active infection or prevent disease onset in situations that induce high susceptibility; and (3) antibiotic drugs and hormones for production enhancement, growth promotion, and improved feed efficiency.Apart from animal health medicines, there is great significance for nutritional feed supplements in improving health and production efficiency of animals. These are essential for the maintenance, growth and productivity of Cattle, Poultry and other food producing animals to provide complete, stable and balanced diet for the animals.

In a country like India where most of the livestock farmers belong to the small and marginal category, how can health care regimes made more economical?

Productive potential of animal depends crucially on the animal health system and quality of health support services. Animal health care regime involves disease surveillance and monitoring and strengthening veterinary infrastructure. Focus should be given to prevention and early diagnosis to minimize the treatment expenditure. National Livestock health policy can be framed in order to target economically important diseases and accordingly budget can be made available for the prevention and treatment of such diseases. Reduction in government taxes to manufacture animal health care medicine will be helpful to keep the price of medicines economical.

Which are the new innovations in the pharmaceutical segment that can positively influence animal health?

Innovations in the pharmaceutical segments are mainly targeted at food safety, efficacy and compliance. Advances in medical science and technology have provided the potential to develop new or improved vaccines, pharmaceuticals and diagnostic tests for the prevention and control of animal disease such as avian influenza, foot-and-mouth disease, rabies and classical swine fever. Some of the new innovations in pharmaceutical health that can positively influence



animal health are;Long acting antibiotic formulation – Improves the compliance of treatment thus therapeutic efficacy; Topical Ectoparasiticides Pour On – Improves compliance and sustained efficacy against ectoparasites; 4th generation cephalosporin antibiotic – Exclusive usage in animals against Gram negative bacterial infection; Pneumonia Vaccine controlling the respiratory infection caused by multiple bacterial agent and Vaccines to prevent transmission of zoonotic diseases like avian influenza and brucella.

How has been the approach of Indian government towards animal health care industry?

Animal health care industry in India is still in evolution phase. There has been some effort from the government to strengthen animal health industry however still it is not sufficient. There are many areas where government can extend support to animal health industry. Government may play more proactive role for increasing the awareness among farmers for improved farming practices and disease control and it can be best done in collaboration with industry. Similarly there is scope of harmonization of regulatory requirements for registration of new drugs in India. This will facilitate speedy approvals for import or manufacturing of new innovative drugs in India. There is also opportunity for skill development among various stake holders of livestock health service provider. This will enable access to improved treatment regime to better manage the healthcare issue. More and more economically important and zoonotic diseases should be taken into national vaccination plan. All these efforts creates favorable environment for expansion of animal health industry in India.

What are the challenges ahead of this industry?

India offers immense opportunity to animal health industry, however there are many challenges which act as barriers to capitalize those opportunities. Economy of Livestock farming, Insufficient Veterinary Infrastructure, Regulatory Compliances and Counterfeit issues due to rural nature of market and less educated customers are few of them.

What is the future outlook of animal health care industry?

Indian Animal Health market estimated at 39,200 MINR (603 MUSD) in 2016 is set to reach 75,000 MINR (1120 MUSD) by 2020 with CAGR of more than 12% over the forecast period. Dairy is the major segment contributing 53% of total market followed by poultry which is 32%. Others like Sheep & Goat, Companion and Aquaculture share is 4%, 5% and 4% respectively. With increase in economic development of the country and social obligation of nuclear family, the need of companion animal is going to increase in coming days and this is being reflected in high growth (>15%) in Companion Animal Segment. Poultry is more or less an organized sector and moving towards integration.

Operation Flood initiatives allowed the modernization of dairy sector with cooperative networks allowing small farmers to sell milk for processing, which was able to meet growing urban demand. This initiative allowed India to attain self-sufficiency in dairy products and now has the potential to become key exporter with viability of small farmers. Market evolution in both dairy and poultry is likely to place India as a key player in global animal health market. Among product segment, nutrition products / feed supplements is major segment (40%) followed by antimicrobial (22%) and parasiticides (20%) segments.

There is increasing emphasis on prevention and control of diseases, thus biologicals is set to become the most important segment in future and set to see upward trend in years to come. Leaving apart all limitations, Indian animal health market is poised to grow by leaps and bounds, thanks to the opportunity arising from globalization of economy as well strong domestic consumption which is going to keep Indian AH market attractive in near future with the potential to become top 10 AH market globally. In this emerging opportunity, animal health industry is prepared to play more dynamic role through introduction of new innovative products/ formulation and improved manufacturing process to better support growth and production of animal assets and thus helpful in realizing the dream of food security through quality and hygienic animal protein for human consumption.

'AN EFFECTIVE CROP-LIVESTOCK INTEGRATION MAY BE HELPFUL FOR THE SMALL SCALE PRODUCERS'

The country's premier Dairy Research institution, National Dairy Research Institute (NDRI) has developed considerable expertise over the last five decades in different areas of Dairy Production, Processing, Management and Human Resource Development. Information generated at the Institute and the services offered have contributed to the growth of Dairy Industry as a whole and well-being of millions of milk producers and consumers of milk and milk products. Realizing the challenging need of global Dairy Trade, the Institute is continuously working to develop its R&D and HRD programmes to better serve the nation in terms of food security, employment generation, poverty alleviation and economic prosperity. In an interview with Agriculture Today, Prof. (Dr.) A.K. Srivastava, Member, ASRB and former Director of NDRI discusses the dairy segment of India.

What is the level of research happening in the dairy segment in India?

With changing lifestyle and consumer requirements, the demand for foods with functional benefits such as hypocholesterolemic, anti-carcinogenic, anti-ageing effects is increasing. Thus, emphasis is being given to the functional dairy foods and the research focuses on generation of bioactive peptides from milk proteins for the production of functional foods. The dairy management holds the critical importance in the changing environment where research emphasis is being given to effective dairy management, value addition and dairy business, understanding the market and responding to the emerging market trends and challenges. Further in health management of dairy animals, management of three diseases i.e. FMD (Foot and Mouth disease), Brucellosis and Mastitis are getting attention of scientists. Zoonotic diseases from animals to human being are also getting priority.

What is the role played by improved breeds in enhancing the productivity?

Low milk production in India in initial years resulted on account of low genetic potential for milk production, poor nutrition, farm management and poor animal health care. Crossbreeding programme of dairy cattle has played significant role in increasing the milk production and attaining India's position as highest milk producing country of the world. The improved breeds have greatly enhanced the milk productivity of the country. The crossbreds in the country occupy only 20 per cent share in the cattle population but contribute close to 25 per cent in the total milk production of the country. However, most of the cattle in India are of the nondescript types which yield very little milk. The productivity of improved breeds remains close to three times of indigenous breeds in the country. Buffalo and zebu production in the country could significantly enhance the economy and living standards of farmers in India. There are various zebu breeds in the Indian subcontinent, the adaptation of buffalo and zebu to tropical climate ensures their place in the future of world agriculture.

How can productivity of India's dairy herds be improved?

It has been reported that anestrous and repeat breeding in buffaloes and bovines are two of the most serious reproductive problems affecting 30-40% of the total cattle and buffalo population. The Vision Document 2030 of NDRI reports that the country is losing 20-30 million tonnes of milk annually on account of anestrus and repeat breeding in cattle and buffaloes, which translates to a loss of nearly Rs. 40000-50000 crores annually. In addition, presently, 4.18 million buffalo, 1.26 million crossbred and 6.05 million indigenous cattle are breedable but never calved even once in their life. To enhance the production and productivity in dairy animals, the gap between two calvings and gap between calving to conception has to be reduced significantly. In cattle the gap between calving to conception and between calving interval has to be reduced from 136 days to 85 days and from 414 days to 365 days, respectively. For a farmer, each missed heat is a missed opportunity and he incurs a loss in the productive life of the animal by 21 days. There is need to solve the problems of infertility in the Indian livestock by evolving cost effective simple technologies in nutrition, physiology and biochemistry. Identification of fertility markers in farm animals can help in defining cattle and buffalo population, which can be maintained on balanced feed. Other dimensions related to animal

productivity are assisted reproductive technologies, improved semen extenders, understanding of gene regulation to improve fertility. Further, gradual stress induced by global warming and climate change is also influencing fertility and productivity of livestock directly, and, through reduction in fodder production indirectly. Improper feeding is by far the most important factor hampering the productivity of Indian livestock. There is a need to optimize the use of available feed resources and enhancing the bioavailability of nutrients from these feed resources.

There is a considerable gap in the demand and supply of feed in India. How can this be addressed?

Feed is one of the major inputs in livestock production and accounts for about 80-90 % of the variable cost of milk production. In India, the feed and fodder consists of largely the crop by-products, which depend upon the regional agro-climatic conditions. Green fodder and concentrates are the two essential sources of nutrients to realize the genetic potentialof animals. Fodder cultivation for livestock is a common practice in only selected regions that are more advanced milk production/ milk shed areas such as Punjab, Haryana, Western Uttar Pradesh and parts of Gujarat and Rajasthan. Otherwise, the balanced compound animal feeds are in short supply. The deficit can be met by increasing crop productivity and focusing on unutilized and underutilized feed options. For this, optimum regional crop plans based on resource endowments and demand requirements are essential to develop the strategic framework for meeting the fodder requirement in the country.

How can livestock and farming be sustainably integrated?

Integration of crops and livestock serves primarily to minimize risk; the integrated crop and livestock systems create synergies by allowing the maximum use of resources and outputs. On one hand, crop residues can be used as animal feed, at the same time livestock byproducts like dung enhance agricultural productivity through improvement in soil fertility and reduction in the use of chemical fertilizers (may be in few cases). Crop residues provide fodder for livestock, while grains may be supplementary feed for productive animals. Livestock serves as a risk management enterprise, which provides returns even if the gains from the crop enterprises are worst in adverse circumstances. An effective crop-livestock integration may be helpful for the small scale producers but they need to be provided an enabling environment in terms of access to knowledge, assets and inputs to manage the system in such a manner which is economically and environmentally sustainable in the long term.

What should be the direction of research that India should embark on considering the challenges of climate change?

The research related to climate change should focus on enhancing the resilience of Indian agriculture and livestock to climatic variability and climate change through development and application of improved production & risk management technologies. This may require demonstrating site specific technology packages on farmers' fields for adaptation and mitigation. The National Innovations on Climate Resilient Agriculture (NICRA) Project at NDRI focusses on critical assessment of different crops/zones in the country for vulnerability to climatic stresses and extreme events, in particular, intra seasonal variability of rainfall; rapid and large scale screening of crop germplasm including wild relatives for drought and heat tolerance through phenomics platforms for quick identification of promising lines and early development and release of heat/drought tolerant varieties; comprehensive field evaluation of new and emerging approaches of paddy cultivation like aerobic rice and SRI for their contribution to reduce the GHG emissions and water saving; selection of promising crop genotypes and livestock breeds with greater tolerance to climatic stress; and enhanced resilience of agricultural production in vulnerable regions of the country. Further, it is very important to develop the technologies to emphasis the climate resilient dairy farming system in India, because in India more mulch animal are in drought prone region. Out of total 486 lakhs mulching buffalos, 114 lakhs crossbred and 480 lakhs indigenous cattle of country, about 381 lakhs mulching buffalos, 91 lakhs crossbred and 344 lakhs indigenous cattle are in drought prone area.

What role can indigenous breeds of India play in India's dairy segment?

The country has a rich reservoir of genetic diversity and possesses some of the best breeds of cattle and buffaloes. At present, in total cattle population of India, the nondescript population is about 70%, indigenous breeds and graded population are 11.6 and 2.10% respectively. The populations of crossbred and exotic animals are 15.7 and 0.9%, respectively. In buffalo population, however we have 56.1% nondescript, 30.2% indigenous breeds and 13.7% graded population. Some of the breeds like Sahiwal in Punjab, Uttar Pradesh, and Haryana cows are well-known for their milking capacity. As per the Department of Animal Husbandry and Statistics, the milk yield varies from 2000 to 4000 kg per lactation with fat content varying from 4% to 4.5 %. Similarly, Tharparkar in Kutch, Jodhpur and Jaisalmer desert area of India provide average milk yields varying from 1800 to 3500 kg per lactation. The cattle breeding and development have also received varying degrees of emphasis in the different Plan periods. Indigenous population comprise of close to 80 per cent of the cattle population in the country, however, their number as well as share have declined significantly overtime. On the other hand, indigenous animals contribute only 20 per cent of the total milk produced in the country.

INDIAN DAIRY INDUSTRY: VALUE ADDED PRODUCTS THE "GAME CHANGER"

This summer, the change in taste preference towards dairy beverages is more evitable than ever before. Buttermilk or chaas costing INR 12-14 per 200 ml is cheaper than a 200 ml carbonated drink and perceived as healthier. Sales of buttermilk, lassi, curd etc., are growing at an accelerated pace, and we are seeing dairy companies launching a lot many new products, variants to take advantage of the increasing growth. For example, Parag Milk recently launched a whey protein product under the name of 'Avataar', Prabhat Dairy entered the ice-cream segment under the brand called 'Volup', North-based Kwality Limited has too launched a host of new value added products. Also, a lot of start-ups have cropped up selling branded milk shakes, organic milk, flavoured paneer etc. Meanwhile, the 800 pound gorilla in the market - the INR 31,000 croreAmul (FY 16) aggressively launched new products too and is expanding its distribution network (e.g increasing its presence in markets like North India), with the goal to double revenues to INR 65,000 crore in revenues by 2020.

Dynamics of the Indian dairy value-added products market

Traditional dairy products like liquid milk, butter, ghee, paneer and curd comprises only 15-20% of the total market. As the dairy sector evolves, the organized market of the traditional dairy products is expected to grow at a CAGR of 15-20% per annum for the period FY 2016-2020. Unlike the developed and matured markets, liquid milk in India is nearly 2/3rd of the market, while growth in value added products will outpace growth in liquid milk, it will still have a major chunk of the market even in 2020.

The modern value added products like flavoured and frozen yogurt, UHT milk, flavoured milk are expected to grow much faster than market, projected to grow at 25-30% per annum for the next 4 years, growing from a small base.

Overall as the dairy market grows at 15%+ over the next few years, there is a transformational shift towards value added products as its contribution is expected to increase to 40% by 2020 with modern value added dairy products becoming a formidable INR 40,000 cr market.

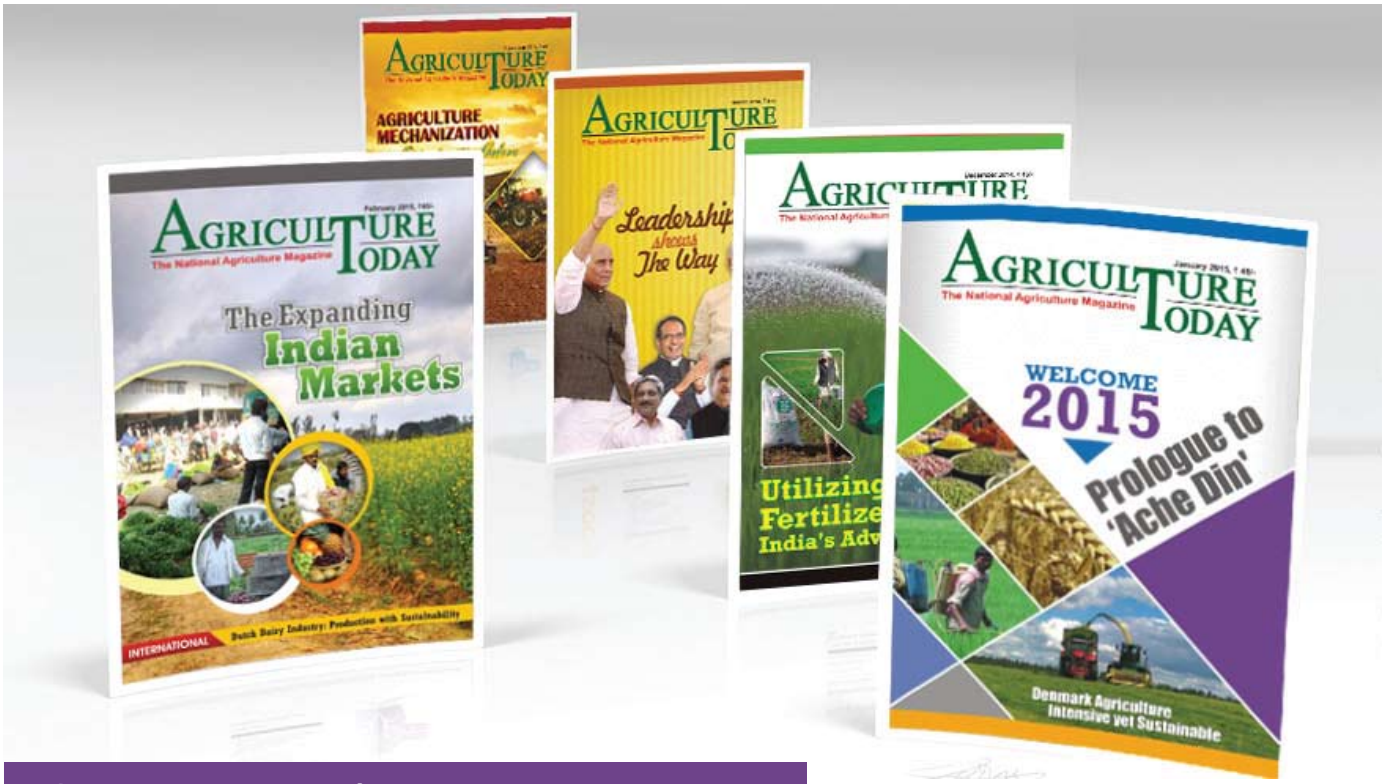
This frenzied growth in value-added dairy products is being driven on the following counts –

- Affordability – Dairy beverages like chaas, lassi, flavoured milk are priced lower or equivalent to carbonated drinks, and much cheaper than juices or other health drinks
- Quality – The overall quality of milk has improved dramatically over the years, as direct milk procurement has increased thus cutting off the middle men, investments in plant and machinery, systems and processes to ensure a high sense of manufacturing hygiene
- Demand for Healthy foods and beverages growing - The Indian consumers are wanting more healthier food and beverage options to consume, and are also willing to pay a premium ranging from 20%-80%, as per a recent study conducted by research agency Nielson

Indian Dairy Industry is evolving at a fast pace, and dairy companies will need to transform themselves from traditional milk companies to FMCG companies, that have strong procurement/ backend to ensure high quality milk to consumers, nation-wide distribution as 'localization' in dairy loses relevance, will need promotional and media spending, and a dynamic and evolving work culture like their FMCG peers. Also, we believe that with the composition of revenues for dairy companies changing towards a more balanced or favourable mix towards value added products v/s liquid milk, EBIDTA margins that today ranges between 6-8% may increase to teens to mid-teens. This will have a strong positive impact on valuations for dairy companies going forward.

In conclusion, dairy companies that embrace this change, and are willing to change the DNA of the company will benefit over the medium and long term.

Nitin Jain, Aurum Equity Partners LLP



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AGRICULTURE TODAY

'PRODUCT, PROCESSING & PACKAGING TECHNOLOGY HAS BEEN ONE OF THE MAJOR DRIVERS'

Milk Mantra, an Indian agricultural dairy products startup based in Odisha, was founded in August 2009 by former director at Tetley Srikumar Misra and became operational in 2012. India's first venture capital-backed agricultural startup, Milk Mantra was set up to solve the milk scarcity problem of the state. The company produces and distributes milk and other milk-based products like buttermilk, cottage cheese, curd, and yogurt. Apart from the conventional milk products, they also sell flavored milkshakes and ready-to-drink healthy milk beverages under its brands Milky Moo and Mooshake. Known for their packaging that increases the shelf life of milk products, Milk Mantra has evolved into a development model that has attracted attention from across the nation. In an interview with Agriculture Today, Mr. Amitava Mukherjee, COO (Chief Operating Officer), Milk Mantra and Mr. Anil Burman, Head of Sourcing, Milk Mantra discusses the general dairy scenario of the country and the challenges faced by the segment.

AMITAVA MUKHERJEE

ANIL BURMAN

How was dairy segment's performance in the last fiscal?

The Indian dairy sector is the lifeline of India's agrarian economy and is the largest milk producer in the world. India's milk production stands at 157 million tonnes and industry analysts estimate it to increase by 50 per cent over the next decade. With a growing demand for milk and the dairy companies increasing innovation in the field of milk derivatives, the dairy sector is expected to grow at 25% in the next five years. Due to drop in milk production in major milk producing states like Maharashtra, Tamil Nadu and Karnataka, milk production has dropped in the last financial year 2016-17 which has resulted in increase in price of raw milk and processed milk including milk derivatives like SMP.Companies straddling, the cooperative and the private sector have taken initiatives in building up sourcing and processing infrastructure.

What are the drivers of the dairy segment in India?

Product, Processing & Packaging technology has been one of the major drivers but is the least celebrated. With consumer food habits evolving, the use of technology to bring about functional innovation will have a wider platform. Moreover a thrust in the dairy segment is also brought about by evolving consumer lifestyle and their need for healthy and nutritious products. The millennials are shifting more towards value-added products.

How significant is dairying as a possible avenue for doubling farmers' income?

Agriculture contributes approximately 14% of India's GDP but agriculture is growing at around 1% whereas the livestock including dairy contribute a major share in agricultural GDP and are growing at the rate of 2% per annum. Milk's gross realization to the farmer is approximately 75 % of MRP as compared to 10-15% MRP realization for fruits and vegetables with very high wastages due to lack of warehousing. Also dairy is a significant earning opportunity for the landless farmers. Also going forward, increased demand for dairy products due to higher disposable incomes will improve the return to farmers vide higher milk prices and thus encourage them to increase milk production.The dairy sector has an underlying opportunity for contributing 15% of farmers, income annually through higher milk production which is a significant jump from the current 10%.

What is the level of processing in dairy segment?

Organised segment including private and cooperatives process 30% of the milk produced in the country. There is a huge opportunity for organized sector to increase processing capacity. With Government of India infusing Rs.8000 Crores for dairy infrastructure creation in the next 3 years, the estimated increase of production capacity would be 500 million tonnes of milk per day. Huge challenge lies with both private and co-operative sector to create rural network for sourcing quality milk.

How is the support of the government in developing Indian dairy sector?

Government support is needed for creating rural infrastructures for milk collection and processing. Government support should not be only restricted to cooperatives but also extend to the private sector which is processing equal amount of milk of that of cooperative sectors. Most of the State as well as the Central Government support of the dairy is being channelized through milk cooperatives. While disbursing the government scheme to the cooperatives, merits of efficient/ non-efficiently run cooperatives is not being considered. Government should encourage the Private sector to invest in the dairy sector by providing subsidies, soft loans etc.

What is the export potential of Indian dairy products?

The major challenge in increasing exports to major dairy importing countries in Middle East, China & Africa is a low /insufficient quality of milk and non-traceability of milk from farmers to the processing plants. Going forward, the Indian dairy industry needs to invest in long shelf-life milk products. It is imperative that we should develop proper production, processing and marketing infrastructure, which is capable of meeting international quality requirements. A comprehensive strategy for producing quality and safe dairy products should be formulated with suitable legal backup.

What are the challenges faced by the Indian dairy segment?

Some of the challenges that lay ahead of the Indian dairy segment include increasing animal productivity, making proper nutrition available to animals, protecting the local breeds, creating Village Sourcing networks and training manpower.

mjunction's e-platforms transform tea supply chain

India is the second largest producer of tea in the world and over 75% of the tea is consumed within the country. The second most popular beverage in the world after water, tea comes in varying qualities and grades. Having been plucked from gardens across variety of regions, the tea makes its journey to our cups. In between, large tea buying companies package it for us, having procured it from auctions and bought leaf factories. This procurement process is fraught with inherent inefficiencies in terms of transparency, presence of middlemen, price discovery and turnaround time, among other things.

In 2008, an e-auction process initiated by the Tea Board replaced the centuries-old public outcry system. However, this process had its limitations. For one, it was conducted only through the six registered auction centres in India. The sellers had to transfer the processed tea 14 to 21 days prior to the auction at the warehouses. As an owner of a bought leaf factory in Assam shared, "The current auction mechanism did not raise the volume sales for us. It took 2 to 3 weeks to send the tea for auction catalogue and another 2 weeks to receive the payment. We could auction our produce only when the auction date and time were issued and at the registered auction centre. Also, transporting our produce to the central warehouse which was far from the factory is time consuming."

Five years later, in 2013, mjunction services limited, India's largest B2B e-commerce company, designed an online trading platform for a tea packaging company, one of the largest buyers of the country, which addressed and resolved these operational inefficiencies of the existing online system.

mjunction and the large buyer recognized that the demand for tea at these auctions had dropped considerably. In order to resolve this, a direct contact between buyers and sellers must be introduced, which will also eliminate intermediaries and other agents. The tea producers also detested the regulation which required them to sell at least half of their produce through auctions. Even the inventory of unsold tea bore additional working capital.

mjunction's solution

mjunction's online solution ensured that small tea producers got direct access to a large buyer. A bought leaf factory owner in Siliguri said, "With access to a large buyer, our cost of sampling and transport cost has reduced as we do not have to move our produce elsewhere before selling. Even the workers in our factories and the green leaf suppliers have benefitted through this as we are able to give them regular wages".

The platform also brought about savings for the buyer with optimum price discovery and improvement in their hit rate. They got the first access to fresh tea from a wide base of suppliers, within a day or two of production. mjunction CEO Mr. Vinaya Varma shared that, "Earlier, this business was done independently by them, who eventually faced complexity in price negotiation and ambiguity on the efficiency and quality. mjunction simplified this entire procurement process and customized its web enabled platform to facilitate the discovery of market driven price". Through mjunction's tea trading

platform, the buyer gets access to good quality tea from small tea producers in Assam, Dooars and the South India.

The IT platform makes the process scalable, enabling any number of sellers to deal with the buyer privately. Under a 'supplier offer site', suppliers offer their produce as per client requirement according to the given schedule. The platform allows them to offer tea through online competitive bidding in a transparent and convenient manner thereby instilling trust among the stakeholders. As more suppliers became aware of this system they wanted to be a part of it.

"There is an average of 60% YoY increase in the number of suppliers onboarded. The trading started off with 20 suppliers from the Dooars and Guwahati region in 2013-14 and increased to 50 in 2015. 25 more suppliers were added with few from the Southern regions as well by 2016. Now we have 110 suppliers in total. mjunction tea buying solution leverages its wider supplier base to deliver double digit savings in shortest period of time." Mr. Varma informed. The buyer procures 100-105 million kilograms of tea annually and mjunction contributes by helping them procure approximately 20% of it.

The quantity of tea procured in 2015-16 rose to 9 million kilograms as against the 8 million procured in 2014-15. Currently the buyer procures 20 million kg through the platform. Mr. Varma added that: "We are in talks with many other large tea buyers which will bring about a better profitability for the small tea suppliers."

Selling portals

mjunction has also introduced selling portals for three large tea producers. This platform is accessed by small buyers and distributors who sell it locally or package it for the local unit. It provides the sellers a greater access to buyers and also increases operational efficiency for both sides of the supply chain.

Tea Auction Centre

Tea board is planning to setup an auction centre in Jorhat, Assam. Being the 'tea city' of Assam it is central to all the tea growing districts in upper Assam. The proposed auction centre will aid the small tea growers in ease of doing business, aid local employment and bring in investments. Despite producing more than 50 per cent of the country's tea, Assam has only one tea auction centre at Guwahati.

mjunction has applied for the mandate to provide the infrastructure and undertake responsibilities for e-auctions at Jorhat. Given the company's successful profile in auction services, it clearly stands as a favourite. mjunction in the past has auctioned spectrum for DoT, Government of India, commercial papers for SAIL worth 700 crores etc. and has been actively involved in e-sales of steel and other minerals. mjunction's auction services lead to a better price discovery by eliminating middlemen. The process has been acknowledged by industry people as transparent and punctual.

Catering to both sides of the tea supply chain, mjunction's secure online platforms have thus been able to make a significant technology breakthrough into a traditional industry. With more and more buyers and sellers coming under its ambit, it is thus one step forward towards realization of a Digital India.

Mr. Vinaya Varma, CEO, mjunction services ltd.

ICFA launches first regional Working Group on North East

Indian Council of Food and Agriculture launched its 1st regional Working Group on North East at Guwahati on 4th May, 2017. Mr. PL Thanga, IAS 1974 batch, Secretary, Mizoram State Planning Board was appointed as Chairman with 32 eminent persons as its Members. Dr. MJ Khan, Chairman ICFA announced its launch. Alok Sinha, DG ICFA; Dr. Nath, VC Central University; Dr. MI Meiti, Advisor, NEC; Dr. Moni, ex DG NIC; Dr. Anis Ansari, IAS 1973 batch, Chairman, CARD; Dr SV Ngachan, Director ICAR-NEH and others were also in attendance.

ICFA meets Sri Lanka Exports Development Board

ICFA had a fruitful meeting with Sri Lanka Exports Development Board in Colombo on 8th May, 2017. Director General, Ms. J. Siriwardena led six member EDB team and expressed keen desire to strengthen trade relations with India. She will be leading a delegation to New Delhi on 30-31 May for more discussions. ICFA would be hosting the delegation and meeting with trade bodies. EDB has also confirmed to participate in the INDIA International Agro Trade Fair 15-17 Dec in New Delhi organized by ICFA.

ICFA interacts with Deputy Foreign Minister of Sri Lanka

Deputy Foreign Minister of Sri Lanka, Dr. Harsha de Silva received Dr. MJ Khan, Chairman, ICFA at his office in Colombo on 9th May, 2017. A host of issues related to food and agriculture trade and cooperation between India and SL were discussed and an agreement was reached to promote technical cooperation in key crop areas through technologies and training support and also the agro food trade.

ICFA Working Group on Eco Agriculture and Bio Products launched

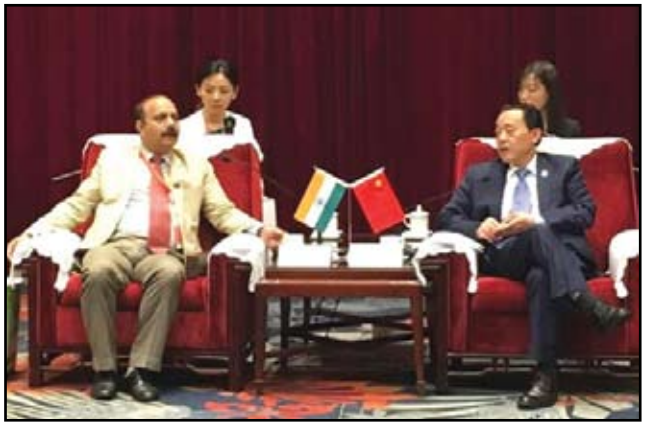
Dr. Ramesh Chand, Member, NITI Ayog and Sh. P. Rupala, Minister of State for Agriculture launched 40 Member "ICFA Working Group on Eco Agriculture and Bio Products" on 22 May 2017 at New Delhi at the National Conference, participated by global CEOs, heads of businesses, national institutions, VCs, farmer leaders and top experts. The meeting was chaired by Mr. Jalaj Srivastava, Addl Secy Agriculture, Govt. of India and co chaired by Dr. Shyam Khadka, FAO chief for India.

ICFA receives Director General of ICRISAT

ICFA received Director General of ICRISAT, Dr. David Bergvinson at its office and discussed to work together for launching the India Africa Agriculture Partnership Platform, engagement with Indian States for agri projects, ICT platform for farmers and launching Healthy Food Initiative. ICFA chairman was joined by two directors, Mamta Jain and Dr. Sucheta Arora and two Vice Presidents, Dr. Priyanka Sarkar and Sudhanshu Arya.

ICFA at World Tea Summit

Dr. MJ Khan, Chairman, Indian Council of Food and Agriculture led six member delegation to the World Tea Summit at Hangzhou, China held during 18-19 May, 2017.The even hosted delegations from 34 countries, represented by Prime Ministers, Trade Ministers, Foreign Ministers, Ag Ministers or High Level officials.

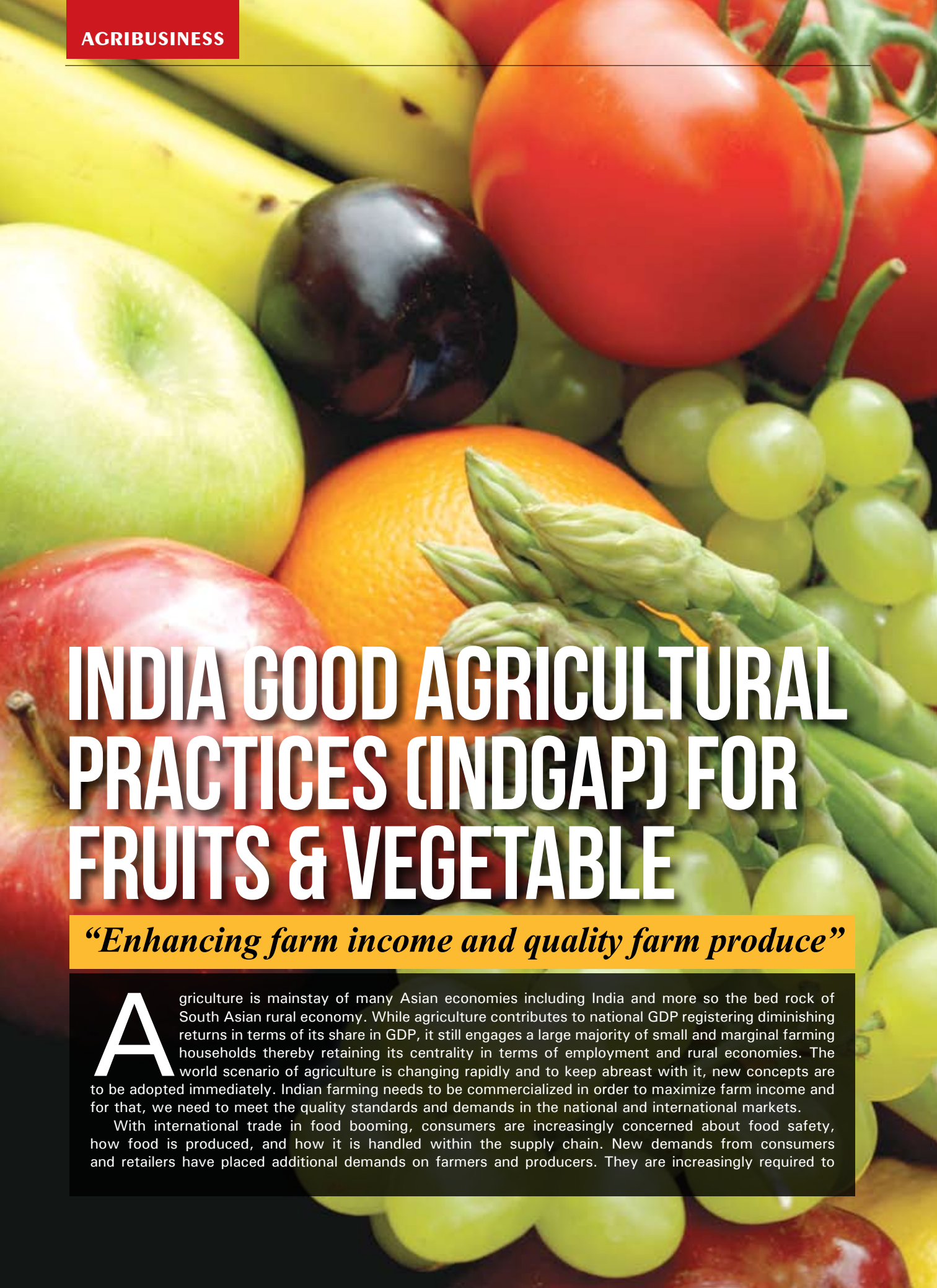


ICFA receives Chinese Vice Minister of Agriculture

ICFA received Chinese Vice Minister of Agriculture, Prof. Dongyu QU with 11 member delegation at the Hotel Narada, Hangzhou for delegation level talks. Wide ranging issues from technical cooperation to trade boosting measures, crop care technologies to mechanisation, tea husbandry and animal health care were discussed. The Minister emphasised the need for collaboration between Chinese and Indian institutions to unleash the potential in food and agriculture for the benefit of farmers and consumers alike. He accepted ICFA's invitation to participate with a high power delegation at the 10th Agriculture Leadership Summit on 5-6 Sept in New Delhi, hosted by ICFA

Ceylon Chamber of Commerce hosts Dr. MJ Khan

Ceylon Chamber of Commerce hosted Dr. MJ Khan, Chairman, ICFA at their HQ in Colombo for a high level interaction with its President, Mr. SPS Ranatunga, who was joined by Chairman, Sri Lanka F&V Association; Mr. Z Hashim, President, National Agribusiness Council; Aruna Veerakon, President, SL Food Processors Association; Mr. Malik Alwis, Dy SG, Ceylon Chamber and Mr Mohan Silva, SG, NAC. The Ceylon Chamber and ICFA agreed to collaborate for trade and technical cooperation for crop inputs and technologies. ICFA would be hosting SL delegation in New Delhi for further discussions.



INDIA GOOD AGRICULTURAL PRACTICES (INDGAP) FOR FRUITS & VEGETABLE

"Enhancing farm income and quality farm produce"

Agriculture is mainstay of many Asian economies including India and more so the bed rock of South Asian rural economy. While agriculture contributes to national GDP registering diminishing returns in terms of its share in GDP, it still engages a large majority of small and marginal farming households thereby retaining its centrality in terms of employment and rural economies. The world scenario of agriculture is changing rapidly and to keep abreast with it, new concepts are to be adopted immediately. Indian farming needs to be commercialized in order to maximize farm income and for that, we need to meet the quality standards and demands in the national and international markets.

With international trade in food booming, consumers are increasingly concerned about food safety, how food is produced, and how it is handled within the supply chain. New demands from consumers and retailers have placed additional demands on farmers and producers. They are increasingly required to

Introducing Good Agriculture Practices (GAP) in India will ensure the following benefits:

- Adoption of GAP helps promote sustainable agriculture and contributes to meeting national and international environment and social development objectives
- Appropriate adoption and monitoring of GAP helps improve the safety and quality of food and other agricultural products
- It is expected to help increased compliance to national and international regulations, standards and guidelines regarding use of permitted pesticides, maximum levels of contaminants (including pesticides, veterinary drugs and mycotoxins) as well as other chemical, microbiological and physical contamination hazards
- Improved productivity through the introduction of efficient operations management
- It gives competitive advantages related to costs, the market, credibility, and price. Guarantee access to new markets and recognition by buyers

use production methods that reduce the impact of agricultural practices on the environment, judicial use of agrochemicals, and to make efficient use of natural resources (land and water), all the while safeguarding the welfare of workers and conserving farm ecology. Good Agricultural Practices (GAP) is one of these standards developed by the Food and Agriculture Organisation (FAO). It represents a solution for producers seeking to address consumer concerns in domestic and foreign markets, and presently GAP certification is a must for exports in most of the developed countries.

Concept of GAP

GAP refers to "practices that need to be applied on farms to ensure food safety and quality during preproduction, production, harvest and post-harvest" stages. According to FAO (2003), Good Agricultural Practices (GAP) are the practices that address environmental, economic and social sustainability for on farm processes and result in safe and quality food and non-food agricultural products. The fundamental guiding principle of GAP is the achievement of a safe and sustainable food production system for growers and consumers.

This safe production system is necessary to ensure the right of consumers to hygienic, nutritious, and affordable food. In addition, it is also essential to safeguard the health, hygiene, and welfare of growers and farm workers. They must not be exposed to hazards and dangers during input applications. Under such conditions, farmers, particularly small and rural farmers in Asia, have a desperate need to understand the workings of GAP. They must learn how to capture the opportunities and avoid the pitfalls of being trapped in a food market system where their crop products are side-lined in the food supply chain (FSC).

The Need

Food regulatory authorities, retailers, and consumers all have active roles in advocating food safety and sustainable food production. Traditionally, it was the regulatory authorities who played the most active role by enforcing punitive measures for offenders for non-compliance. However, in the current scenario, the consumers are more informed and able to make their demands, they have now become more influential in dictating greater food safety and sustainable production initiatives. GAP is a fitting model to help farmers address this change in the modern food production and distribution system. It is based on assurances, hazard analysis, and risk assessment.

Introduction of GAP in agrarian economies shall bring in culture of food safety, enhanced produce quality, optimization of human and natural

resources in agriculture. This in turn will result in better price realization of their produce which in turn will secure and strengthen livelihoods of the small and marginal farmers. The local retailers and global buyers recognize that if farmers in the region opt for hygiene and food safety in their production system through Good Agricultural Practices (GAP), they will enjoy access to guaranteed new markets, have reliable quality inputs, will increase farm value and increase farmer's skill in farming operations.

Solution

The production of safe food is essential for protecting consumers from the hazards of food borne illnesses and is important both in the domestic food business and for increasing competitiveness in export markets. It is therefore important to address food safety right from food production at farm level. Implementing Good Agriculture Practices (GAP) during on-farm production and post-production processes is of immense importance in ensuring a safe food supply. Towards meeting this challenge Indian Council of Food and Agriculture (ICFA) is focusing on GAP certification through its division AGROCERT.

ICFA – AGROCERT is approved by Quality council of India (QCI) for its INDIA Good Agriculture Practices (INDGAP) Certification Scheme in conformity with ISO/IEC 17065:2012. This provides third party Certification to farmers, farm entrepreneurs and producer groups in the horticulture sector, who will be maintaining their field operations and activities in accordance with the Good Agriculture Practices certification scheme. INDGAP certification, in addition to improving the yield and quality of the products also has environmental, sustainability and social dimensions. For further details, you may please visit our website: www.agrocert.in or email on: certification@icfa.org.in .

In order to gain certification, grower or producer groups must first set up an administrative system to account for all farm operations, including keeping records of plant stock, input purchases, maintenance of equipment, applications of agrochemicals, identification of farm legal entities, and so forth. If growers undertake the GAP practices required in the system, they reap the benefits of improved farm management efficiency, quality, and environmental sustainability.

With the opening up of the world market, there is a flow of trade in agricultural products in wide range of agriculture produce such as fruits and vegetables sector, livestock, dairy, tea and coffee etc. It is, therefore, necessary to define certain minimum standards with a well-defined certification and accreditation mechanism for the ultimate implementation of GAP to facilitate national and international trade in farm produce.

Mr. Sohra, Managing Director,
Quality Care Services Private Ltd.

CHILEAN BLUEBERRIES AND AVOCADOS GAIN ACCESS TO INDIA

In the framework of a public-private visit to India, led by the Chilean Undersecretary of Agriculture, Claudio Ternicier, the national authority and the Joint Secretary of the Indian Ministry of Agriculture, Ashwani Kumar, signed an agreement on April 24, 2017 that sets the conditions to allow the export of fresh blueberries and avocados from Chile to India.

The Chilean delegation also included the head of the SAG International Affairs Division, Veronica Echávarri; the Chief of the Agricultural and Forestry Protection Division of the SAG, Rodrigo Astete; as well as the Chilean Ambassador to India, Andrés Barbé; the Chilean Agriculture Aggregate in that country, Jaime González, and the General Manager of ASOEX, Miguel Canala-Echeverría.

"Reaching this agreement has been possible thanks to a long-term joint public-private work, which has included numerous negotiations and visits carried out between the representatives of both countries. The agreement foresees the certification by Phytosanitary Inspection to detect pests of interest for India in fresh blueberries, as well as the certification of fresh avocados from Chile to India through a Systems Approach. Exports are consequently expected to start from next season," said Claudio Ternicier.

The Chilean Ambassador to India stressed that "currently, India is receiving avocado imports from New Zealand and blueberries from the United States and Canada, since they are not produced locally, so there is a huge marketing potential for both Chilean products, especially in the foodservice and fruit stores. This agreement will allow us to diversify our exports and add avocados and blueberries to the list of products we were already shipping, which includes apples, grapes, kiwis, pears and cherries, thus expanding our presence in India."

On behalf of the private sector, Miguel Canala-Echeverría, General Manager of ASOEX, commented that "the agreement signed in Delhi is excellent news for the fruit industry, as it will allow us, starting next season, to start exporting blueberries and avocados, after more than 10 years of difficult negotiations."

Canala-Echeverría also thanked the efforts made by the Ministry of Agriculture, the Agricultural and Livestock Service (SAG) and the presence of the Undersecretary of Agriculture, "which shows the relevance that this issue has for our authorities," he affirmed.

During the public-private visit, and in an attempt to improve the access conditions for other Chilean products, the Chilean delegation proposed new alternative treatments that could be applied to walnuts for export, and a deadline was set to analyse the possible access of non-fumigated Chilean prunes.

During the meeting, representatives of the government of India asked for the speeding up of the process to allow access to products of interest for the country, such as mangoes and pomegranates.

During the 2015-2016 season, Chile exported more than 35,000 tonnes of fresh fruits to India, which represented an increase of close to 70% compared to the 2014-2015 campaign, which shows the importance of this market when it comes to the export of fresh fruits.

Of the more than 35 thousand tonnes exported, 89.9% corresponded to shipments of red apples, 9% to kiwis, 0.8% to table grapes, 0.3% to fresh plums and 0.1% to cherries and pears, respectively.

NATIONAL ROUND TABLE ON ECO-AGRICULTURE AND BIO PRODUCTS

Eco-Agriculture explicitly recognizes the economic and ecological relationships and mutual interdependence among agriculture, biodiversity and ecosystem services. Eco-agriculture landscapes are mosaics of areas in natural/native habitat and areas under agricultural production.

Recognizing the significance of Eco Agriculture Revolution for health, environment, biodiversity preservation and sustainability, Indian Council of Food and Agriculture (ICFA) constituted a Working Group on Eco Agriculture, which was launched on May 22, 2017 at a National Round Table by Dr. Ramesh Chand, Hon'ble Member, Niti Ayog. The working group was chaired by Padmashree Dr. M.H. Mehta and co-chaired by Mr. J.S. Khorakiwala, MD, Biostadt India and Dr. Krishan Chandra, Director National Centre for Organic Farming, under the Ministry of Agriculture. The working group would act as a coordinator across stakeholders, enabling an interface by organizing workshops, seminars, policy dialogues on various critical aspects of organic agriculture. The forum will follow up on important recommendations with concerned national and international agencies; facilitate farmer's sensitization; promote quality certification infrastructure and international collaborations.

The brain storming session was chaired by Mr. Jalaj Srivastava, Additional Secretary, Ministry of Agriculture and Farmers Welfare and co-chaired by Dr. Shyam Khadka, FAO chief for India and Sri Lanka. Around 60 global CEOs, heads of businesses, national institutions, academicians, researchers, farmer leaders and top experts participated in the conference.

Dr. M.J. Khan, Chairman, ICFA, welcomed all the participants and expressed gratitude to Dr. Ramesh Chand, Dr. M.H. Mehta, Mr. J.S. Khorakiwala, Dr. Krishan Chandra, Mr. Jalaj Srivastava and Dr. Shyam Khadka for gracing the event with their

Dr. M.J. Khan, Chairman, ICFA, welcomed all the participants and expressed gratitude to Dr. Ramesh Chand, Dr. M.H. Mehta, Mr. J.S. Khorakiwala, Dr. Krishan Chandra, Mr. Jalaj Srivastava and Dr. Shyam Khadka for gracing the event with their presence. He mentioned that eco-agriculture can be adopted on a large scale by every type of farmer

presence. He mentioned that eco-agriculture can be adopted on a large scale by every type of farmer. He also pointed out that government plans cannot be successfully implemented unless industry participates and industry supports and makes sure that government plans are implemented for larger benefit.

Mr. Parshottam Rupala, Hon'ble Minister of State, Ministry of Agriculture, *in absentia*, quoted "Honorable Prime Minister, Shri Narendrabhai Modi has put a high priority on Sustainable and Eco Farming. In fact, I recall that last year he has even invited a Global Expert Committee consisting of 4 International Experts namely Dr. John Fagan from USA, Dr. Hans Harren from UN, Dr. MH Mehta from India & Dr. A Thimmaiah from Bhutan and had detailed deliberations and later announced a major initiative in Sikkim for Eco Agriculture / Organic Farming.

I congratulate Dr. M.J. Khan, Chairman of ICFA for this commendable initiative to launch this Working Group with Dr. Mehta as Chairman to prepare a detailed Road Map to bring in the Eco Agriculture Revolution. I am particularly happy as you have top experts and farmers as the members of this important Working Group.

In fact, we feel that India is in an ideal situation to bring Eco Agriculture Revolution which can help better environment, improve farm productivity in a sustainable manner. It is particularly very relevant and important for small and marginal farmers and in rain-fed areas where we can help them bring down the cost of inputs with the help of Agri Bio Inputs like Bio Fertilizers, Bio Pesticides and Bio Composts from farm wastes. With these eco-friendly inputs, we can improve the environment, health of people and sustainability of our farms and help our farmers in increasing their income in a sustainable manner.

I will also suggest to your Working Group to make a detailed program and also have several such Round Tables organized in different parts of the country and even in neighboring countries so that the knowledge and technology transfer for Eco Agriculture Revolution can be speeded up and benefit all. With these words, I am very happy to announce the launch of this WORKING GROUP on ECO AGRICULTURE and BIO PRODUCTS."

Dr. M.H. Mehta, Chairman, Gujarat Life Sciences, pointed out that there have been continuous discussions about India moving from green revolution to evergreen revolution and organic farming is one of its major components, which comes under umbrella of eco agriculture. He also mentioned that there is a need to maintain the ecological balance as ill effects of chemicals gradually vanish, but alternatives are being created and new generation agri-bio products are being introduced, which will help in sustaining the eco agriculture model. "Everybody should have correct understanding of eco agriculture. There is a requirement of comprehensive definition and standards for eco agriculture.The range of new generation Agri Bio Inputs will play a very important role

in Eco Agriculture especially for higher productivity and lowering input costs. We have to make a road map to reach Eco Agriculture model, which has highest priority for small and marginal farmers and rain-fed areas," added Dr. Mehta.

Mr. Shyam Khadka, India Representative, Food and Agriculture Organization FAO, pointed out that the privatization of land has led to division of the land into smaller pieces, which ultimately increased the productivity but disturbed the ecological landscape. He urged to create a mechanism to manage landscapes along with the biodiversity management, which has been ignored for long. He also talked about the water management at the basin level.

Dr. Krishan Chandra, Director, National Center of Organic Farming, stated that some farmers are well informed about this concept of eco agriculture but are afraid to adopt it as there is no well-planned eco agriculture model. Thus, there is a need to develop a well-planned eco agriculture model for the farmers. He also threw light on the bio products which are being imported to India from various countries, which may not be in accordance with the requirements of the Indian soil and mentioned that similar is the case of bio stimulants. He raised the question on quality of bio products being sold in the market as till now no regulatory regime is available in the country. Thus, he suggested regulating the market for every product being launched by the company. However, everything cannot be provided to the farmer from the market as the concept of eco agriculture or organic farming itself means to produce some inputs on farm.

Mr. J.S. Khorakiwala, Managing Director, Biostadt India, stated that a lot of things are to be considered for bringing food from the farm to the table such as crop protection, water management etc.

Mr. R.D. Kapoor, Mayank Singhal MD, PI Industries, agreed with Mr. J.S. Khorakiwala for the need of proper analysis and stated the history of micro nutrients regulations. He brought to the notice that even industry faces challenge of storing bio stimulants with pesticides as bio stimulants are not regulated, the pesticide inspector does not allow to store bio stimulants in the same warehouse of pesticides. Thus, he expressed the interest of industry to get the bio stimulants regulated.

Mr. Marco Rosso, Global Corporate Affairs Director, Valagro, talked about his company and mentioned the definition of bio stimulants and bio fertilizers in Europe and the U.S. He stressed for the federal regulations for bio stimulants and bio fertilizers so that companies can increase their production. He also talked about the nature of bio stimulants and warned that they cannot be mixed with crop protection.

Mr. Roger Tripathi, P resident, Acadian Plant Health, affirmed with the point of Dr. Krishan Chandra that many products coming from China or other countries are not suitable for the Indian Soil, but he had a different opinion about farmers producing their own inputs as it is not viable. He further expressed the need for more and more companies which believe in sustainable agriculture, to enter the market. He also pointed out that time has come to minimize and optimize the usage of chemical fertilizers. He opined that usage of chemical fertilizers cannot be eliminated rather there is a need to balance the usage of chemical inputs with the bio stimulants and fertilizers. This is also because sometimes the stress from abiotic factors is adverse than the biotic stress. Thus, there is a requirement of consistent regulatory framework, globally.

Dr. Ramesh Chand, Hon'ble Member, NitiAyog, brought to the notice that now days, even illiterate farmers know the harmful effects of chemical fertilizers. He also mentioned about the increasing poverty gap and decline in nutritional content of the agricultural produce. He mentioned that though the usage of chemical fertilizers in India is quite low when compared to other countries, the crop residue is high. He also talked about the removal of crop residue content because of inadequate monitoring, which posed a challenge for the Indian agricultural sector. He pointed out that farmers are totally dependent on the chemical fertilizers which need to be changed. According to him, there is a requirement of eco agriculture where bio products take the primacy rather than the chemical fertilizers.

Dr. Nutan Kaushik, Senior Fellow & Convener, Plant Biotech & Sustainable Agri, TERI, talked about eco agriculture as landscape planning. She pointed out that the shelf life of the bio products is less and by the time it reaches the farmers, it's already expired and unable to deliver the desired results. She also mentioned that not all bio products are safe. Moreover, farmers are not ready to put in labor to produce their own inputs.

Dr. P.V.S.M. Gouri, Vice President Organics, Round Glass Partners, provided with the holistic view of the eco agriculture. She talked about the integrated management of agriculture, which exists but is not in practice. Also, she mentioned about the major constraint of eco agriculture – high price products, which farmers couldn't afford. According to her, there is a need to educate the farmers about the economics of eco agriculture.

Dr. P.P.S. Pangli, President, Borlaug Farmers Association, talked about the crop rotation carried out in Punjab, with kanola variety of mustard which is helpful for maintaining soil quality and stressed that this kind of practices should be promoted.

Mr. Indranil Das, Vice President,

Asia, Agrinos India, stressed on the importance of microbes for healthy soil and better productivity. He mentioned that in order to shift towards eco-friendly agriculture it is of utmost importance to preserve and nurture the microbiome of the crop. In accordance, he underlined the importance of adopting new and improved technologies for sustainable agricultural ecosystem. He voiced the need to move to probiotic agriculture by the way of reduction in gene sequencing and increasing immunity of the plants. He however, felt that there is no need to abandon chemical pesticides and fertilizers rather a balance needs to be restored to make agriculture eco-friendly.

Mr. Bharat Bhushan Tayagi, CEO, EVST, brought to the notice, the survival issue faced by the farmers along with the changes which have occurred in the soil due to the disturbance caused by the humans in the ecological landscape of the nature. According to him, this disturbance has caused a lot of destruction and need to be taken care off now.

Dr. Ashok C Shah, Organic Farming Expert, Consultant, talked about the value addition in the agricultural sector and enriched the conference with the glimpse of the vast knowledge available in Indian ancient literature, which has solution for every problem. He also mentioned that this knowledge have been tested but not adopted. Thus, there is a huge potential, which needs to be tapped.

Mr. M.J. Saxena, Managing Director, Ayurvet Limited, stressed on the revival of the Indian traditional farming and pointed out three basic needs for switching to eco agriculture – health for human, environment and removing farming distress.

Mr. Ajay Katyal, Director & CEO, Nature Pearls Pvt. Ltd., referred to the earlier mention of teaching the economics to farmers and said that farmers are already economist and they are not required to teach the economics of agriculture. From his experience, he also stressed that farmers does not want to practice farming as it is not profitable for them. Thus, there is a need to make proposal for farmers so that they get back their interest for agricultural practices. Moreover, he also pointed out that the traditional produce of India can be tapped for export market.

Ms. Poornima Savargaonkar, Author – Natueco Farming, NGO - Organic Farming, pointed out that robotization is not eco agriculture. According to her, eco agriculture must be decentralized along with the customization of knowledge as per the needs. She also emphasized on making use of the traditional Indian knowledge in agriculture as it will help in adoption of eco agriculture in a better way.

Ms. Zareen Myles, Executive Director, Women's Action for Development (WAFD), talked about her initiative and mentioned that eco agriculture is working for the nature. In this context, she pointed out that there is a need to reach out to the small farmers at hilly and remote areas, especially women.

Mr. Bipin Bihari, CEO, Agrigenome Limited, drew the attention of the house towards the animal husbandry, which is also the part of agriculture. He also mentioned that there is a need for farmers' economic value chain.

Dr. H Purushotham, CMD, National Research Development Corporation, stated that the knowledge base is available but there is a need to take that into consideration and set targets.

Dr. Ashok Patel, Vice Chancellor, SD Agricultural University, pointed out that we all are stuck in the jugglery of words for eco agriculture as there is no clear definition for the same. Further, he mentioned that farmers should produce their own inputs as the eco products brought from the market may be adulterated due to small shelf life. Mr. Rajesh Umatt, COO, Gujarat Life Sciences, stated that there is a need to look into the both quality and quantity of the inputs used for farming. He also stressed on farmers' economics and calculation of farmer's ROI and etc. so as to achieve the desired goals.

Mr. Dhananjay Edakhe, Chief Executive Officer, Zytex Biotech, mentioned that the shelf life of the bio products is extendable up to 2 years depending upon the carrier used.

Mr. Harendra Rana, Organic Farming Expert, NCOF, requested to take timely action as he feared that delayed decision will limit its adaptability as well as profitability.

Mr. Jalaj Shrivastava, Additional Secretary, Ministry of Agriculture, concluded the august meeting by summing up the points mentioned by various speakers and made the following additions:

- Quality check of products is important.
- Depleting resources and quality deterioration needs to be addressed.
- Attempt has to be made to formulate the regulatory framework for bio stimulants, nationally with customization as per state requirements.
- Technology for rubber and plastic decomposition is being developed and will revolutionize the sector.
- Soil enrichment should be focused along with water management techniques such as water harvesting, recycling, micro irrigation etc.
- Phytoherbicides should be used instead of weedicides.

Finally, the formal vote of thanks was presented by Mr. Alok Sinha, Director General, ICFA, who expressed his gratitude to Mr. Jalaj Shrivastava, Additional Secretary, Ministry of Agriculture for his valuable time and gracing the conference. He also thanked all other dignitaries for active participation and making the discussion worthy.

INTERNATIONAL AGRICULTURE CONSULTING GROUP

Indian initiative towards food and agriculture solutions

Vision

Our vision is to be a leading provider of Indian regional expertise in food and agriculture and to outstand as key advisory partners on food security concerns, policy planning and strategy framework for sustainable development through agriculture.

Mission

Our mission is to initiate and support micro and macro level changes in agriculture by providing Indian expertise and solutions for research, extension, education, training, institutional frame, policy planning, agribusiness and project consulting so as to address their major agricultural concerns relating to farm production, food security, environment sustainability, rural employment, economic growth and human resource development.




Objectives

1. Provide Indian expertise to deliver solutions to agricultural issues and concerns through formulation of agro and rural development projects, farming solutions, micro and macro level national agriculture planning, policy support, organized research, extension infrastructure and institutional set-ups, value addition and market linkage services.
2. Manage short terms management programs, training and entrepreneurship course for farmers, research & extension personnel, officials and professionals of various countries while recognizing and understanding ecological, technological, social and economic concerns related to their food and agriculture sector.
3. Facilitating students from different countries in enrolling in food and agricultural degree programs; management and entrepreneurship courses offered by various institutes and recognized universities of India, so as to help various countries in developing human resource for creative and productive change at ground level.
4. Organizing delegation level visits from India to various countries and of different countries to India for participation in agri and business summits, learning and exposure at technology institutions, agri universities, model farms etc., and discussing possibilities for joint ventures, collaborations and promoting better understanding in agriculture and agribusiness.
5. Facilitating Governments, Corporates or Institutions to venture globally and act as total solutions providers in implementation of foreign agriculture projects by providing research structure, technical assistance and investment planning in food, farming, agribusiness or agriculture development programs.

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‘NEW ZEALAND AND INDIAN MARKETS ARE COMPLEMENTARY IN MANY RESPECTS’

Agriculture and forestry are among New Zealand’s powerhouse industries. Together with fisheries and related industries they generated 44.6% of their total overseas trade in the year to June 2015 and employed over 141,400 people or over 6% of the total workforce. New Zealand is the world’s largest dairy and sheep meat exporter. The industry has succeeded in building a highly competitive primary production and distribution infrastructure, despite being further from the world’s agricultural markets than any other major producers. New Zealand is a world renowned exporter of agricultural products. They are the 12th largest agricultural exporter (by value) and ranked number one in sheep meat and dairy product exporter. In an interview with Agriculture Today, Her Excellency Ms Joanna Kempkers, Hon’ble High Commissioner, New Zealand High Commission discusses the vibrant agriculture segment of New Zealand and trade relations between India and New Zealand.

What are the strong points of New Zealand in terms of agriculture?

New Zealand is one of the world's most efficient agricultural economies. We are the largest dairy and sheep meat exporter in the world, and a major global supplier of beef, wool, kiwifruit, apples and seafood. New Zealand-grown produce feeds over 40 million people, almost 9 times as many as our population of 4.5 million people. Our agriculture exports are enjoyed by consumers all around the world. 95 percent of our agricultural production is exported to more than 130 countries.

The New Zealand agricultural industry has been characterised by agricultural innovation since the 1880s. The continued drive for research and innovation has positioned New Zealand as a country that has high quality food production systems, well-respected pastoral farming expertise and produces products that set the standard for safety and quality.In 1882, we successfully shipped refrigerated meat to Britain for the first time and in the 1930s we developed the electric fence for livestock control. One of the New Zealand industry's more recent innovations includes the development of a heat detection device that indicates when female cows are in heat and able to breed.

New Zealand's improved agriculture productivity and efficiency has also been underpinned by ambitious economic reforms implemented by the Government 30 years ago. Until the 1980s, our economy was highly protected and our farmers were propped up by government subsidies. The United Kingdom joined the European Economic Communityin the 1970s, which caused us to lose the privileged access we had enjoyed to our largest trading partner. In response, the New Zealand Government decided to get rid of agricultural subsidies, a decision which significantly improved New Zealand's overall production, efficiency and competitiveness. Our improved food production can be seen from the fact that even though our sheep stock has more than halved over the past 25 years from around 58 million sheep in 1990/91 to 29 million in 2014/15, the amount of lamb exported to world markets has remained relatively stable, only dropping from 420,000 to 375,000 tonnes for the same period.

As our kiwifruit and apples are at their best when local produce is not available, New Zealand helps to give Indian consumers year round access to high quality fruits. India is a growing market for Zespri, the world's largest marketer of kiwifruit which sells fruits across more than 53 countries.Last year, Zespri exported 2.3 million trays of kiwifruit to India

How is the trading relationship of New Zealand with India in terms of agriculture?

Our agricultural trading relationship with India is growing. For the year ending June 2016, New Zealand agricultural exports to India grew by more

than 22 percent to NZ$ 133 million.New Zealand kiwifruit and apples are two key products that underpin this growth.

The New Zealand and Indian markets are complementary in many respects. New Zealand production is small and focused on niche, high quality products which fill gaps in Indian supply. As our kiwifruit and apples are at their best when local produce is not available, New Zealand helps to give Indian consumers year round access to high quality fruits. India is a growing market for Zespri, the world's largest marketer of kiwifruit which sells fruits across more than 53 countries.Last year, Zespri exported 2.3 million trays of kiwifruit to India.

New Zealand and India have also worked together in the dairy sector. Amul sells its products internationally through the Global Dairy Platform created by New Zealand dairy company Fonterra. Fonterra has also invested in DFE Pharma in India, which produces specialised lactose ingredients that are used in India's growing pharmaceutical industry.

What are the reasons behind increasing agri-trade between the two countries?

There is a useful confluence of factors behind the increase in agriculture trade. On the one hand, New Zealand companies are becoming more and more aware of India's impressive economic development and the opportunity this presents for increased commercial engagement, including trade and investment in agriculture. On the other hand, India's emerging middle class has a growing appetite for high quality international food and beverage products. New Zealand is well placed to respond to this as a niche, high-quality supplier. We are globally renowned for producing world-class food and beverages, both for their taste and nutritional value. This is becoming increasingly recognized by the Indian hotel industry and is boosting demand for premium New Zealand products such as lamb and wine. We are also seeing increased demand for New Zealand apples and kiwifruits from retail customers.

How are the tariff barriers in India? How has it influenced the trade between the two countries?

High trade tariffs are always an obstacle for foreign businesses seeking to enter a market. This is not unique to India where import tariffs are high, ranging from 26 to 74.6 percent in the food and beverage market. Even though high tariffs present a barrier to New Zealand exporters interested in entering the Indian market, New Zealand continues to make progress – seen by the growth in our kiwifruit and apples exports. But the potential for two-way trade across the board would no doubt be significantly enhanced if tariffs were to be reduced.

What are the main challenges in conducting trade with India in agricultural segment?

Tariff barriers are a challenge, but for many New Zealand companies, the size and scale of the Indian market can itself present a challenge. While agricultural products are a big part of New Zealand's trade, New Zealand is a small country, with small companies and limited supply. Identifying the right local partner to penetrate the market is another challenge New Zealand businesses face. That's where the New Zealand High Commission and New Zealand Trade and Enterprise can help, providing local market intelligence and contacts in the Indian business sector through the NZTE Beachheads programme.

"We are globally renowned for producing world-class food and beverages, both for their taste and nutritional value. This is becoming increasingly recognized by the Indian hotel industry and is boosting demand for premium New Zealand products such as lamb and wine"

Besides trade of agricultural commodities, what are the other areas in agriculture sector where the two countries can cooperate?

Over the next decade, India is expected to face the biggest migration in human history. 300 million people are projected to move from the countryside to cities. If future generations of farmers move to cities, the gap between the demand and supply of agricultural products will grow. New Zealand's strong track record in agricultural efficiency could offer India a number of areas of co-operation as it looks to fill this supply gap. India could, for example, draw on New Zealand's expertise in cold storage and transportation technology to help reduce wastage of farm produce. New Zealand could also provide India with enabling technologies to make food processing and manufacturing more efficient

and profitable. Bector Automation RML India Pvt Ltd is one example of how New Zealand-Indo co-operation in these sectors could work. The company, a joint venture between a New Zealand and Indian firm, manufactures end-of-the-line food packaging machinery.

New Zealand is also a leader in the horticulture area, with advanced breeding programmes of a number of high-value fruit varieties. New Zealand expertise and knowhow could be applied in cooperation with Indian partners to grow fruit for Indian consumption and export.

As one of the world's most efficient agricultural economies, how can New Zealand help in improving India's agricultural economy?

New Zealand and India already enjoy a long history of knowledge sharing. This partnership played a critical role in India's White Revolution. Dr Verghese Kurien, a revered scientist known as "India's Milkman"studied at Massey University in New Zealand in 1953. After learning about New Zealand's co-operative model,he returned to India and built the Amul brand of dairy products.

A current example of agricultural knowledge transfer is Binsar Farms, an Indo-Kiwi dairy start-up located in Sonepat and a prime example of what Indo-New Zealand partnerships can achieve together. Launched by three Indian information technology professionals driven by the desire to improve sustainable development for local farmers, the start-up aims to deliver fresh and pure cows' milk to residential homes in New Delhi. They have partnered with a well-known New Zealand dairy farmer, Sir Earl Rattray, who has been appointed as one of the Directors of Binsar Farms. Binsar's milk is sourced from a herd of about 300 cows that are fed grass and fodder grown on the farm and sourced locally.

What are the free trade agreements between India and New Zealand?

India and New Zealand are currently negotiating a Free Trade Agreement (FTA). It featured in discussions during New Zealand Prime Minister John Key's visit to India in October last year. During the visit, Prime Minister Key and Prime Minister Modi committed to continue to work towards a high-quality, comprehensive and balanced Free Trade Agreement to deliver meaningful commercial outcomes for both sides. India and New Zealand also agreed to contribute to a high quality, comprehensive outcome to the Regional Comprehensive

Economic Partnership negotiations, of which both countries are negotiating parties.We look forward to successfully concluding these agreements in the near future.

New Zealand has always been a strong advocate for trade liberalization. There has been a 28 percent rise in trade in the past five years with countries with which we have FTAs, compared with a 2 percent increase for those with which we don't. FTAs improve access for exporters and investors to markets, reduce barriers to trade, and ensure existing access is maintained. They are also an endorsement by the signatories of their confidence in each other's markets. That message is powerful for companies looking for opportunities to explore new markets to trade, and to invest.

What are the opportunities for Indian agri business companies in New Zealand?

While New Zealand is a comparatively small market, it is a high-value one. There is an opportunity for Indian agri-business companies to sell more high-value products to New Zealand consumers.We have observed that growth in trade, especially after a FTA, is followed by investment. After New Zealand and China concluded FTA negotiations, New Zealand dairy exports to China increased. Chinese companies then invested in New Zealand processing plants to guarantee their dairy supply. Malaysia has also benefited from our FTA with ASEAN, becoming a hub for the processing and re-export of dairy products from New Zealand. As a result, Malaysia is now the sixth-largest milk exporter in the world and a shipping and distribution hub for dairy production within ASEAN. There is no reason not to believe that a similar success story could not be achieved between New Zealand and India.

DAVE DEPARTED TO ETERNAL BLISS

Environmentalist, river conservationist, writer, Member of Parliament and an amateur pilot, Shri Dave essayed multiple roles with élan that a few could portray. In his latest role as Minister of State for Environment, Forest and Climate Change (Independent Charge), he was able to translate his vision into reality. He belonged to that rare breed of environmentalists who struck a balance between development and environment. His untimely death is an immeasurable loss for India.

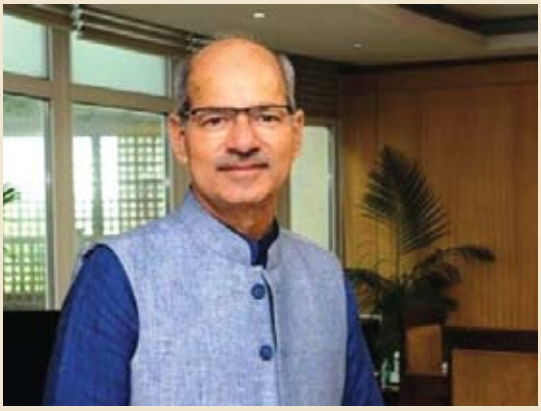
Anil Madhav Dave was India's Minister of State for Environment, Forest and Climate Change (Independent Charge) in the Narendra Modi ministry from July 2016 unitll his untimely death on 18 May 2017. An Environmentalist, Shri Dave had championed the cause of river conservation and environmental protection.

Born on 6 July 1956, in the city of Badnagar, in the Ujjain district of Madhya Pradesh, to Pushpa Devi and Madhav

Dave, Shri Anil Madhav Dave, received his primary education in Gujarat. Earning a Masters in Commerce with a specialisation in Rural Development & Management from Indore, Shri Dave exhibited his leadership skills even while he was a student taking part in the JP Movement, and being elected as the college president. A cadet of the National Cadet Corps' Air Wing, Shri Dave pursued his passion of flying and becoming an amateur Pilot. He joined Rashtriya Swayamsevak Sangh and he actively discharged his duty towards society.

River conservation was very close to his heart which led to the formation of an organisation 'Narmada Samagra', which works on conservation of Narmada and its catchment area through various activities and events. He flew a Cessna 173 aircraft along the banks of Narmada for 18 hours to complete his circumambulation in air. He travelled and completed an insurmountable raft journey of 1312 km long river Narmada in 19 days. He is the driving force behind the organisation of a biennial event 'River Festival'. This festival is one of its kind, in entire Asia. It covers climate change and environmental issues, specially related to conservation of rivers across the globe.

His active involvement in politics in his student years shaped the leader in him. In 2009, he became the Member of Parliament, representing Madhya Pradesh in the Rajya Sabha. He has held several important positions such as Member, Standing Committee on Environment and Forest and Science & Technology; Member, Standing Committee of Water Resources; Member (Board of Governors) of Nehru Yuva Kendra Sangathan; Nominated as Member of Indian Council for Cultural Relations; Chairman, Select Committee on Prevention of Corruption (Amendment) Bill, 2013; Chairman, Select Committee on Coal Mines (Special Provision) Bill, 2015; Chairman, Select Committee on The Real Estate (Regulation & Development) Bill, 2015; vice President for the 10thWorld Hindi Conference held in Bhopal, organised by the Ministry of External Affairs; Chairman, Organising Committee for National Conference on "Global Warming & Climate Change – A Way Out" in the run-up to Simhasth Kumbh 2016; Chairman, Organising



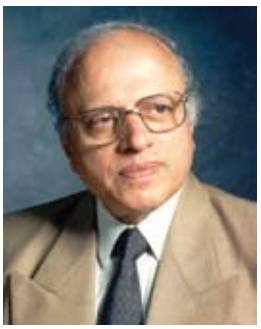
Committee for International Simhasth Summit 2016 "Vichar Mahakumbh"; Member of Select Committee on the Payment and Settlement Systems; Committee on Public Accounts; and member of Select Committee on 'Wakf Board'. He was appointed as the Minister of State (MoS) independent charge of Environment, Forest and Climate Change in the Modi Government's cabinet expansion on 5 July 2016.

Athough barely a year into his office, Shri Dave had been able to create an impression and commendable work in his field. On 15 August 2016, in the strongest statement of India's move towards an Asbestos-free country, Dave categorically stated "Since the use of asbestos is affecting human health, its usage should gradually be minimised and ended. As far as I know, its use is declining, but it must end."Shri Anil Madhav Dave has initiated the programme for development of bio-toilets in every school of Hoshangabad district of Madhya Pradesh. Through this project, 98000 students from 1880 schools in Hoshangabad district will have separate toilet facilities for boys and girls. Shri Dave has adopted "Jahanpur Panchayat" (cornerstone of a local self-government) having four villages under it (including Jahanpur) near the banks of river Narmada, which he has taken under 'Sansad Adarsh Gram Yojana'for its overall and ideal development.

Auothor of several books in diverse areas like politics, administration, art & culture, travelogue, history, management, environment and climate changes, Shri Dave was an exceptional leader who preached what he believed in.

"Women rub shoulders with other family members and work hard to provide a better life to their families. These women can strengthen their economic status through cooperatives in the small industry sector such as forestry, vegetable and fruit farming and solar energy"

RADHA MOHAN SINGH
Union Agriculture Minister



"I do not agree with tax on agricultural income since agriculture is the major source of livelihood for over 50% of our population. It is a livelihood industry with multiple impact on human life"

DR. M.S. SWAMINATHAN
Renowned Scientist

"On our quest for economic development, we should not ignore our environment, our Nature"

SARBANANDA SONOWAL
Chief Minister, Assam

"The GMOs do not increase yields. They do not control pests. They do not control weeds. Instead, they create superpests and superweeds"

VANDANA SIVA
Environmentalist

"The government must give thrust to agricultural research to support more production of fruits, vegetable, fish and livestock. In India, wheat and rice production are incentivised through price support system (minimum support price), which puts the production of fruits, vegetables in a disadvantageous position. Research on value chain, post harvest technologies for fruits and vegetables should be encouraged"

SHENGGEN FAN
Director General, IFPRI