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December 2017, ₹ 45/-

The National Agriculture Magazine



FERTILIZERS

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JUDICIOUS USE OF FERTILIZERS FOR FOOD SECURITY

Fertilizers are today critical for the sustenance of human population. Through our green revolution, this critical input, have evolved into an indispensable component of Indian agriculture. Today Indian ranks third in the world in terms of fertilizer production and second largest in terms of consumption.

The demand for food has spurred the development of fertilizer industry. The world demand for total fertilizers is estimated to grow at 1.8% per annum. Among the different fertilizers, urea dominates the total fertilizer production in the country. Being a cheap and easily available fertilizer due to heavy subsidization of government, urea has been used extensively by the farmers to the extent of being misused.

Over the years, the application of fertilizers defied scientific logic and their injudicious use has left some indelible impressions on Indian soils. One among them was the deficiency of micro nutrients. Micronutrients such as zinc, boron and to a limited extent iron, manganese, copper and molybdenum have been reported to be deficient in Indian soils. Deficiency of micronutrients over the decades has grown in both, magnitude and extent because of increased use of high analysis fertilizers, use of high yielding crop varieties and increase in cropping intensity. This has become a major constraint to production and productivity of rice, wheat and pulses. So in years to come, there will be an increased demand for micronutrient fertilizers. Specialty fertilizers and biofertilizers are also two other segments which will invite the attention of the farming sector.

Urea, though enjoys good amount of subsidies, is prone to severe leakages. These leakages need to be plugged to improve the efficiency. Bringing urea under the Nutrient Based Subsidy program currently in place for DAP and MOP would allow domestic producers to continue receiving fixed subsidies based on the nutritional content of their fertiliser, while deregulating the market would allow domestic producers to charge market prices. This would encourage fertiliser manufacturers to be efficient, as they could then earn greater profits by reducing costs and improving urea quality. And this in turn would benefit farmers. Direct transfer of subsidies can also help in plugging the leakages.

Imposing a cap on the total number of subsidised bags each farmer can purchase would improve targeting. Small farmers would still be able to get all their urea at subsidised prices but large farmers may have to pay market prices for some of the urea they buy.

Sustainable agriculture must maintain an ideal balance between agriculture and the environment. Chemical fertilizers, although may harm the fragility of the environment in higher doses, their presence is invariably mandatory to sustain and enhance agriculture production. So prudence and wisdom must prevail over our urge to intensive agriculture.



Anjana

Anjana Nair

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Integrating Industry and Farmers

Linking farmers with industry can bring about a positive change in farmers' welfare

Indian agriculture which today tops in many segments owes this honour to the millions of farmers. Once their sheer strength translated to Indian agrarian success. The revolutions that heralded Indian agricultural prosperity would not have happened without the support and strength of farming population.

The prosperity seen in farming has however not translated proportionally to farmers' prosperity. The successes have stopped short from delivering its fruits to the deserved beneficiaries. The production numbers merely remained as a benchmark to evaluate the country's prosperity in agriculture. Farmers' diminished visibility in the various agriculture centric programmes evolved by successive governments have progressively deteriorated the farmers' conditions – socially and economically. With the rising input costs, outdated farming practices, climate change and with a widening rift between the extension system and farmers, the profitability factor in agriculture has descended over the years. Farmer protest and unrest is a sign of this distress. Farmers' welfare is key to maintaining a country's food economy – both domestic and global.

Modi government's recent interventions bring to the fore the realization by authorities of how significant farmer welfare is. From the clarion call to double farmers' income and inserting the element to every single plan programmes to changing the name of Ministry of Agriculture to Ministry of Agriculture and Farmers' welfare, the Central government has made sure the interests of farmers are held high. While the government is keen on bringing about a change in the current conditions of the farmers, it is high time the industry also joined the initiative as the farmers are their first customers.

Farmers invest 90% of time, energy and investment in productivity improvement whereas the other crucial steps which have the potential to improve their incomes remain more or less ignored. Reduction of cost of production, prevention of pre and post-harvest losses, promotion of farming diversification in a farming systems approach, development of value addition through value chain development and better market connect, introduction of packing and branding can help in fetching more income. Agriculture has come a long way from the yesteryear approaches of maximum ploughing to get good yields to zero tillage and optimum use of inputs, from conventional flood irrigation to sprinkler and drip, from top-dressing of fertilizers to Fertigation and controlled release fertilizers. Our current farming management concepts need to be revisited and aligned with the need of the hour. Despite the presence of success stories of Tamil Nadu Precision Farming Project where yield increase has catapulted from 80% to 800% in different horticultural crops, under open field conditions, there are few takers for this technology. We need to unlearn and relearn new age management practices. Industry farmer linkages can play an important role in carrying forward agricultural development at an accelerated pace.

Instances of linkages in the form of contract farming has yielded stupendous results in many parts of the country. These linkages extend the much needed support in order to procure the best of inputs, management practices, technologies and most importantly market support. The forward linkages are even more crucial because it is here where farmers can add on extra income. Processing of harvested products has the potential to increase the shelf life of farmers' produce in the process adding some extra income. Farmer industry linkages are an effective way to tide over the resource constraints of the farmers giving more choices to the farmers. This empowers the farmers to make a switch from subsistence crops to more market oriented crops. Farmers, in this production systems will be insulated from the market fluctuations that has the potential to interfere in accessing inputs or market. Linkages via farmer organizations can also yield similar results. Government can also act as catalyst in such production arrangements thereby being a facilitator and mediator.

Mainstreaming farmers is significant to the success of agriculture. It not only improves their income prospects but also elevates their understanding of the market and hence their task of aligning with the market demands. While the Indian government through different machineries has been able to connect with the farmers with better technologies and models, the coverage remains patchy. Industry on the other hand can connect with their farmer customers more effectively and in the process provide them with information more effectively. This Kissan Diwas lets focus on engendering a positive change in farmers welfare and making them more visible.

Smothering Smog

Stubble burning needs to be addressed effectively to curtail Delhi's smog

It is that time of the year that has consistently shrouded the National capital region of India with a thick blanket of smog. The brunt being maximum felt by the national capital, the government every year engages in short term fixes and the annual charade of blame games between different states ensue. The long discussions would subside with time and a long term solution to the problem eludes the issue.

While a part of the blame has been laid on the farmers of Punjab and Haryana whose traditional way of getting rid of stubbles after harvest by burning has contributed to the smog problem, there remains other causes as well. Vehicular, industrial, dust and domestic sources have also equally contributed to the problem. However, the quantum of burning a large amount of stubbles in a smaller span of time has accentuated the pollution. This belt produces an estimated 34 million tonnes (mt) of paddy straw every season, of which about 23 mt is from combine-harvested fields and burned within less than a month's span between mid-October and around November. A web fire-mapper recently brought out by the NASA shows the extent of crop-stubble burning undertaken in North-West India.

The NASA firemap shows Punjab as the biggest culprit in terms of the extent of land where crop-stubble burning has been undertaken. Except fringes along the eastern corridor, in north-central and south-west regions, crop-stubble burning has spread across its entire geography as also into the inter-State border separating contiguous Haryana. To a lesser extent, Uttar Pradesh, Haryana, and Madhya Pradesh too have resorted to the practice. Prevailing easterly to south-easterly winds have ensured that the smoke wafts towards Delhi and neighbourhood raising the pollution to dangerous levels.

It is not that the farmers are oblivious to the associated environmental problems. Stubble burning has so far remained the most effective way to eliminate the crop remnants from the fields and make the field ready for the next crop, wheat. There usually remains a very small window between the harvesting of paddy and sowing of wheat. Combine harvesters are therefore entrusted with the responsibility of harvesting, threshing and cleaning the separated grain at one go. The machines however, leaves about 80 per cent of straw on the field. The left over straw which are practically useless are burned as it is easier, faster and less expensive.

Over the years many solutions to the problem has surfaced, although an effective one is yet to evolve. As one of the reasons to stubble burning is to clear the field faster to make way for wheat sowing, the preceeding crop, in this case paddy, of shorter duration can be cultivated. But the problem of stubbles still remain. The most viable technology available currently to address this issue is Turbo Happy Seeder (THS) which is a tractor-mounted machine that basically cuts and lifts the standing stubble, drills the wheat seeds into the bare soil, and deposits the straw over the sown area as a mulch cover. The THS not only dispenses with the need for burning residue, but actually allows wheat to be planted even on fields containing straw. This takes care of the standing crop residue. For the residue harvested by combine the Super-Straw Management System (S-SMS), develop by PAU can be utilized. This is an attachment that can be fitted on any combine harvester. The loose straw thrown by the combine is cut and spread evenly on the field. The concurrent use of THS and S-SMS technology appears to be the best bet for the moment. By subsidies and custom hiring approach, the capital involved can also be brought down.

Despite the technological solutions, majority of the farmers resort to stubble burning. The state governments in these states has not been very effective on cracking down in this not so clandestine activity. Farmers, a prominent vote bank in these regions cannot be pressurized into adopting an alternative way of clearing the fields. Every year from October- November, this problem pops up, the state governments acknowledge the problem and they move on.

No matter whatever technological advances are made, until an effective leadership is established to navigate the issue and reach a consensus, stubble burning will continue and the entire region will be plunged under smog.

India Labels its Organic Products

FSSAI releases regulations for Organic Products

India will finally have a uniform code for products sold as organic. In a recent development, Food Safety and Standards Authority of India (FSSAI) unveiled a unified regulation on organic foods to ensure that these food items are actually organic. At the Organic World Congress held in Greater Noida recently, FSSAI revealed a common logo for organic foods as a symbol of authenticity and trust. Agriculture Minister Radha Mohan Singh launched the Food Safety and Standards (Organic Foods) Regulations 2017, along with the 'Jaivik Bharat' logo and 'Indian Organic Integrity Database Portal' at the event. The portal, developed by FSSAI along with APEDA and PGS- India, would help consumers verify the authenticity of organic foods. FSSAI is mandated to regulate organic food in the country under the provisions of Section 22 of the Food Safety and Standards Act, 2006.

This is a significant development for India as this brings to a closure the debate over the authenticity of organic foods that are sold under that label in India. Organic food market is a booming market in India as consumers have become more wary over the ill effects of conventional agricultural products that are raised with chemical fertilizers and pesticides. However, most of the products currently sold in India under the label of 'organic' never carries any stamp of authenticity and hence viewed with suspicion and mistrust. With a certification procedure and norms in picture it will be a significant development for customers.

So the new regulations would require any food to be sold as 'organic' in India to be certified under either of the two prevailing systems - National Programme for Organic Production (NPOP) regulated by the Union Ministry of Commerce & Industry and Participatory Guarantee System for India (PGS-India) of the Union Ministry of Agriculture and Farmers Welfare. These regulations also carry provisions for recognition of other certification systems in the future. Earlier only food products meant for export have to be certified and the agency was that of NPOP system. The PGS-India system, on the other hand dealt with domestic market only and it was voluntary. Small producers or producer organisations making direct sale to consumers are however, exempt from mandatory certification. Import of organic food into India would be possible under the new regulations without being re-certified in India if the organic standards of the exporting country have been recognised as equivalent to NPOP.

The products certified by the new set of regulations will also henceforth carry a logo for organic food from India called 'Jaivik Bharat' which would integrate the logos of both—the NPOP system and PGS-India. With an intent to build consumer trust in organic food and also to accelerate growth of trade in organic food including export, the FSSAI has also launched a portal called 'Jaivik Bharat' to help consumers verify the authenticity of organic foods and also to share their grievances.

These steps are a welcome move as it gives the consumers' confidence to buy labelled organic products. Most importantly streamlining of products and a uniformed logo will remove confusion, and guarantee to develop a stable demand and a regular market for these products. An assured market will help in increasing the organic cultivation in the country. Since the products are sold at a premium price, it will aid in better profit realization for the farmers.

However, the exemption of small farmers and producer organization to certification can create confusion and also to an extent defeat the process of regulation. The consumers who are aware of the regulatory mechanism may be wary of the products thus sold without the logo or approved labelling. They may be willing to buy packaged products and not directly from farmers as the whole exercise is based on trust and trust these days are not easily forthcoming. The farmers selling thus will not be able to get premium prices as they are outside the ambit of regulation. These would eventually decimate the number of farmers practicing organic cultivation. It is therefore better to include the small farmers or farmer groups in to the ambit of labelling by making them licensed farmers for carrying out organic cultivation. The products may not carry the logo but at least the farmers can carry the mark of authenticity.

Farmers' Lost Confidence

The falling prices have deeply disturbed farmers' income prospects

Farmers are staring at huge losses in earnings for this kharif season which have prompted them to assert their disapproval of the status quo. The All India Kisan Sangharsh Coordination Committee (AIKSCC), a coalition of over 180 farmer unions, has put the numbers at Rs. 36,000 Crores, the amount lost due to poor price realization at the mandis.

With major crop prices plunging below minimum support prices (MSPs), farmers losses stand at an estimated Rs.35,968 crore in earnings for the kharif season. In the two weeks to 7 November, farmers have incurred a loss of Rs.6,283 Crore, having sold crops at lower than their support price as was quoted by the farmers' coalition. The AIKSCC numbers on loss to farm incomes were arrived at after a comparison of average wholesale prices in mandis (regulated farmer markets) and MSPs announced by the centre. The analysis was done for seven major kharif (summer) crops—paddy, maize, bajra, soybean, groundnut, cotton and urd—by taking into account market arrivals and a weighted average of modal prices in major growing states.

The farmers are enduring a particularly lean period for the past few seasons. The consecutive droughts were followed by three successive seasons of low crop prices. The estimates, according to the farmers' organizations are conservative as the actual prices at which farmers are selling their produce are often lower than official wholesale prices. Even the MSP's fixed by the government seems to be unfair as they are lower than the cost of production as calculated by the Commission for Agricultural Costs and Prices. These include crops like jowar where the support price is 19% lower than the cost of production and pulses like moong for which the MSP is 2% lower than the production cost.

What has irked the farmers the most is the electoral promise made by the government in power which is yet to materialize. The long kept promise of fixing MSPs at 50% above the cost of production is still no where in sight. However, of the 14 kharif crops, the MSPs of seven have been fixed lower than the (C2 or comprehensive) cost of production. The losses would be even higher at Rs2 trillion, assuming an MSP at 50% over costs. The lingering effects of demonetization and GST roll out has also impacted the current discomfort.

The departure from the electoral promise comes at a time when the government has been asserting its intention of doubling farmers' income. With mounting losses and poor reception of monsoon in many parts of the country, farmers are at the receiving end. Unless and until they get a fair share of profits from their crops, they cannot invest in following crop season.

Increasing agricultural productivity is crucial to have an assured income flow for our farmers. Better agricultural production comes with better inputs and technology. But suffering a cut in their share of income consecutively would critically impair their ability in investing in future crop seasons. Under such situations the government must pitch in and lend them the extra income that they had been promised. The long standing demand of M.S. Swaminathan committee's recommendation, to fix minimum support prices (MSP) for crops at levels "at least 50 per cent more than the weighted average cost of production", has to be met.

Agriculture has progressively become non remunerative. The mounting cost of production and lowering commodity prices have affected the profitability of agriculture. The current wave of economic turbulence in the country has deteriorated the farmers' position in the society. Farmers' suicides, protests and the reluctance of the younger generation to choose agriculture as a profession have all stemmed from the non-profitability of this vocation. It is high time the government lend the much needed support to the farmers and help them tide over this uncertainty.

ITC, other major cos commit to invest Rs 68K cr in food, agri sector

► The government said investments worth Rs 68,000 crore have been committed by many domestic and multinational firms, including ITC, PepsiCo, Patanjali and Coca Cola Co, in India's food and agriculture sector. The Ministry of Food Processing Industries said 13 MoUs were signed on the inaugural day of World Food India 2017 event. "We have already signed MoUs worth Rs 68,000 crore on the first day of World Food India and more investment is set to come over the next few days," Union Minister for Food Processing Harsimrat Kaur Badal said in a statement. Finance Minister Arun Jaitley had exhorted global as well as domestic companies to invest



in the food sector, saying that it has the potential to become a principal industry. Addressing business leaders at the World Food India event, he said that as the economy grows it will impact the lifestyles of people and the food industry would be a major beneficiary

this change. "Therefore, what happens to the traditional concept of agriculture and the farm-to-the-kitchen relationship will undergo a change. It's already visible in large part of urban India," he said. He also stressed upon the need to increase farm productivity, improve storage facilities and spur food processing activity. The current infrastructure is not sufficient to meet the future demand and there is need to add capacity as population would not only grow but also become richer with increase in GDP, Jaitley said. He said the most sensible investor is the one who doesn't look at what India is in 2017, but what it will be in 2040 and 2050.

CLAAS to roll out smaller version of forage harvesters

► Keeping in view the requirements of the Indian farm community, CLAAS Agricultural Machinery Private Limited plans to roll out a smaller version of its Jaguar harvester. Priced at Rs 4-5 lakh, the Jaguar 25 can harvest half-an-acre in one hour. This machine, and the bigger Jaguar 850, are designed for the specific needs of dairy farmers. The vehicle, equipped with cutters, chops the maize crop into 5-7-mm pieces, making it easy for creating a stock of silage. Addressing a press



conference recently, CLAAS Managing Director Mrityunjaya Singh said the smaller variants would be manufactured at its Chandigarh facility. The average daily milk production in India is 4-5 litres per animal against

8-20 litres globally. "The harvester can help increase the productivity by 1-2 litres per animal, per day. We are looking at selling 1,000 units of the smaller version in the next 7-8 years in Andhra Pradesh, Telangana, Gujarat, Punjab and Haryana," he said. The Andhra Pradesh government is giving a 50 per cent subsidy to dairy farmers to procure the maize silage. Andhra Pradesh and German Agriculture Alliance, a consortium of farm companies in Germany, signed an agreement for transfer of knowledge on farm mechanisation.

Patanjali plans to foray into organic agricultural products

► Patanjali is planning to grow and supply organic seeds to farmers and help them produce pesticide-free crops. Most farmers do not have access to such seeds since the stalls they buy their crop seeds from have nothing other than chemically enhanced agricultural proceeds. Patanjali has already started to develop farmers in clusters across the country to grow organic harvests by supplying them with organic seeds and help them gain independence in growing crops in their respective states. They have invested in 50,000 acres of land in the



country to produce natural and chemical-free crops along with medicinal plants and herbs (jaribootiyan). With an initiative to solve the problem, they have decided nip it in the bud, and start with natural material from the scratch. If it is milk products that are under focus, they have formulated to start with the fodder for the cattle and see to the fact that it is natural as well. This in fact will determine the quality of the milk produced thereafter.

Tata Chemicals to sell Haldia fertiliser business for Rs 375 crore



► Tata Chemicals on Monday said its board has approved sale of its Haldia fertiliser unit in West Bengal to Netherlands-based Indorama Holdings BV for Rs 375 crore. In a regulatory filing, the company said its board approved sale of the Phosphatic fertilizer business by way of slump sale on a going concern basis to IRC Agrochemicals, a wholly-owned subsidiary of Indorama Holdings BV. "The transaction would involve transfer of Haldia plant, trading business of bulk and non-bulk fertilisers along with immovable, movable properties, working capital and product brands but excluding outstanding subsidy amounts," it said.

Amway plans to scale up organic farming in India

► Direct selling major Amway is planning to scale up organic farming to source ingredients for its foods supplements brand Nutrilite for both global and Indian operations, according to a senior company official. It is currently in discussion with some state governments to increase organic farming to enhance sourcing of different products, including basil, turmeric, marigold, boswellia, pomegranate and ginger. The company, which has four company-owned farms spread over a total of 6,000 acres in Brazil, Mexico and the US, currently sources ingredients in India from nine third-party owned farms certified under its Nutricert programme. "We have nine different farms in India, which supply many of our ingredients not only for India but also for global manufacturing," Amway Regional President-Europe, India & Africa Samir Behl told PTI. He further said, "It is fair to say we would like to scale up sourcing of organic ingredients from India for our products." When asked about the plans to increase organic farming in India, he said: "We are also in discussion with a number of state governments on organic farming, which is at the heart of Nutrilite." The foods supplement brand Nutrilite is manufactured in the US, China and India. Amway sources many of the ingredients from India also for this brand, he added. Queried about the sort of arrangement with the state governments that the company was looking at, he said it would depend upon "their interest" on how Amway can "assist in organic farming". "Whether that means more of Nutricerts or buy farms on our own depending on laws of landholdings. We would like to do things which are within what the law permits," Behl added. Nutricert is Amway's agricultural certification programme ensuring that its partner farms meet the same quality standards as its own farms, from seeds to supplements. He said Amway's goal is to "provide products in line with our global process and enhance the health profile of the local citizens".



FarmLink Raises Rs 20 cr from Pioneering Ventures, Syngenta

► Agri-tech startup FarmLink has raised Rs 20 crore (\$3 million) in its first institutional round of fund raise. The round was led by Switzerland-headquartered incubator cum investment firm Pioneering Ventures and Swiss-based agrochemical firm Syngenta. The controls end-to-end supply chain of fruits and vegetables. FarmLink also provides farmers with secured income based on long-term off-take agreements and all-round support to improve productivity and quality of crops.

Sonalika crosses milestone of 8 lakh farmers and builds footprints to 90 countries

► Backed with consistent growth trajectory and innovations, India's youngest and the third largest tractor brand, International Tractors Limited (ITL), makers of Sonalika & Solis tractors, has crossed the milestone of 8 lakh farmers last month. The company has a global presence with 1 lakh + international farmers and has expanded its footprints to exporting to over 90 countries. In India, the company has reached to over 7 Lakh + farmers with states such as Maharashtra, Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh and Uttar Pradesh contributing to the strong growth. Technologically superior products which are reliable in performance across any soil condition and an exhaustive product portfolio addressing multi utility requirements of farmers have helped achieve this success for the company. The company has registered a consistent growth of 20% YTM Oct'17. Mr. Raman Mittal, Executive Director Sonalika ITL said: "Today Sonalika ITL is a trusted brand among farmers across markets, in both India and abroad. Looking back in history, no one would have imagined that a young Indian OEM would emerge as a strong global player. The production of first tractor commenced with the strong belief of sheer passion to offer best solution to the farmers and not just a generic product."

Govt to dispose of 5 lakh tonne pulses buffer stock

► The Centre, which is sitting on a buffer stock of 18 lakh tonnes of pulses, is aiming to dispose of up to 5 lakh tonnes of lentils by March 2018, a senior food ministry official said. The cabinet committee on economic affairs (CCEA) has given approval for distributing a part of the pulses buffer stock to central schemes like Midday Meal and other state-run agencies besides state governments. Already, pulses are being given to some state governments at a subsidised rate for distribution through the ration shops. The concerned ministries, implementing various schemes, have been asked to provide their pulses requirement. It is estimated that Midday Meal scheme alone would require about 5 lakh tonnes of pulses annually and about 3 lakh tonnes for Aganwadis, the official said. In the next fiscal, another 8 lakh tonnes of pulses will be disposed of from the buffer stock, the official said, adding that this would ease burden. For the first time, the government had last year decided to create a buffer stock of pulses to ensure better prices to farmers and at the same time use the stock to augment local supply in times of price rise. About 20 lakh tonnes of buffer were created through local procurement and imports.



India importing onion, despite export rising 56% in April-July

► India's onion export rose by 56 per cent to 1.23 million tonnes in April-July this year, but the country has now gone in for import of the kitchen staple as retail prices have shot up to Rs 65-70 per kg because of tight supplies. In value terms too, the onion export increased by 47.69 per cent to Rs 1,443.09 crore in the period under review, from Rs 977.84 crore a year ago, it said. Earlier, the government had allowed state-owned agencies such as MMTC to import onions from countries such as Egypt and China to increase availability and cool retail prices that have skyrocketed to



Rs 65-70 a kg level in many parts of the country. According to data maintained by the Directorate General of Commercial Intelligence and Statistics (DGCIS), the country has exported 1.23 million tonnes of onion during April-July of 2017-18, up 56 per cent from 788,000 tonnes in the year-ago period. "Exports increased during April-July because of two reasons: Firstly, there was no minimum export price and second, the global prices remained much higher," state-owned National Horticultural Research and Development Foundation (NHRDF) acting Director P K Gupta said. The exports helped farmers get better rates for their produce during the first quarter of the financial year when local prices had fallen sharply. However, with old stocks getting depleted and rise in local prices, the exports have slowed, he said. According to the DGIS data, exporters realised Rs 11,737 per tonne during April-July of this financial year.

FSSAI issues guidelines and common logo for organic food items

► Food regulator FSSAI had released a unified regulation on organic foods to ensure that these food items are actually organic. At the Organic World Congress held in Greater Noida, the Food Safety and Standards Authority of India (FSSAI) unveiled a common logo for organic foods as a symbol of authenticity and trust. Agriculture Minister Radha Mohan Singh launched the Food Safety and Standards (Organic Foods) Regulations 2017, along with the 'Jaivik Bharat' logo and 'Indian Organic Integrity Database Portal' at the event, FSSAI said in a statement. The portal, developed by FSSAI along with APEDA and PGS- India, would help consumers verify the authenticity of organic foods.



Govt Doubles Import Duty on Wheat to 20%

► The government recently doubled the import duty on wheat to 20% to curb cheap shipments and give positive price signal to farmers in the ongoing Rabi season. It also imposed import duty of 50% on peas to check cheaper shipments from countries like Canada. The Central Board of Excise and Customs in a notification said that it seeks “to (i) increase rate of basic customs duty on Peas, (*Pisumsativum*) from present Nil rate to 50%. (ii) increase rate of basic customs duty on wheat from 10% to 20%.” In March, the government had imposed 10 per cent import duty on wheat to contain sharp fall in local prices in view of bumper crop of 98.38 million tonnes in 2016-17 crop year (July-June). As farmers have started planting of rabi (winter) wheat crop, the government wants to give positive price signal and encourage farmers to grow wheat in more area. The government does not want wheat growers to follow the way of pulses farmers who shifted to other crops this kharif season as prices remained low just before the sowing period owing to bumper crop last year.



Farmers' development scheme gets a three-year extension

► In a bid to incentivise States to increase allocations for agriculture and allied sectors the, Cabinet Committee on Economic Affairs on Wednesday approved the continuation of Rashtriya Krishi Vikas Yojana (RKVY) for three years — 2017-18 to 2019-20 — renaming it as Rashtriya Krishi Vikas Yojana-Remunerative Approaches for Agriculture and Allied sector Rejuvenation (RKVY-RAFTAAR). “The financial allocation of the scheme will be Rs 15,722 crore with the objective of making farming a remunerative economic activity through strengthening the farmer’s effort, risk mitigation and promoting agri-business entrepreneurship,” an official release said. The RKVY-RAFTAAR funds would be provided to States as 60:40 grants between Centre and States (90:10 for North-Eastern States and Himalayan States). Under the revamped scheme, about 50 per cent of the annual outlay will be provided for setting up infrastructure and assets, 30 per cent for value addition-linked production projects and 20 per cent of the outlay will be flexi-funds. “States can use this (flexi-funds) for supporting projects as per the local needs,” the release added. In addition, about 20 per cent of the annual outlay would be provided for implementing special sub-schemes of national priorities under RKVY-RAFTAAR. Also, 10 per cent of the annual outlay would be provided for innovation and agri-entrepreneur development through creating end-to-end solution, skill development and financial support for setting up the agri-enterprise. “The scheme will incentivise States in enhancing more allocation to agriculture and allied sectors. This will also strengthen farmers’ efforts through creation of agriculture infrastructure that helps in supply of quality inputs, market facilities, etc,” the official statement said.

Govt may impose \$700-800/tonne floor price for onion exports

► The Centre is mulling re-imposing a minimum export price (MEP) of \$700-800 per tonne on onion to curb exports and check local prices, a government source said. MEP is the minimum rate below which export is not allowed. Onion MEP was scrapped in December 2015. In a meeting called by the Commerce Ministry, the MEP issue was discussed in detail with exporters and other stakeholders besides officials of Consumer Affairs Ministry. Retail onion prices, which have shot up to Rs 50-65 per kg in most cities at present, have come under pressure due to tight domestic supplies. Supplies got exhausted as large quantity of exports were undertaken in the first four months of this fiscal. The country exported 12.29 lakh tonnes in April-July of this fiscal — up 56 per cent from the year-ago period. Also, the new 2017-18 kharif crop is expected to be less owing to fall in acreage. It may be noted that 40 per cent of the country's total onion crop is produced in the kharif season, and the rest during the rabi season. The kharif crop, however, cannot be stored.



MP re-opens price cushion scheme for farmers

► The Madhya Pradesh government will re-open registration for farmers wanting to opt for the Mukhyamantri Bhavantar Bhugthan Yojana (Chief Minister's Price Deficit Financing Scheme) for a week, nearly a month after it was closed. The window for registration will open on November 15 and close on November 22. Under the scheme, farmers get compensation if the price of a notified crop falls below a level. The reopening of the much talked about scheme comes amid talk of dissatisfaction among farmers after a sharp drop in prices of most kharif crops in the state. The state government has also decided

to activate sub-mandis and haat-bazaars (village-level markets) under the programme and the produce sold via these could be eligible for deficit payment. It has also decided to increase godown allowance to Rs 9.90 a quintal per month from Rs 7 a quintal per month, to incentivise growers who don't want to sell their produce as part of the scheme.



Pests devastate cotton, other crops in Maharashtra

► A taskforce of the Maharashtra government has reported a surge in pink bollworm infestation in cotton and pest attacks in crops such as soyabean, paddy and pulses in the Vidarbha and Marathwada regions. The State's cotton economy could face losses of about Rs 10,000 crore this season. Called Vasant-rao Naik Shetkari Swavalamban Mission (VNSSM) and led by veteran farm leader Kishor Tiwari, the task force is mandated to offer solutions to the farmers of Vidarbha and Marathwada. Vidarbha has seen numerous farmer-suicides.

Big drop in Assam tea output

► A 44.17 million kg drop in the September crop is triggering fears of a lower tea production this year in India. The sharp fall in September is led by Assam, the country's largest tea-growing State, which suffered a 30.4 million kg decline in production. The decline has been attributed to climatic adversities like heavy rains, said Indian Tea Association (ITA) secretary general Arijit Raha. Between January and September 2017, tea production stood at 912 million kg which was 10.7 million kg lower than the year earlier. The 25.7 million kg drop in the North Indian tea crop was partially set off by a 15 million kg rise in the output of South India, which was affected by a drought in 2016 (suffering a 7% drop in production). However, in September 2017, even South India saw a small decline. While Assam accounts for nearly half of India's tea output, West Bengal's Dooars region and the tea producing States in South have a contribution of 25% each.



Govt to appoint grading officer in Maha for pulse procurement

► The Centre will appoint a grading officer from the NAFED panel to bring transparency in procurement of pulses in Maharashtra, said Union Agriculture Minister Radha Mohan Singh. The officer will be drawn from the National Agricultural Cooperative Marketing Federation of India (NAFED), a body of farmers, he said. The move will ensure adequate procurement of pulses under the Price Support Scheme (PSS) in Maharashtra, Singh said. "The procurement of pulses in Maharashtra, specially of moong, urad and soybean, was not sufficient due to inefficiency of grading in the state. "So to bring transparency in this process we will appoint a grading officer from the NAFED panel," he said. Singh was speaking to reporters after a meeting with Maharashtra Agriculture Minister Pandurang Phundkar and officials of his department. Singh also chaired a meeting of the Maharashtra State Cooperative Marketing Federation, which was attended by Phundkar, Co-operation Minister Subhash Deshmukh and other officials.

Talwara producing organic vegetables

➤ Keeping the public health status in view, Organic Training Centre, Talwara of Reasi district is commercially producing the organic vegetables. The centre is being run under the guidance of Vice Chancellor (VC), Dr PK Sharma and Associate Director Extension (ADE) and In-charge of all the KVKs, Dr RK Arora of SKUAST-J, while Krishi Vigyan Kendra (KVK), Reasi of Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-J) is co-ordinating the centre in the production of organic vegetables. The scientists, tourists and farmers from far and wide are visiting this centre and are

impressed by observing the results of Front Line Demonstrations (FLDs) on organic vegetables laid by Krishi Vigyan Kendra, Reasi. The progressive organic crops grower, Hans Raj, Subash Chander and Ram Lal along with the Krishi Vigyan Kendra (KVK), Reasi scientists are guiding and encouraging the other farmers of the area for the scientific organic farming. Krishi Vigyan Kendra (KVK), Reasi of Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-J) have initiated the special drive on organic farming/natural farming/cow based economy/sustainable agriculture

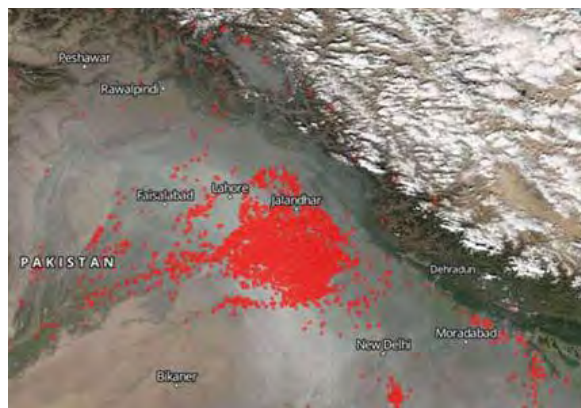
in co-ordination with the department of agriculture, Reasi so that the income of the farmers can be increased. The Organic Training Centre established by the SKUAST-J at Talwara has been sponsored by the Indian Council of Agricultural Research (ICAR), New Delhi under Pt. Deen Dayal Upadhaya Unnat Krishi Shiksha Yojana. Scientist & Head of Krishi Vigyan Kendra (KVK), Reasi, Dr. Banarsi Lal and Dr. Suja Nabi Qureshi visited Talwara and adjoining villages and monitored the Front Line Demonstrations (FLDs) on vegetables laid by the KVK.

24/7 power to farmers from Jan. 1

➤ Telangana Chief Minister K. Chandrasekhara Reddy announced on Monday that from January 1, 2018, free power will be supplied 24x7 to the agriculture sector all over the state. He said it was a New Year gift to farmers, and Telangana will create history as the only state in the country to provide 24-hour free power for some 23 lakh pump-sets. Speaking in the Legislative Assembly, Mr Reddy said that the government will begin removing auto-starters from agricultural pump-sets in December. "Don't think that we are taking up this drive to save power. We are more concerned about saving ground water than power. With the availability of power round-the-clock, farmers will have the flexibility to use borewells at any time as per their convenience. In Undivided AP, due to erratic power supply, no one knew when the power would come and go, due to which farmers installed auto-starters to draw water as and when the power came. But now, with 24x7 free power there is no such need." He said auto-starters will now be redundant. They deplete groundwater levels, which will prove detrimental for farmers later. "I request farmers to remove auto-starters voluntarily," he said.

Smog cover: NASA's firemap shows rampant stubble burning in Punjab

➤ A web fire-mapper brought out by the NASA (National Aeronautics and Space Administration of the US) shows the extent of crop-stubble burning undertaken in North-West India to prepare farms for the rabi crop. Crop-stubble burning has been widely blamed as a principal contributor to the suffocating smog that envelopes the national capital and neighbourhood with the advent of winter. The NASA firemap shows Punjab as the biggest culprit in terms of the extent of land where crop-stubble burning has been undertaken during the last seven days. Except fringes along the eastern corridor, in north-central and south-west regions, crop-stubble burning has spread across its entire geography as also into the inter-State border separating contiguous Haryana. To a lesser extent, Uttar Pradesh, Haryana, and Madhya Pradesh too have resorted to the practice. Prevailing easterly to south-easterly winds have ensured that the smoke wafts towards Delhi and neighbourhood. The National Capital Region could do well with either a blast of dry westerly winds or well-endowed 'western disturbances' (periodical low-pressure waves) which trigger seasonal showers. The dry winds would blow away the smog and its contents, while the winter-time precipitation heralded by western disturbances will wash down the smog.



CCEA gives no Rs 10k cr SBA for fertiliser

► The government gave ex-post facto clearance to implementation of the Special Banking Arrangement (SBA) of Rs 10,000 crore for payment of outstanding claims towards fertiliser subsidy in 2016-17. The decision was taken at the Cabinet Committee on Economic Affairs (CCEA) chaired by Prime Minister Narendra Modi, said an official release. "The CCEA has also approved that, in future, the Department of Fertilisers would avail the SBA with the concurrence of the Department of Expenditure," it added. The government is making available urea and 21 grades of P&K (phosphate and potassium) fertilisers to farmers at subsidised prices through fertiliser manufacturers and importers. To make funds available to fertiliser companies against their subsidy claims, the finance ministry had approved the SBA of Rs 10,000 crore with government interest liability limited to G-Secs rate. An SBA was worked out with SBI for Rs 10,000 crore to meet the outstanding subsidy claims of fertiliser companies. The loan together with government interest thereon has been repaid from the Budget Estimate of 2017-18. Under the SBA, a total loan of Rs 9,969 crore for settlement of outstanding subsidy bills with SBI was raised by the government, the release said. The loan amount, along with interest liability, on the part of the government amounting to Rs 80.9 crore was paid to SBI.



PAN not needed for cash sale of agri produce up to Rs 2 L/day

► The revenue department informed that farmers do not need to quote PAN for cash sale of their produce up to Rs 2 lakh a day. The Central Board of Direct Taxes (CBDT) said in response to representations from stakeholders regarding applicability of provisions of Income-tax Act, 1961 to cash sale of agricultural produce by the cultivators/ agriculturists. The newly inserted section 269ST in the Income Tax Act bans such cash dealings on a single day, in respect of a single transaction or transactions relating to one event or occasion from an individual. The provision implies that any cash sale of an amount of Rs 2 lakh or more by a cultivator of agricultural produce is prohibited under section 269ST of the Act. After looking into the representations, the CBDT clarified that cash sale of the agricultural produce by its cultivator to the trader for an amount less than Rs 2 lakh "will not" attract prohibition under section 269ST in the case of the cultivator. Also, cultivator will not be required to quote his PAN/or furnish Form No 60.

Easier credit to food processing industry can help farmers, says Goyal

► Easier bank credit to the food processing industry could in turn lead to better livelihood to farmers and doubling of their income, Minister for Railways and Coal Piyush Goyal said. Addressing a session on 'Innovative Financing' at World Food India, the Minister said the categorisation of the food processing sector for bank credit should be reviewed as it could in turn help double farmers' income. Goyal further pointed out that the small and medium enterprises are sometimes the "worst hit" and have to sometimes pay the highest rate of interest with many banks reluctant to lend after being faced by mounting bad loans. "The rate at which this sector (food processing industry) gets credit is equally important as at what rate the farmer gets



credit," Goyal stressed. He also noted that innovative financing does not mean just getting a subsidy. It could also mean more efforts such as greater engagement with farmers in terms of technology and

confidence building, choosing optimum products that can be grown and value added in India's food processing sector and also focussing on areas like organic farming, he said

Agri Scheme Rebranded, Gets Rs 15,722 cr for 3 Years

► The government rebranded a key agricultural development scheme and allocated Rs 15,722 crore to it for three years, `aiming to raise farmer income by providing better infrastructure and promoting entrepreneurship. The decision was made by the Cabinet Committee on Economic Affairs (CCEA), which has also approved a 5% increase in the price state oil firms pay for ethanol that is blended in petrol. The Rashtriya Krishi Vikas Yojana (RKVY), for which Rs 4,750 crore had been allocated in the current fiscal, will now get a new name: RKVY-Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVYRAFTAAR). The rebranding is aimed at “making farming a remunerative economic activity through strengthening the farmer’s effort, risk mitigation and promoting agri-business entrepreneurship”, an official press release said. Under this, funds will be provided as 60:40 grants between the Centre and states. In the case of north-eastern and Himalayan states, the Centre will provide 90% of the funds. Half the annual RKVY-RAFTAAR outlay will be provided for setting up infrastructure and assets, while 30% will be for projects linked to value addition of products.

The remaining 20% will be flexifunds for supporting any project as per local needs. A fifth of the funds will be used to fund special sub-schemes of national priorities and 10% will be to support innovation and agri-entrepreneur development through creating end-to-end solution, skill development and financial support for setting up agri-enterprise, the press release said.



World Bank to boost agri-business in Assam

► In a major move aimed at boosting agribusiness sector in Assam, a tripartite loan agreement for US \$262.40 million (Rs 1,784 crore) for initiating Assam Agribusiness and Rural Transformation Project (APART) in the State was signed between the Centre, State government and World Bank in New Delhi. Signed by Union Finance Ministry’s Joint Secretary Samir Khare, Assam Finance department’s Principal Secretary Dr Ravi Kota and World Bank’s acting Country Director Hisham Abdo Kahin in New Delhi, the project period is for 7 years (up to 2024). Aimed at adding value

and improving resilience of selected agriculture value chains, the project will focus on smallholder farmers and agro-entrepreneurs in targeted districts of Assam. APART is the third project of the World Bank in its series of agriculture support in Assam, the first being Assam Rural Infrastructure and Agriculture Services Project (ARIASP) for Rs 567 crore (1995-2004), followed by Assam Agricultural Competitiveness Project (AACP) for about Rs 1,200 crore (2005-2015) and now APART for Rs 1,784 crore. It will be jointly implemented by the departments of Agriculture, Industry & Commerce, Animal Husbandry & Veterinary, Cooperation, Fisheries, Handloom Textiles & Sericulture, Public Works (roads) and Panchayat & Rural Development and coordinated and monitored by ARIAS Society. As per the project agreement, farmers and entrepreneurs will be

benefitted by APART through increased price premium of commodities sold, improved market access due to higher share of selected commodities sold through new marketing channels, and higher number of farmers adopting climate resilient agricultural technologies. The project will be implemented across 16 districts of the State and over 5,00,000 farming households, including 30% women, will directly benefit from it. The project will support (i) value addition in production and post-harvest segments of selected agriculture value chains, (ii) stimulate establishment of new small and medium agri-enterprises, (iii) facilitate agribusiness investments through inclusive business models and (iv) resilience of agriculture production systems to better manage increasing production and commercial risks associated with climate change. This is planned to be achieved through a production and enterprise cluster strategy within the targeted value chains, to generate economies of scale, etc.



USDA cuts India's rice output forecast

► The US Department of Agriculture has cut its forecast for India's rice production in 2017-18 by 2.5 million tonnes (mt) to 107.5 mt. This may be due to unfavourable weather conditions in southern and eastern parts of the country. While scanty rains have hurt growth of the crop in TN, eastern UP, Chhattisgarh and Odisha, excess rainfall spelt trouble in Bihar. In eastern parts of UP, the country's largest rice producer, nearly 25 per cent of the crop has been hit due to unavailability of water, traders said. The fall in India's rice output reflects in the global rice production in 2017-18.



A Contribution from India to IRRI

► Narendra Modi contributed two Indian rice seed varieties to the gene bank of the international rice research centre in the Philippines which he said is working towards mitigating global poverty and hunger by improving the cultivation of the key grain. He also visited the International Rice Research Institute (IRRI) in Los Banos, an urban locality around 65 km from Manila — the capital of the Philippines — and interacted with several Indian scientists working there. A number of scientists at IRRI briefed the PM on flood-tolerant rice varieties which, they said, can withstand 14-18 days of submergence and provide 1-3 tonnes more yield per hectare in flood-affected areas. Modi said the flood-resistant rice varieties that can withstand 14-18 days of submergence would help farmers and enhance their income. "Salinity tolerant rice varieties will help farmers where the soil is saline, for example Kutch. I also saw a drought tolerant rice variety that can help farmers in times of droughts," Modi tweeted. Modi said he was also shown drones that could be used in the agriculture sector and help farmers. A 'rice field laboratory' named after PM Modi was also inaugurated by him at the institute. He unveiled a plaque marking the inauguration of the Narendra Modi Resilient Rice Field Laboratory. "A contribution from India to IRRI... presented two Indian rice seed varieties to the IRRI gene bank," the PM tweeted.



Oilmeals exports down 29% in October

► The country's export of oilmeals for October 2017 has been provisionally reported at 73,863 tonne, 29% lower than 103,640 tonne in the same period of previous year. Solvent Extractors' Association of India (SEAI), which has compiled the export data for oilmeals for October 2017, said the overall export of oilmeals during April–October 2017 has been provisionally reported at 1,358,651 tonne compared to 698,169 tonne during the same period of last year, up by 95%. In last four months, export of oilmeals improved over the previous year, thanks to good monsoon, better oilseeds production and price parity, SEAI executive director BV Mehta said. In percentage terms, export is showing improvement, but still it is lower compared to earlier years, he added. It may be also



noted that India faced drought years during 2014-15 and 2015-16, which lead to lower production of oilseeds which affected export of oilmeals to a lowest level. During April–October 2017, oilmeal imported by Vietnam from India was reported at 230,432 tonne as compared to 160,912 tonne in corresponding period; consisting

of 16,978 tonne of soybean meal, 34,751 tonne of rapeseed meal and 178,703 tonne of De-oiled Rice Bran Extractions. South Korea imported 427,126 tonne as compared to 385,301 tonne in corresponding period, comprising 158,992 tonne of rapeseed meal, 246,321 tonne of castor meal and 21,813 tonne of soybean meal. Bangladesh imported 108,002 tonne as compared to 14,016 tonne in corresponding period, consisting 35,057 tonne of rapeseed meal, 3,609 tonne of De-oiled Rice Bran Extractions and 69,336 tonne of soybean meal. Thailand imported 78,161 tonne as compared to 2,097 tonne in corresponding period; consisting 58,628 tonne of rapeseed meal, 9,454 tonne of De-oiled Rice Bran Extractions and 10,079 tonne of soybean meal.

Global black tea shortage looms

With major tea producing countries including India, Kenya, Bangladesh and Uganda reporting a lower output so far this calendar compared to the same period of 2016, the world tea market seems to be heading for a shortage



of the Crush-Tear-Curl (CTC) variety of black teas. "According to our compilation of the latest data gathered from various producing countries, the global black tea production so far this calendar has fallen to 1545.05 million kg (mkg) from 1594.17 mkg in the corresponding period of 2016," Rajesh Gupta, compiler of annual 'Global Tea Digest' informed. This fall of 49.12 mkg marked a decline of 3.08 per cent. India continued to top the global black tea production table at 912.55 mkg but this was 10.72 mkg less than 2016 as adverse weather affected the crop in North East India. Kenya lost the highest volume of 43.11 mkg to bad weather to produce 303.55 mkg. Uganda lost 8.24 mkg to produce 23.75 mkg. Bangladesh lost 3.61 mkg to produce 39.50 mkg.

Rice drives India's agri exports

Farm exports, led by rice, jumped by 13 per cent during April-September as dealers overseas built up stocks amid fears of a ban by the EU, which strengthened quality norms. According to the Agricultural and Processed Food Products Export Development Authority (Apeda), exports of agricultural products registered with it jumped to \$8.73 billion in April-September from \$7.69 billion in the corresponding period a year ago. In rupee terms, Apeda-registered exports jumped by 8.64 per cent to Rs 56,183 crore from Rs 51,499 crore. The rise in farm exports was primarily driven by rice, both basmati and non-basmati, which contribute nearly 44 per cent to the country's annual farm shipments. Exports of rice rose by over 30 per cent in dollar terms and 25 per cent in rupee terms during April-September as European buyers built inventories in anticipation of tighter quality tests effective November 1. "European buyers built their inventories on fears a smaller quantity of rice would pass the quality tests. Iran, too, purchased a huge quantity of rice, resulting in an increase in overall exports," said Gurnam Arora, joint managing director, Kohinoor Foods. The European Food Safety Authority (EFSA), in a communication to Apeda, said basmati rice from India needed to pass through a pre-shipment residue test for 22 pesticides from November 1. Apeda clarified that the minimum residue limit for propiconazole was under review.



India's basmati rice exports may decline to 3-year low

India's basmati rice exports may drop to a three-year low this year as the European Union (EU) tightens a fungicide rule and local prices strengthen. Exports may decline as much as 5% to 3.79 million metric tons in the year that began on 1 April from a year earlier, said Vijay Setia, president of All India Rice Exporters Association. That would be the lowest since 2014-15, according to the association's data. "We will try to export polished rice to the European Union to avoid the new fungicide norms," Setia said in a phone interview. Exporters are possibly not yet fully prepared to meet the new stringent norms, he said. According to the European Union's rule, the residue level of Tricyclazole fungicide in basmati rice should not exceed 0.01 parts per million from 1 January 2018, compared with 1 part per million currently, Setia said. About 80% of India's basmati rice shipments include unpolished grains. The rest is sold after polishing, which significantly lowers fungicide residues. Rice companies are expected to focus on the domestic market after a surge in local prices following lower stockpiles and concerns that a drop in the crop area would lead to lower output, Setia said. Basmati paddy output may fall 8% from a year earlier to 5.65 million tons in 2017-18, a decline for a third straight year and the lowest since at least 2009, according to the association.

ICRISAT researchers help raise groundnut crop free of toxin

➤ Researchers at the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in Hyderabad have developed dual strategies to keep groundnuts almost free of contamination by aflatoxin — a toxin produced by the fungi *Aspergillus flavus* and *Aspergillus parasiticus*. While one strategy prevents groundnuts from being infected by the fungus thereby preventing the toxins from being produced, the other strategy prevents the fungus from producing the toxin even if groundnuts somehow get infected with the fungus. Genetic engineering approaches were used for inserting two alfalfa genes into groundnut plants to enhance immunity against fungal infection and growth. Alfalfa is a flowering plant of the pea family. Preventing aflatoxin production even in case of any infection



was achieved through a plant-induced gene silencing technique. While both strategies showed promising results, the ultimate goal is to combine the two traits into a single variety to offer double protection so that groundnuts do not accumulate any aflatoxin or the amount of toxin is well within permissible limits at or after harvest.

Launch of Argentina Yerba Mate Tea

➤ Yerba mate which is a national drink of Argentina was officially launched in India on November 13th, 2017 at the Residence of the Embassy of Argentina by Ms. Maria Noelia Arizaga, Chief of Commercial Section, Embassy of Argentina; Shri. Amarendra Khatua, Former ambassador of India to Argentina; Mr. Anish Narang, Managing Director, Karavan Enterprises LLP; Mr. Carlos Coppelis, Marketing Head, National Institute of Yerba Mate (INYM) and Ms. Anamika Singh, Tea Sommelier, Anandini Himalayan Tea. Yerba Mate is typical Argentinian beverage made from the naturally caffeinated and nourishing leaves of the celebrated South American rainforest holly tree (*Ilex paraguariensis*). It has the “strength of coffee, the health benefits of tea, and the euphoria of chocolate” all in one beverage. Properties and benefit of Yerba Mate are its powerful antioxidant power due to high concentration of polyphenols, source of vitamins which contain B- Group vitamins, source of minerals like potassium and magnesium, energizing effect with caffeine and matein for increasing energy levels and concentration.

High-tech tracker to battle ancient wheat plague

➤ The tracking technology used to halt the deadly Ebola and Zika viruses could now be turned against wheat rust as scientists try new ways to stop the fungus devastating world grain crops. Wheat rusts are nothing new - ancient Romans honoured the rust god Robigus, hoping to protect their fields - but they are adapting to outwit man and pose an ever growing global risk. So now technology is stepping in, in the form of a pocket-sized tracking device invented by a British company with the hope that early detection can limit the damage of any outbreak. Early detection is “the most critical part” of tackling any type of wheat rusts, said Fazil Dusunceli, plant pathologist at the United Nations Food and Agriculture Organization (FAO). Caused by fungal pathogens, the rusts can devastate the world’s most widely grown crop, the source of food and livelihoods for more

than one billion people in developing countries, according to the United Nations. “People can walk through an infected field, unknowingly pick up a few spores on their clothes, then get on a plane and accidentally take the disease to other countries or continents,” said Dave Hodson, senior scientist with the International Maize and Wheat Improvement Center in Ethiopia. “With globalisation, we are increasingly seeing this happening. In addition, wheat rusts are continually evolving so we’re seeing new strains appearing all the time,” he told the Thomson Reuters Foundation. According to FAO, the risks posed by wheat rusts are growing, with modern versions of the fungus becoming ever more virulent, evolving to adapt to the earth’s higher temperatures. There are only two ways to control wheat rust diseases - planting varieties that are resistant to rusts or using chemicals to

kill the fungi. But as rusts mutate and produce new strains, resistant varieties may only be effective for a couple of years. In addition, the fungi are airborne, meaning the spores can spread rapidly over large distances. In February, the FAO sounded an alarm, saying wheat rusts old and new are appearing in new countries, including Italy, Morocco and Scandinavian countries. Yellow rust is considered the most economically damaging, leading to annual losses of nearly 5.5 million tonnes of wheat, according to research published in 2015. This translates into a loss of about \$1 billion a year, said Hodson, who is leading a technology project to tackle the rust. The new method proposed by Hodson could cut yellow rust disease diagnosis from months to days. Currently, only specialised labs can do the diagnosis and the process could take months.

SIMFED Launches a Wholesome Range of Certified and Organic Food Products in the Capital

► Sikkim State Co-operative Supply and Marketing Federation Ltd (SIMFED), the apex marketing federation of Sikkim, has launched a vast range of organic and natural food products at a standout event. Sikkim is the first Organic State of India declared by Prime Minister Narendra Modi in 2015. SIMFED launched organic food products in collaboration with Qseal Agritech Pvt Ltd., an organic agriculture-based organization with its corporate office at New Delhi. SIMFED is one of the pioneering organizations in India in the field of organic farming and in the last 10 years it has worked with more than 40,000 farmers on almost 35,000 hectares of agricultural land in 10 states of the country. To provide best prices to the farmers, SIMFED has taken fruitful measures like the elimination of middlemen and easy processing. Besides, to enhance the reach and penetration of organic food, SIMFED strictly comply with the latest quality standards that ensure highly safe and nutritious food. SIMFED's organic food products were launched in the esteemed presence of Mr. Somnath Poudyal, Food Safety & Agriculture Minister, Government of Sikkim and Shri S.K. Pattanayak, Secretary, Department of Agriculture, Cooperation & Farmers' welfare, Ministry of Agriculture and Farmers' welfare, Govt. of India. The vast range of SIMFED'S organic food products includes Unpolished Rice, Organic Flours, Organic Cereals, Unpolished pulses, Spices (Whole, Powdered). These will be introduced in the market soon in 500 grams and 1 kg packages. Organic pickles, jams and bakery products will also be launched shortly. The specialty products from Sikkim include organically grown Buck Wheat flour, Dale Chili (Cherry Pepper), large cardamom a high value cash crop and export commodity and Ginger and Turmeric (two powerful spices from the Himalayan ranges). The other specialty products that will available soon are Cashew from Andhra and Odisha, King Chilli from Assam, Mango from Andhra, Pineapple from North East Region, Joha and Black Rice from Assam, Kodo from Chhattisgarh, Lemon from Chhattisgarh and Assam, Potato from Gujarat and Mandarin Orange from Assam. In the near future, SIMFED is also planning to export various organic produce like Niger, Ginger, Turmeric, Black Pepper and Potato from different regions of the country.

Mr. Pawan Chamling, Chief Minister of Sikkim receives One World Award

► Mr. Pawan Chamling, Chief Minister of Sikkim has received One World Award, OWA Grand Prix Winner, 2017 which is given to honor people and project that makes the world a better place and promote justice. Mr. Chamling who belongs to a nature worshiper family has strong focus on sustainable development and environmental protection and his passion is biodiversity. In January 2016, during the National Conference on Sustainable Agriculture held in Gangtok, PM, Shri. Narendra Modi declared Sikkim to be first completely organic farming State in India.



Jindal Stainless Limited in association with ANEW Holdings Limited launches Accelerator Program

► Jindal Stainless Limited, in association with ANEW Holdings Limited, a Japanese Venture Capital launched an Indo – Japanese Accelerator Program for Agriculture Start-ups in Gurugram. The Accelerator Program provides agriculture start-ups with a platform for networks and collaborations with Japanese companies, through an intensive program led by experienced mentors from Japan, USA and India. The program was inaugurated in the presence of Mrs. Deepikka Jindal, Chairperson, Jindal Stainless



Foundation & Mr. Yuji Fujinaga, CEO, ANEW Holdings Limited. Spread over a course of 3 months, the accelerator program has an intense due diligence process for shortlisting the start-ups from a tall list of applicants. Post the completion of programs, the strategic start-ups may get funding from seed stage investors and venture partners from 3Lines Venture Fund (USA), Rockies Venture Club (USA) and other major corporations from India, Japan and other countries. Through practical orientation at laboratories across intervention areas, these start-ups will get an opportunity to develop farmer need based technology, which will bring down input costs and raise productivity levels. The manufactured equipment's and developed practices can be replicated in different geographies & manufacturing processes which will yield the desired levels when markets increase and the project goes to scale.

Fertilizers have played a significant role in India's agricultural development. For a country that would have perpetually sunken into the abyss of food paucity, fertilizers have played a critical role in extracting the best out of the high yielding varieties and creating food prosperity. The agricultural prosperity that the country saw during and after green revolution instilled the notion among the farmers that fertilizers were the solution to increasing yield. To sustain the yields from the newly introduced high yielding varieties, the government encouraged the use of fertilizers through subsidies. Fertilizers became an integral component of agriculture which spurred a parallel fertilizer industry in India.

FERTILIZERS

KEY TO AGRICULTURAL PRODUCTIVITY

Today Indian ranks third in the world in terms of fertilizer production and second largest in terms of consumption. Years on, conventional fertilizers gave way to more precise and specific fertilizers in different formats. The indiscriminate use however, has affected the soil health which has started to exhibit side effects of declining yields and productivity. The deteriorating soil health across India has initiated fresh reforms from the government and is expected to further elaborate in coming years. Fertilizers still remain an important element in raising productivity, but experience in the past has demonstrated that the injudicious use of the same can be detrimental in the long run. The future hence calls forth sustainable and efficient

The global demand for nitrogenous fertilizers is expected to grow around 5.6% to 119.4 MT in four years through 2018, according to the Food and Agriculture Organization of the United Nations



ways of fertilizer use.

Indian Fertilizer Market

As long as food remains the primary necessity of man, agriculture has to grow to keep pace with the burgeoning population. Hence the allied sectors also need to gear up to face the challenge. The same principle has been witnessed in the fertilizer space as well. According

to the Food and Agriculture report, world demand for total fertilizers is estimated to grow at 1.8% per annum from 2014 to 2018. The demand for nitrogenous, phosphatic, and potash fertilizers is forecasted to grow annually by 1.4%, 2.2%, and 2.6%, respectively, during the period. Over the next five years, the global capacity of fertilizer products, intermediates and raw materials





will increase further. The global demand for nitrogenous fertilizers is expected to grow around 5.6% to 119.4 MT in four years through 2018, according to the Food and Agriculture Organization of the United Nations. Asian nations, led by China and India, are expected to account for 58% of this increase.

During the FY 2016-17, India has produced 413.24 LMT of fertilizers. Urea dominates the total fertilizer production in the country. Although India is the world's second largest consumer of urea, the



Urea is by far the largest used fertilizer in India. Being a cheap and easily available fertilizer due to heavy subsidization of government, urea has been used extensively used by the farmers to the extent of being overused

Government of India is working towards increasing the production of urea so as to end imports by 2022 and achieve self-sufficiency in Urea Production. Out of the total fertilizer production, India produces only 10%-12% of DAP. But due to recent fall of raw material prices in the international markets, phosphates have become cheaper and it has become economical to produce the fertilizer rather than importing the end product. Hence the government is encouraging sprucing up the production of DAP, which is the second most widely used fertilizer after urea. Production of Complex Fertilizers includes the various grades of NPK Fertilizers. The Government is encouraging SSP production as SSP is also considered as a substitute to diammonium phosphate (DAP), which is largely import based and costlier vis-a-vis to SSP. The continued support that the government had bestowed upon this segment has resulted in a built up in the overall capacity of fertilizer production in the country. Currently there are 30 Large sized Urea Manufacturing units, 21 DAP and Complex Fertilizers units and 2 units which manufacture Ammonium Sulphate as a by-Product and 105 medium and small scale units in operation producing Single Super Phosphate (SSP).

Urea is by far the largest used fertilizer in India. Being a cheap and easily available fertilizer due to heavy subsidization of government, urea has been used extensively used by the farmers to the extent of being overused. Domestic urea production is growing at a stable rate of 1.74% CAGR from FY 2012-13 to FY 2016-17. There has been a slight fall in the urea production y-o-y basis from FY2015-16 by 1.18% in FY 2016-2017. Urea production was the highest in FY 2015- 16. Domestic production of urea has been increasing indicating a trend of import substitution to be achieved soon. The quantity of Urea imported also has fallen considerably from FY2015-16 by 27% y-o-y basis in FY 2016-2017. India plans to eliminate imports by 2022.

India uses Di Ammonium Phosphate to meet its phosphate requirement. A concentrated fertilizer with high phosphorus and nitrogen content, DAP falls under the decontrolled fertilizers category. Domestic



DAP production is growing at a robust rate of 4.41% CAGR from FY 2012-13 to FY 2016-17. DAP production levels have risen y-o-y by an increase of 14.4% from FY2015-16 to FY2016-17 as there was a fall in the prices of raw materials worldwide. India imports DAP mainly from Canada, China, Jordan, Morocco, Russia, Saudi Arabia and USA.

Single superphosphate (SSP), phosphatic multi-nutrient fertilizer, was the first commercial mineral fertilizer and it is indigenous. This material was once the most commonly used fertilizer, but other phosphorus (P) fertilizers have largely replaced SSP because of its relatively low P content. Because of the simple production technique, it is one of the cheapest chemical fertilizers available. SSP production has spurted at growth rate of 11.64% CAGR from FY 2012-13 to FY 2016-17. The level of SSP production till FY2014-15 is the same as it was made mandatory for the SSP units to utilize minimum 50% of their recognized production capacity or to produce 40 LMT, whichever is less, per year to become eligible for subsidy under the Nutrient Based Scheme (NBS). However this norm was lifted on March 10th, 2016.

Hence there has been a pick up on Fertilizer production from FY2015-16 onwards. An increase of 8% production is noticeable on a y-o-y basis from FY 2015-16 to FY2016-17.

Potassium chloride (commonly referred to as Muriate of Potash or MOP) is the most common potassium source used in agriculture, accounting for about 95% of all potash fertilizers used worldwide. Mutriate of Potash imports have increased by 15.2% on a y-o-y basis from FY2015-16 to FY2016-17. India mainly receives imports of MOP from Russia, Jordan, Israel, Canada, Belarus, Germany and Lithuania.

Indian Micronutrient Fertilizer Status

Indian agriculture owes much of its success to fertilizers. Over the years, the application of fertilizers defied scientific logic and their injudicious use left some indelible impressions on Indian soils. One among them was the deficiency of micro nutrients. Micronutrients such as Zinc, Boron and to a limited extent Iron, Manganese, Copper and Molybdenum have been reported to

Until 24th August 1992, the prices of all the fertilizers were controlled, with the Government setting the maximum retail prices of various fertilizers. With effect from 25 August 1992, the prices of phosphate and potash fertilizers were decontrolled. The prices of urea continued to remain under control. Following decontrol, the prices of phosphatic and potassic fertilizers rose sharply. Since 1997/98 the Government has fixed indicative maximum retail prices of decontrolled fertilizers, uniform throughout the country.



The efficiency of nitrogenous fertilizers nitrogen is only 30-40% in rice and 50-60% in other cereals, while the efficiency of phosphorous fertilizer is 15-20% in most crops

be deficient in Indian soils. Deficiency of micronutrients over the decades has grown in both, magnitude and extent because of increased use of high analysis fertilizers, use of high yielding crop varieties and increase in cropping intensity. This has become a major constraint to production and productivity of rice, wheat and pulses.

At present about 48.1% of Indian soils are deficient in diethylenetriaminepentaacetate (DTPA) extractable zinc, 11.2% in iron, 7% in copper and 5.1% in manganese. Apart from the deficiency of these micronutrients, deficiencies of Boron and Molybdenum have also been reported in some areas.

Inadequate use of micronutrient fertilizers is aggravating trace element deficiencies in soils in many areas. The crops grown on these soils are, generally, deficient in micro nutrients. These deficiencies are linked with malnutrition and health disorders in humans and animals. The problem is more serious in young children, women of child bearing age and livestock. The Zn deficiency has become a big public health issue in India and is second in importance to Fe. It is assumed that

around 25 % of Indian population is under risk of Zn deficiency related problems. The dietary intake of 0.2 - 0.3 mg Zn day⁻¹ is regarded as deficient.

Unfortunately the application of micronutrient fertilizers to the soil has not been able to create that much of an impact. The efficiency of fertilizer nitrogen is only 30-40% in rice and 50-60% in other cereals, while the efficiency of fertilizer phosphorus is 15-20% in most crops. The efficiency of K is 60-80%, while that for S is 8-12%. With regard to the micronutrients, the efficiency of most of them is below 5%.

A study in Haryana on 283 pregnant women has shown 65 % of them to be deficient in Zn based on low serum Zn concentration. The Zn deficiency related disorders like parakeratosis disease, associated with bone and joint disorders and thickening of skin, have been reported from Punjab and Haryana in animals feeding continuously on forages deficient in Zn. Out of 17 nutrients established as essential for plant growth, 6 are required in small quantities and therefore called micronutrients. They are zinc, boron, iron, manganese, molybdenum and copper. Zinc deficiency is most widely spread in Indian soils followed by iron, boron and copper.

It is common in high pH, calcareous and low organic matter- content soils.

Realizing the role played by micronutrients in addressing hunger and malnutrition, demand for micro nutrient fertilizers has increased over the years. Global market for micronutrient fertilizers is expected to reach a market value of \$6291.3 million by 2022 from an estimated \$3922.2 million in 2016 with an annual compound growth rate of 8.2% during 2017-2022.

Specialty fertilizers are a fast growing and diverse group of products with different characteristics containing one or more of the essential primary, secondary or micro-nutrients. Specialties include products ranging from single nutrient containing micronutrients or coated nitrogen to control its release, to complex multi-nutrient solubles, 'designed' for specific crops. In India, the specialty fertilizer market is growing at the rate of 20 percent, which still is in the nascent stage. Use of specialty fertilizers help to check losses associated with the application of regular fertilizers. Specialty fertilizers can reduce these losses by applying nutrients, in combination with essential water through irrigation systems (fertigation), by coating fertilizers or adding inhibitors/stabilizers, by foliar sprays or treating seeds with nutrients.



The technologies used to achieve both balanced crop nutrition and to improve fertilizer, crop and labour efficiencies are the key differentiators of specialty fertilizers. The global market for specialty fertilizers is projected to reach \$19,885 million by 2020, at a CAGR of 7.0% from 2015. North America dominated the global market. The Asia-Pacific region is projected to be the fastest-growing market, owing to the growing demand for food products in the region. In this region, China is projected to be the fastest-growing market for specialty fertilizers, followed by India.

Another group of fertilizers that have assumed significance is that of biofertilizers. Biofertilizers, more

Global market for micronutrient fertilizers is expected to reach a market value of \$6291.3 million by 2022 from an estimated \$3922.2 million in 2016 with an annual compound growth rate of 8.2% during 2017-2022





There has been a positive trend in India, with respect to production of bio-fertilizers. While the total production of bio-fertilizer in India in 1992-93 was 2005.0 tonnes and it has increased to 8010.1 tons by 1998-99

commonly known as microbial inoculants, are artificially multiplied cultures of certain soil organisms that can improve soil fertility and crop productivity. The classic examples are Rhizobium, Azotobacter, Azospirillum, Azolla, Blue green algae, Phosphate solubilizing (PSB)/Mobilizing bacteria etc. These enhance the availability of certain nutrients in the soil either by extracting them from the atmosphere as in the case of Rhizobium or by making the unavailable forms of nutrients to forms that can be utilized by the plants such as the case of PSB. Besides accessing nutrients, for current intake as well as residual, different biofertilizers also provide growth-promoting factors to plants and some have been successfully facilitating composting and effective recycling of solid wastes. By controlling soil borne diseases and improving the soil health and soil properties these organisms help not only in saving, but also in effectively utilising chemical fertilizers and result in higher yield rates. Government of India and the different State Governments have been promoting use of biofertilizers through grants, extension and subsidies on sales with varying degrees of emphasis. There has been a positive trend in India, with respect to production of bio-fertilizers. While the total production of bio-fertilizer in India in 1992-93 was 2005.0 tonnes and it

has increased to 8010.1 tonnes by 1998-99. Similarly the consumption/distribution of bio-fertilizer has also increased from 1600.01 tonnes to 6700.27 tonnes during the same time period. There are over 100 Bio-fertilizer units operational in the country. These units produced about 20040 MT bio-fertilizers against the installed capacity of over 86000 mt during 2009-10. Biofertilizer market in India is growing at the rate of 12%. The growing concern over the deteriorating soil health and the rampant use of agro chemicals over and above the prescribed limits have been expanding the horizons of biofertilizer market. With many states turning organic, sale of biofertilizers have increased.

GOVERNMENT SUPPORT

In India, the government keeps a close eye on the fertilizer sector. To an extent, the Fertilizer Industry is highly regulated and monitored by the Government of India. According to the FY2017-2018 Budget, Rs. 70,000 crores was allocated for the Fertilizer industry. The government supports the farmers in the form of fertilizer subsidies. Except urea, all the decontrolled fertilizers are sold at MRP fixed by the manufacturers. Urea on the other hand enjoys subsidies.

Nutrient Based Subsidy (NBS) policy was introduced by the Government to

encourage the use of decontrolled fertilizers. W.e.f. from 1st April 2010, certain decontrolled fertilizers namely DAP, MAP, TSP, DAP Lite, MOP, SSP, Ammonium Sulphate and 15 grades of complex fertilizers were provided to the farmers at the subsidized rates based on the nutrients (N, P, K & S) contained in these fertilizers. Additional subsidy is also provided on the fertilizers fortified with secondary and micronutrients such as Boron and Zinc as per the Fertilizer Control Order.

In 2015, New Urea Policy was introduced with the main purpose to ensure maximum production of indigenous urea by promoting the use of energy efficient feedstock which will help rationalize and bring down the subsidy burden. It is expected that the new urea policy will lead to additional production of 1.7 LMT annually in the next three years. The Union Government also subsidises the urea manufacturing units for the cost of transportation to facilitate the availability of urea at the same maximum retail price all over the country.

Recently the government has made it mandatory for all the urea producers in the country to produce



100% of their total production of subsidized urea as Neem Coated urea. Urea in this form has been found to increase crop yield. Neem coating of urea was introduced so it could aid save a substantial chunk of the Rs 55,000 crore subsidies given on urea fertilizer every year. Since NCU cannot be used for industrial purposes, illegal diversion of subsidized urea to non-agricultural use would not be possible. By curbing this illegal diversion of Urea for non-agricultural purposes, the government aims to prevent subsidy leakages as subsidized urea from India was also getting transported illegally to other nearby countries. This initiative has fostered rural employment amongst women who help in picking up the neem leaves

and help in the production of the neem oil and neem cakes.

Gas Pooling for the Fertilizer (Urea) Sector would help provide natural gas at uniform delivered price to all Natural gas grid connected Urea manufacturing plants. The cost of gas, which is the most important component for production of urea, varies from plant to plant owing to differential rates at which imported LNG is contracted as well as cost of transportation. The move would help bring down the cost of fuel. This move will help save about Rs. 1550 crores in subsidy and help urea manufacturing plants focus on their core business operations.

The introduction of Direct Transfers Benefit (DBT) was another reform that was long pending in the fertilizer sector. Under the DBT scheme, the subsidy will be released to the fertilizer companies instead of the beneficiaries, after the sale is made by the retailers to the beneficiaries. The DBT scheme should help curb the issues relating to diversion and smuggling of urea.

'Soil Health Card' scheme was also a landmark reform that was introduced in the Indian agricultural scene. Soil Health Card with information on macronutrients and micronutrients will be generated for all the 14 crore landholdings in a cycle of 3 years. Besides, it also provides an advisory on soil test based use of fertilisers and amendments. Uniform soil sampling



procedure will be adopted by the State for rainfed and irrigated areas. The scheme will provide assistance to State Governments to issue soil health cards periodically every 3 years, to all farmers of the country, so as to ensure that farmers apply the required amount of nutrients to their crops. Soil Health Card data can always be cross-checked with the Geo-referenced points used for preparation of soil fertility maps.

FERTILIZER REFORMS

Urea, though enjoys good amount of subsidies, is prone to severe leakages. About 24 per cent is spent on inefficient urea producers and of the remaining, 41 per cent is diverted to non-agricultural uses and abroad and the rest 24 per cent is consumed by larger—presumably richer—farmers. These leakages imply that only 35 per cent—about Rs.17500 crore of the total urea subsidy of Rs. 50300 crore—reaches the intended beneficiaries, small and marginal farmer. These leakages need to be plugged to improve the efficiency.

First, decanalising urea imports—which would increase the number of importers and allow greater freedom in import decision—would allow fertilizer supply to respond flexibly and quickly to changes in demand. This would be timely as climatic fluctuations are making it much more difficult for governments to forecast agricultural conditions and centrally manage supply. This would reduce the likelihood and severity of shortages, decrease black marketing and thereby benefit the small farmers.

Bringing urea under the Nutrient Based Subsidy program currently in place for DAP and MOP would allow domestic producers to continue receiving fixed subsidies based on the nutritional content of their fertiliser, while deregulating the market would allow domestic



Ideally fertiliser subsidies would be targeted only at small and marginal farmers. But targeting the poor is difficult at the best of times, and assessing poverty—based on landholdings or some other measure—will be difficult. A second problem emerges with targeting tenant farmers and sharecroppers

producers to charge market prices. This would encourage fertiliser manufacturers to be efficient, as they could then earn greater profits by reducing costs and improving urea quality. And this in turn would benefit farmers. Direct transfer of subsidies can also help in plugging the leakages.

Ideally fertiliser subsidies would be targeted only at small and marginal farmers. But targeting the poor is difficult at the best of times, and assessing poverty—based on landholdings or some other measure—will be difficult. A second problem emerges with targeting tenant farmers and sharecroppers. The relatively low levels of last-mile financial inclusion in much of rural

India also suggest that it would be risky to replace subsidised fertiliser with cash, due to beneficiaries' weak connection to the banking system. Preferred option, hence would be to set a cap on the number of subsidised bags each household can purchase and demanding biometric authentication at the point of sale (POS). This is the approach adopted for kerosene and food in Andhra Pradesh. Imposing a cap on the total number of subsidised bags each farmer can purchase would improve targeting. Small farmers would still be able to get all their urea at subsidised prices but large farmers may have to pay market prices for some of the urea they buy.

Maintaining an ideal balance of chemical fertilizers is important to manage the food demands of human population. Treating the soil and plant to surplus fertilizers may do more harm than good. The idea of displacing chemical fertilizers may permanently destabilize the food security of the country. Under such circumstances, it becomes imperative to rationalize fertilizer application and explore possibilities of specialty fertilizers that work on the principles of extended release. Judicious use of fertilizers can help us build a food sufficient country.

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The Mosaic Company, the world's leading integrated producer and marketer of concentrated Phosphate and Potash, employs nearly 9,000 people in six countries and participate in every aspect of crop nutrition development. Mosaic is a leader in the potash industry with annual capacity of 9.9 million tonnes of product per year, which accounts for approximately 12% of world annual capacity and 40% of North American annual capacity. Production during 2016 totaled at 7.6 million tonnes, or approximately 13% of estimated world annual production and 42% of estimated North American annual production. In a discussion with Agriculture Today, Mr. Robin Edwin, Managing Director, Mosaic India Pvt. Ltd. touches upon the fertilizer scenario prevailing in India and the importance of balanced soil fertilization.

How skewed is the fertilizer usage in India?

The skewness of fertilizer usage in India is a harsh reality, which widely varies from state to state. In major agricultural states like Punjab & Haryana, the NPK ratio stands at 18.6:5.4:1 & 52.6:14.8:1 respectively against the ideal ratio of 4:2:1. Overall, the national ratio of 7.2:2.9:1 sees a sharp inclination towards Nitrogen which

has impacted soil health.

How can the fertilizer sector help the deteriorating soil health of Indian soils?

India has the largest arable land available globally. However, this cultivable land is under severe stress today due to the deteriorating soil health. It is very important to work on improving the deteriorating con-

dition of the soil. Everyone, including the fertilizer Industry should look towards long term solutions & promote balanced crop nutrition for improving soil health. Balanced fertilization concept is not only about NPK use but also includes secondary and micronutrients. Though fertilizer industry is already working on this, I think the best way for the industry is to educate and spread knowledge

about the importance of soil health and its remedial measures. The key measure of this would be adoption of balanced use of fertilizers by the farmers.

Is organic farming a solution to this?

There are a lot of talks around organic farming today! It is an interesting option to the farmers. I think the success would largely depend on the mass availability of quality organic inputs on consistent basis. Also, if impact on production and consistent quality of produce is addressed, it will greatly help to grow this segment.

How big is the market for micronutrients in India?

Besides NPK, Indian soils are getting depleted of secondary and micronutrients. Today's micronutrient market is primarily dominated by Zinc and Sulfur. We are also seeing other micronutrients like Calcium, Boron and Ferrous among others gaining acceptance and usage. The current market is still very nascent but has a huge potential to grow with increased focus and adoption of balanced crop nutrition.

How can the policy initiatives from the government improve the current imbalance in fertilizer application?

There has been significant policy initiatives from the government aimed at improving the balanced fertilizer application. Notably, the progress on direct benefit transfer [DBT] made by the government is laudable. The idea in its entirety is to encourage the notion of rational use of fertilizers by passing on the subsidy benefit to the farmers, once it is fully implemented. Apart from DBT, the government has concentrated on soil health cards as well. As per the latest information, close to 8 crores soil health cards have been distributed and the numbers will go up only. This initiative has the potential to create awareness and adoption of balanced use of fertilizers based on soil health assessment.

What are your thoughts on Soil Health card scheme?

It is a very noble initiative of the government to promote soil health cards to farmers aimed at improving the productivity through judicious use of fertilizers. Government is working with all the seriousness to meet the target of issuing 14 crore soil health cards by the end of 2017. In the medium term, soil health card will boost the idea of balanced crop nutrition and will also check the skewed NPK ratios. It is also extremely important to note that, the policies on DBT, drip irrigation, soil health cards & reducing the SKU of Urea bags to 45 kg are all the steps in the right direction towards encouraging practices on balanced crop nutrition.

What are the challenges associated with fertilizer sector in India?

As we have discussed before, moving farmer practices towards balanced use of fertilizers would be a key challenge. Apart from that, full implementation of DBT would be a great step to address some of the challenges faced by the industry. This would also help open up avenues for bringing new innovative fertilizer products.

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FOOD SECURITY: SWOT ANALYSIS ON HUNGER ELIMINATION

The Food Security Act ensures right to food to all citizens, but the high prevalence of hunger reveals that the availability and accessibility of food to all are not satisfactory. SWOT (Strengths, Weaknesses, Opportunities and Threats) is an important tool to evaluate the performance of organizations, projects, schemes, individuals, events.

It helps in assessing the strengths, in visualizing the problems, in undertaking midterm corrections and in achieving overall improvement to realize ultimate goals with success. SWOT is an universally accepted method applicable in different sectors with high degree of success. Poverty and hunger are serious problems in the country which affect the overall development agenda of the Government.

Background

With over 25 crore people estimated to be chronically hungry, 60 crore under poverty level out of over 135 crore population across the country, it is pertinent to analyze critically the SWOT in proper perspective to understand the problem in totality and to initiate strategies in a holistic way. India is placed under 'serious hunger' category, with dismal 100th rank out of 118 countries for hunger Index (IFPRI, 2017). Children below five years suffer from under weight (stunting / wasting) and anemia, as also anemia in women is pretty high (above 60%). The States differ significantly on malnutrition indicators which reflect on health and nutrition insecurity. Accessibility to food by the poverty ridden population is poor that cause great concern. Infant/ child and maternal mortality still exist, although better than earlier years. Agriculture



production, though adequate, is not satisfying the demands of the poor with required nutritional quality and quantity. Food wastage in different forms (seeds/grains, fresh and as processed) poses serious problem, as deprivation of precious food to the most needy. Poverty alleviation programs do not seem to fully address hunger related issues like malnutrition. In view of the above, it may be appropriate to undertake SWOT analysis with wider perspective for the Nation. Hunger may be considered both as social and scientific problem. The present analysis emphasizes on the socio economic scenario to the extent possible.

Strengths

- Population above poverty line (general category) which has potential to contribute to eliminate hunger, i.e., manpower, is adequate to address the problems

of 'priority' (BPL) category.

- Financial resources are fairly satisfactory both with the Government for poverty alleviation and with many corporate sectors (to satisfy Corporate Social Responsibility); millionaires and rich people in society.
- Some social organizations in private sectors (NGOs) with objectives to help the poor (SHE, Akshayapathram, Abhayakshethram)
- Adequate religion - based organizations (temples, churches, mosques) involved in providing free food
- Funds flowing from NRIs and other sectors to the country

Weaknesses

- The philanthropic activities towards feeding the poor and hungry are not proportionate to the overall population (high rank of World Giving Index, revealing

poor donations for feeding the most hungry).

- Funds allotted for poverty alleviation are not effectively utilized for eliminating hunger of millions of people with disabilities (often funds diverted for other sectors).
- Social organizations (NGOs) get donations for other causes like education, health care, development activities but not sufficient for hunger elimination; major part of individual donors attend to educational needs of the poor.
- Lack of social commitment on the part of most people in addressing the hunger of the poor with compassion and love.
- Free food beneficiaries in places of worship is mostly well to do devotees and much less the most deserving poor and hungry.

Opportunities

- The population who are in 'affordable' position, both financially and with basic comforts (APL / general category) may generously donate, individually and/ or in groups for the cause of hunger elimination (on occasions like birth days, wedding anniversary).
- The Governments can create exclusive funds for the purpose of feeding the chronically hungry through various schemes (like levying tax on above ceiling wealth, advertisements in media, foreign tourists).
- More social organizations and religious groups may take up the cause to minimize food wastage, divert the extra food to the needy (Food bank concept); volunteers among youth / women, students.
- Ensure that implementation of corporate social responsibility (CSR) scheme is mandatory to address poverty and hunger.
- Enroll youth as hunger fighters for social service with coordinated efforts guided by specific societies for the purpose (investment of some time per week for the service as group activity).

Threats

- The inadequate accessibility to food by the poor and hungry might lead to increase in hunger index, malnutrition problems among children, women; even starvation deaths in remote tribal/rural areas.
- If small farmers also face the problem of hunger due to insufficient food for family consumption, there will be threat of food crisis, suicide tendency; farmers leaving the lands in search of other jobs.
- Chronic hunger / poverty might lead to petty crimes, violence out of frustration.

Action Plan

From the foregoing it is clear that efforts must be focused on exploiting 'strengths', minimizing 'weaknesses'. Appropriate strategies may be planned to utilize 'opportunities' that will have positive impact on fighting hunger. If coordinated efforts are made by all concerned with commitment, then 'threats' may be gradually eradicated. Thus, SWOT analysis helps in achieving the dream of zero hunger India. Whether an exclusive authority namely National Authority for Hunger Elimination (NAHE), on similar lines like Biodiversity Authority, would ensure in implementing the strategies needs to be examined at policy level. This is a humble proposal for consideration by all interested on the topic of National importance. The Central Government might examine the feasibility of the proposal by an expert committee drawn from agriculture, food, health, economics, sociology, rural/urban development and policy planners. The National and International organizations may have to bestow attention on the above proposal and refine, if necessary, depending on the location specific problems. Some case studies are projected for understanding the situation based on my book on 'Malnutrition – awareness, analysis, action and assessment' (2017)

Case Studies:

Although Andhra Pradesh (pre bifurcation) has the 'strengths' in

terms of agriculture/ horticulture production with high rank in many crops, the State's 'weakness' lies in lowest rank (high percentage) on children below five years (19.0%) and anemia of both children and women (79.2 % and 68.1%). A bountiful State like AP has many 'opportunities' to rectify the situation. Even Kerala, with high ranks in many indicators that are 'strengths' still has 'weaknesses' identified as 48.5% and 32.7% anemia of children and women. So, this State can become a model if the 'weakness' is addressed on priority basis. The State of West Bengal's serious 'weakness' is highest percentage of anemia of children and women (86.4% and 76.3%) which if not attended immediately might turn out to be 'threats'. The States like Delhi and Goa have many 'strengths' which can be exploited to address the problems of malnutrition still at low levels. Thus, a project for post graduate students or researchers for Ph.D in the State Agriculture Universities, ICAR Institutes (IARI) might help in developing frame work for each sensitive districts of a given State to prepare data base, undertake SWOT analysis and plan required interventions for supply of food items rich in vitamins, micronutrients, energy (millets, pulses, vegetables). Thus, there is tremendous scope for applying effectively SWOT analysis to address complex problems encountered by those affected by malnutrition. In this context, the ICAR and SAUs have great role to revitalize projects based on social needs of the area, keeping in mind the ultimate goal of making Hunger Free India. The Director General ICAR, Vice Chancellors of SAUs and other allied organizations including the academies like NAAS, ICMR, NIN have to sit together to prepare a road map exclusively for hunger related issues in the country on top priority, which is a lacuna at present. SWOT analysis on each organization itself is necessary.

V. Rajagopal

Founder President, Society for Hunger Elimination (SHE), Tirupati

LIVING YOUR DREAMS

Indian businessmen do not believe in sitting on their wealth. They would rather go out and buy a plane or two, or an expensive car, or maybe a horse. But here's a look at the lifestyles and interests of the rich and famous businessmen who has a hobby to grow plants, vegetables and do maximum what they can do from the land and for the land.

Mr. Ashok Chaurasia belongs to Delhi. He owns a business of gold jewelry. But his real passion was somewhere else. In the year 2014, Mr. Chaurasia embarked on his real passion – farming. It took off with a modest number of plants. He thus created Biodiversity Park at Palla village in the outskirts of Delhi in an area of 1 hectare. Today his collection has reached a mammoth figure of over 200 plant species which includes various varieties of mulberries, pomegranates, guavas, peach, plums, sugarcane, banana, grapes, variety of vegetables, spices and an excellent blend of fruits, aesthetics, medicinal and soil fertility improving plant species at the farm. In addition to all the crops it was a treat to see figs (anjeer) growing at the farm which is imported in India in large quantities. All the Crops at the farm are grown using natural or organic cultivation methods with no use of chemical, fertilizers or pesticides. Cows of indigenous breeds from Rajasthan state adds to the beauty of the Biodiversity Park, natural compost made from the cow-dung is used as manure for the crops, cultivation practices and inputs used in it are driven from traditional sources and materials.

While planting trees on the roadside Mr. Chaurasia had to face many challenges but his commitment always led him to overcome all the problems. He is always focused



towards his goal and with all his efforts he has converted the area into a green valley. He planted trees on the roadside, imparted knowledge to the farmers and motivated villagers to adopt natural, clean, organic and environmental friendly methods for cultivation. Many workshops are

organized with the support of Dr. S.K. Yadav, Ex-Director, School of Agriculture, IGNOU, New Delhi at the Biodiversity Park for imparting knowledge to aspiring students and farmers. Mr. Chaurasia conducts tree plantation drive and free seeds distribution with the use of only traditional seeds of different crops such as wheat, mustard, bajra, vegetables, rice etc. He has mastered the necessary inputs like land, labour, capital and farm management skills, traditional methods adopted through farming system mode.

By taking the time to stop and appreciate who you are and what you've achieved - and perhaps learning through a few mistakes, stumbles and losses - you actually can enhance everything about you. The Team of Agriculture Today appreciates the initiative taken by Mr. Ashok Chaurasia for extending his hand in the field of agriculture and giving greener touch to mother Earth.



TRANSFORMING INDIA Through Agriculture



Use of fertilizer and
green manure according
to Soil Test Report



Insured crop under
Crop Insurance



Judicious use of
Agrochemical



Adopt New technology
in farming



Rain Water
Harvesting and Drip
& Sprinkler Irrigation



Seed Treatment
and use of
Hybrid Seeds



Safe for Environment
to produce more from
less to more



Commitment towards
doubling the
farmer's income



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AN ISO 9001:2008 COMPANY

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'INDIA - A VERY ATTRACTIVE MARKET FOR SERBIAN EXPORTERS AND SERBIAN GOODS'

Agriculture in Serbia is at the heart of the economy and is an engine for development of rural areas. In 2016, agriculture accounted for 11.9 percent of GDP, 2.4 percent higher than last year, mostly due to very favorable weather conditions and record crops. This high participation in the country's GDP has mostly resulted from Serbia's fertile land and natural conditions for agricultural production, as well as the continued importance of the rural economy to Serbia's population. According to the Serbian Statistical Office, there are 680,000 people employed in agriculture or 21 percent of the total labor force in the country. Agriculture also is the most important export sector in Serbia. In 2016, agriculture and food production accounted for 19.4 percent of all Serbian exports and enjoyed a surplus of \$ 1.4 billion, \$130 million more than in 2015 (mostly due to an increase in processed fruit and vegetable exports). Approximately 60 percent of Serbia's agricultural land is used for cereal crop production including corn, wheat, barley, sunflowers, soya, and sugar beets. During an interaction with Agriculture Today during World Food India 2017 in Delhi, Mr. Branislav Nedimovic, Minister of Agriculture, Forestry and Water Management, Serbia discussed the Serbian way of agriculture and relationship between India and Serbia in the field of agriculture.



Which are the areas in agriculture where India and Serbia can cooperate?

Huge opportunities lie among two countries. Serbia, is first place in export of all kind of berries, since we are well known as high quality berry producers and at the same time India is an extremely large market. In the last two years we have remained as the World's No. 1 raspberry producer.

Nothing less important is the field of mechanization and tractor production, generally investments in

agriculture. We are providing the best possible conditions for new investors. Some very significant Indian companies have already started their business in Serbia, such as Chaudhari group, and as far as I understand, they are very satisfied. About 9 million dollars worth investment has taken place in noodle production. Also, we are very competitive and interesting country for new investors since we have several free trade agreements, such as one with EU and one with Russian Federation. It means that companies from Serbia have an access to a huge market that counts 800 million consumers because of the trade agreements and tax free export.

Are there any MoUs in agriculture between the two countries? What are the potential MoUs the two countries can work together on?

In 2009 Serbia and India have signed a bilateral agreement in the field of agricultural cooperation and affiliated sectors. There is space for signing other agreements such as one in plant protection and plant quarantine field, and I must say that at this moment our ministries and relevant departments are working on it.

How significant is India as a market for Serbia? What is the bilateral trade volume in agriculture and food segment between India and Serbia?

India is definitely very attractive market for Serbian exporters and Serbian goods. Especially when it comes to fruits and vegetables. Unfortunately, we didn't use it as much as we could, and that's why we are trying to overcome the administrative barriers that exist. We brought here our main fruit and vegetables producers to connect them with colleagues from India and to help them understand the needs of Indian market and increase their own competitiveness. In 2016 trade volume was approximately 15 million dollars.

Are there opportunities in Serbia where Indian agribusiness sector can invest upon?

One of the most important reasons why we are here is to attract new investments. Besides livestock production, fruits and vegetables, we are very interested to attract investors in the field of agro-industry. When we are talking about this field of agriculture, during our visit we will have several meetings with some of your top companies. TAFE and Mahindra are just some of them.

How has formation of EU changed the Ser-



bian agriculture and food sector?

The process of EU integration helped Serbia to adjust with the procedures that apply for the territory of EU. By adjustment with EU regulations and improvement of standards, we are enabling and making it easier for Serbian companies to participate in the EU market. We also hope that starting from December we will get access to EU pre-accession funds for further development of our agriculture.

What is Serbia's stand on cultivation of genetically modified food and non food crops?

Serbia has very strict law and regulation on GMO and it has banned not only production of it, but also trade and exchange as well.

What are the reasons behind Serbia's success as a strong agricultural exporter?

Quality, quality and quality of goods. High quality of food with competitive price. That's our huge advantage.

What future does India-Serbia agriculture trade relations have?

We are trying to make the trade relations highly developed through different areas of cooperation. I am an optimist, especially if we take into account that food is becoming very relevant topic and in the years to come it will be just more and more important.

START-UPS FOR INDIAN AGRICULTURE

NEED AND OPPORTUNITIES



India continues to be an agrarian economy, with more than half of its workforce still engaged in farming and almost an equal proportion of the population depending on agriculture for their sustenance. The share of agriculture and allied sector to GDP, though declined substantially from a level of over 50 percent in 1950s, is still at a healthy 17 percent. This is much higher than the global average of 4 percent (World Bank). The agriculture and allied sector is estimated to grow at a rate of 4.1 percent during 2016-17 (Economic Survey 2016-17). Agriculture continues to be the growth engine for the country and it cannot ignore the sector if it has to aim for inclusive growth.

The problems of Indian agriculture and the plight of farmers have always been the topics for debate for quite some time. Problems like small-fragmented land holdings, low economy of scale, low productivity, vagaries of weather, weak linkages, indebtedness, distress etc., have become routine issues with no permanent solutions on offer.

Enhancing productivity and increasing farm income are the major challenges for the policy makers. It is estimated that Indian farmers get only one-third of the final price of a commodity as compared to two-third for farmers in many Western countries. The Union Budget for 2016-17 had proposed an ambitious target of doubling farmers' income by 2022. This calls for multi-pronged strategy and integrated approach.

Despite having diverse agro-climatic conditions, India is yet to utilize its full potential of agricultural production. Low productivity is a major issue, with yield level of most of its crops at 50 percent or below the potential yield. The low yield is attributed to multiple factors such as small-fragmented land, low use of farm machinery, low use of improved farming techniques, poor quality of inputs etc.

Agriculture is one of the riskiest enterprises with its success laying at the mercy of weather. This is particularly true in the case of small

farmers with lack of access to weather updates and related support systems.

There have been several attempts to help farmers to improve their farm output and income. However, the sheer size of the target group and the wide geographical spread make any efforts wanting. There is a need to evolve cost effective models with vast and fast outreach to deliver service to farmers. Due to its unique characteristics, Start-ups could provide viable solutions to some of the key problems of agriculture and the farming community. This would help farmers to enhance their farm output and income significantly, and could catalyse the Government's ambitious plan to double the farm income by 2022.

Start-ups

Start-up means a newly established business. Investopedia defines Start-up as a company that is in the first stage of its operations. Start-ups evolve from innovative ideas which promises potential for upscaling.

Start-ups have ventured into almost every sphere of day-to-day life. Be it shopping, travel, communication, e-commerce, education, health, banking etc., the list is ever-growing. It has emerged as one of the fastest growing business models and it has also transformed the way of doing business. One of the major reasons for the success of start-ups could be the leeway it gives to implement innovative ideas. The advances made in the area of information technology have probably boosted India in making rapid strides in producing start-ups. With over 4,200 start-ups, India has the third largest number of start-ups globally.

Government of India has been playing a proactive role in supporting this new-age business concept. Realising the potential of start-ups in employment generation and business growth in India, especially among the youth, the Prime Minister of India during his independence speech on 15 August 2015 had announced the initiative of Start-up India, which was

followed by unveiling of an action plan for start-up enterprises in India. Some of the major initiatives in the action plan included a dedicated Start-up fund worth Rs. 10,000 crore, exemption from paying income tax on their profit for the first three years, simple exit policy, exemption in patent fee for Start-up businesses, self-certification based compliance system, Innovation Mission to promote innovative ideas etc. According to industry experts, these initiatives would give a big boost to Start-ups in India.

Notwithstanding their phenomenal growth in many other sectors, Start-ups are yet to make a big impact in the field of agriculture. There are a few isolated cases of success. However, looking at the huge size of the cake, much remains to be done to make any perceptible impact on Indian agriculture. The sector needs innovative business ideas, which can offer simple, scientific and cost-effective solutions for the most critical problems faced by the farmers and Start-ups could be the best bet to be there. Start-ups derive their strength through use of information technology to reach out and deliver. Impressive mobile penetration in our country at over 90 percent, even in rural areas, is also an enabling factor for success of any Start-ups as mobile based apps serve as a handy, easy to use tool.

Opportunities for Start-ups in Agriculture

If one has to look for the four most critical links for an Indian farmer to enhance his production and income, it could be the access to information, access to quality inputs, access to farm machinery and access to markets. There is enormous potential waiting for Start-ups to find out innovative ideas to build business models to address these critical gaps.

Access to Information

Huge resources of data and information on latest technology and methods of farming are available with various agencies, both in public and private sectors. The challenge is how to make

them accessible to a large number of small farmers. A Start-up could create an ecosystem for providing the link between the farmers on one hand and the information along with guidance and consultancy services on the other hand.

Land use planning is perhaps one of the most critical areas which decides success of farming. The era of 'farm to plate' has now given way to 'plate to plough'. It is the consumer who decides what to be produced. Therefore, farmers need to be guided about what crops he should cultivate in a season based on information on market demand and other factors. Start-ups can work on data on market demand, consumer preferences, climatic and other factors and provide valuable inputs to farmers on the crops to be grown in a season. By setting up suitable sensors in farmers' fields, data on farm conditions can be captured on real-time basis and transmitted for analysis and suitable solutions. Such sensors can also help to design controlled irrigation. Start-ups can also think of providing complete agronomical solutions.

Adoption of latest and advanced package of practices is the right step towards production and productivity. Both public and private agencies, are engaged in extension and transfer of technology to farmers. However, the sheer size in terms of small farm holdings and agro-climatic diversity have put serious challenges for extension delivery. Start-ups can collaborate with research and extension agencies and reach out to farmers with the help of technology. Extension through mobile app-based short videos can be quite powerful.

Risk mitigation through insurance has not been very effective in India as farmers do not find it attractive considering the compensation and the cost. Weather-based insurance has replaced the conventional crop insurance. Success of risk mitigation depends on analysis of weather data and its application. This is possible only with the help of technology and hence this is another potential area for

Start-up business.

Real time aerial monitoring of farm fields can provide valuable information on the health of standing crop, possibility of any imminent pest attack, status of irrigation, intensity of weeds etc. Start-up on this idea can help farmers in taking timely remedial measures.

Access to Inputs

Timely availability of the right inputs such as seed, fertilizers, pesticides, of good quality at reasonable price is a critical factor deciding the yield. However, this continues to be a weak area for small farmers in the hinterland. E-commerce platforms specifically aimed at agri inputs could facilitate farmers to choose the right input at right price, delivered at his farm place like any other merchandise. This could be supplemented through advisory services on selection of the right inputs.

Access to Farm Machinery

It is estimated that farm mechanisation can reduce the cost of cultivation by 25 percent and raise the productivity by 20 percent, which translates into a net gain of 45 percent to the farmer. However, small land holdings and high cost of machinery act as deterrents for adoption of farm mechanisation, especially by small farmers. Start-up business models could be worked out to make farm machinery available on hire on 'pay-per-use' principle over a technology platform, similar to the hugely popular cab aggregation models through mobile apps. This would make the services affordable for small farmers.

Access to Market

Marketing is another critical link for the farmers. India is now moving towards a "National Agricultural Market" by integrating agri-markets across the country through an e-platform. Start-ups can evolve suitable business models to integrate farmers into National e-Market so as to provide full benefits to the farmers envisaged under this path breaking initiative

of the Government. Start-ups can integrate small farmers into the value chain to benefit both the farmers and other players in the value chain. Models integrating farmers with storage infrastructure can save farmers from distress sale and also help in reducing post-harvest losses.

Issues and Constraints

Though the Government has already come out with a policy to support Start-ups in general, an exclusive policy on Agri Start-ups can attract more number of prospective entrepreneurs to this critical sector. The policy can also spell-out incentives for such ventures.

Viability and success of Start-ups usually hinges on the availability of liberal funding support in the initial growing phase. This comes mainly in the form of venture capital. There is a need to evolve necessary policy initiatives to support agri Start-ups either through Government funding on liberal terms or through private venture funds with suitable incentives.

Conclusion

Start-ups have demonstrated their success by offering simple, efficient and quicker solutions to many problems in day-to-day life, by leveraging the technology and innovative ideas. These domain features have made them successful and popular in many fields. Agriculture sector and Indian farmers face multiple challenges and problems, which calls for simple and affordable solutions. Agriculture sector offers a lot of opportunities for Start-ups to work on to develop suitable business ideas, which can help farmers enhance their farm out-put and increase the farm income. Suitable policy interventions and funding support can incentivise such Start-ups in agriculture.

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ICFA to organize 1st All India Progressive Farmers Convention

Indian Agriculture at 370 billion USD annual produce ranks 2nd in the world, \$ 90 billion more than US. India is today self-sufficient or surplus in all major agri produce except oilseeds. But farmers have hardly gained anything from this. It is time to relook our priorities and policies! It is time to empower them and connect with Govt schemes, trade, technologies and markets. We also need to listen to farmers' success stories and share successful agribusiness models. A message of our care and concerns must go. And sense of pride must be cultivated. It is time to recognise them at the national level. With this aim, ICFA along with AIFA is organising 1st All India Progressive Farmers Convention on 14-15 Dec at Constitution Club, New Delhi. Please participate and support.



Baba Ramdev meets ICFA team

ICFA team including Mamta Jain, Director, Sudhanshu Arya, Vice President and Ankita Singh, Project Manager met Patanjali chief Sh. Balakrishna and Yoga Guru Baba Ramdev in Haridwar and discussed wide range of subjects including GAP certification of Patanjali food products, CSR projects in agriculture and Patanjali partnering with ICFA in hosting Global Food Summit and All India Farmers Convention in New Delhi.



Farmer leaders Meet ICFA

Prominent farmers leader and National Spokesman, BKU, Mr Rakesh Tikait and South Asia Representative of International Farmers Alliance, Mr Yudhvir Singh were received at ICFA to discuss farmers issues and agenda. Dr. MJ Khan, chairman invited them to join All India Progressive Farmers Convention in New Delhi, organised jointly by ICFA and All India Farmers Alliance.



Palestinian delegation arrives at ICFA HQ

ICFA received at its HQ Palestinian delegation led by DG, Agriculture Disaster Authority, Dr. Nasser Jaghoub. The visit was organised by AFRICA-Asia Rural Dev. Organisation (AARDO). ICFA side on the table was led Mr. Anil Sinha, IAS 1974 Batch, and joined by Dr. HS Gaur, ex Vice Chancellor, SBPUAT, NS Randhawa, ED, ICFA and Mr. Vijay Sardana, Chairman ICFA Working Group on Agro Trade. The delegation seeks to learn from India's experiences in agriculture disaster management, including crop insurance.



Agricultural counsellors Meet ICFA

Agricultural Counsellors Forum hosted breakfast meeting with ICFA at hotel Leela in New Delhi to discuss the opportunities in food and agriculture sector and how ICFA could facilitate greater engagement with farmers and agri-industry. The meeting was coordinated by the Embassy of Peru and joined by US, Canada, Mexico, Chile, Japan, Spain, Brazil and 15 other countries.

COMMITTED TOWARDS ENHANCING INDIA'S AGRIBUSINESS COMPETITIVENESS



Rapid advancement in agriculture has resulted in enhanced demand for qualified managers. Indian agriculture today faces numerous challenges with a rapidly changing business environment, pace of technological upgradation, globalization, competitive environment and changing role of government. These challenges have placed unparalleled demands on the capabilities of tomorrow's managers. Agribusiness Management has enormous potential to address key national and global challenges of inclusive growth, and

food and nutritional security. With increasing incomes, the demand for value added agricultural products will also increase, driving the demand for Agribusiness Managers. Increasing integration of World food markets and the expansion of organized retail also imply that the scope of agribusiness is becoming increasingly global.

The Agribusiness Management Education System in India is uniquely placed to meet the demand for professional agribusiness managers across the globe. The common constraints that shackle this sector and prevent the realization of its full potential are a chasm between

positive and constructive interlinking of input, output, marketing and their management.

The managerial skills of meritorious agricultural graduates can be developed through agribusiness management education by academic institutions so that they can prove as effective agribusiness managers in the national and international corporate organizations. Thus agribusiness management professionals have good and ample opportunities of employment or jobs in private, public and cooperative sector. They have opportunities in academic field as agribusiness faculty along with an



INDIAN SCHOOL OF AGRI BUSINESS

alternative of entrepreneurship development. The liberalization policies of the Government and the establishment of WTO have created more opportunities for globalizing our agriculture and this will create an ample opportunity for the agribusiness in the global market.

Why ISAB?

In the field of Agribusiness management education, ISAB boasts of being one of the premier institutions in India, providing a platform for students to further their careers advancement in the field of Agribusiness space.

Agriculture and allied science graduates have invariably faced the difficult task of selecting the right Agribusiness school and the course to study, and they rely on untested, informal advice from friends and family to make their choice. This has been an age-old issue, which has a greater effect as the dynamics of the world and the information therein keep changing constantly. It was to address this social issue that ISAB was instituted with the mandate of providing the most relevant, up to date, accurate and complete information regarding agribusiness management education. Today, ISAB holistically delivers on this vision – of fulfilling a social responsibility towards the youth.

ISAB stands tall in its mission of inspiring future generation of Agri and allied science students aspiring for excellent quality higher education in the domain. ISAB offers a wide gamut of programs in Agri Business and Management. The Institute aims to fulfill its mission by continuing to introduce new programs to groom visionary, competent, committed, compassionate and value-based managers. It empowers the students with the knowledge, skills, and long-term vision that leads to innovation, service to society and growth.

ISAB encourages the students to cultivate learning opportunities beyond the classroom, through various Student Forums. The academic



programs are designed around a “learning by-doing” model that encourages extensive interaction with all components of the ecosystem which serves as a starting point for evolving leadership philosophy and resilient business practices in Agribusiness. Apart from academic activities, the co-curricular activities, sports, cultural and community activities, form important parts of the life of the students.

ISAB has rich support of 300 + agribusiness companies and 20 + Industry associations, 10 + foreign institutions and several Government bodies to make it vibrant and relevant to the global food and agribusiness Industry. ISAB also has an eminent panel of 100+ Corporate Heads. These corporate heads are domain experts who are empanelled to visit ISAB to interact and nurture students on professional skills, business advances and current issues.

ISAB's strengths across diverse Agribusiness management disciplines, backed by an excellent team of faculty and the strong network with eminent Agri sector's organizations, helps deliver the Institute's commitment towards its vision of being a premier Agribusiness management school in India.

Dr Dinesh Chauhan
Program Director
Indian School of Agribusiness
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PRESCRIPTION TO MAKE INDIAN AGRICULTURE PRODUCTIVE, PREDICTIVE AND REMUNERATIVE

OPEN LETTER TO THE PM

India being an agrarian country and agriculture being a State-subject, there is a need for a calculated and balanced approach between the Union of India and the States as far agriculture, in totality, is concerned.

Suggested Steps:

At the level of NITI Aayog:

Centre is often blamed for sky rocketing prices of agri-commodities in the event of crop failures, even though agriculture happens to be a State-subject! A pragmatic approach could be the formulation of 'Annual Balanced Crop Plan' (ABCP) assigning specific production targets to States, crop by crop, taking into consideration the total requirements of the Country. This should be deliberated, approved and allocated to States by NITI Aayog with appropriate budgetary support, followed by monitoring.

In no case, crop production programs in a given State should be based on convenience, taken up in a complacent manner. There must be comprehensive target oriented production plans, meeting major agricultural commodity requirements, locally. NITI Aayog must encourage State Agriculture Departments to allocate irrigated areas to Pulses and Oilseeds, proportionate to mitigating deficiency levels, backed by incentives. The Central Government should come to the rescue of those States where climatic conditions do not favour growing a particular crop, profitably.

At the level of ICAR:

A serious introspection is needed to decide continuity, redefining objectives and aligning goals of over 101 Research



Institutes; 80 All India Coordinated Research Projects (AICRPs) of the Indian Council of Agricultural Research (ICAR-the apex body for agricultural research and education, established way back in 1929, and continues to exist with no major structural reorganization). Though the Dr. R A Mashelkar Committee submitted its recommendations about restructuring ICAR about a decade ago, this has been kept on hold. However, major recommendations may be still relevant. The irony is that, our Country has as many as 73 State Agricultural Universities (SAUs) and half a dozen Central Agricultural Universities (CAUs), all with similar mandates, leading to serious duplication of research and a very thin spread of resources; resources that are critical to the advancement of high-tech R&D to boost return on investment (ROI) and international competitiveness.

To begin with, ICAR may combine the existing individual crop-based research facilities into crop-group

based National Institute considering All Pulses, All Oilseeds, All Cereals, All Spices, All Fibre Crops, All Fruits & Vegetables, All Fisheries, including their respective Technology components, as well as All Animals/ Veterinary Sciences, including Dairy Technology, and All Poultry and Avian Research Institutes, together.

It is important to build a culture of co-existence and partnership with leading private seed industries by sharing knowledge, germplasm and facilities that are unique for development of smart hybrids (with emphasis of non-GMOs first) in major Field crops and Vegetables. Pay more attention on water and nutrient-use-efficiency research to support and prop up rainfed agriculture.

There are acute shortages/misuse of Breeder and Foundation Seeds of recently released varieties resilient to climate changes with inbuilt resistance/ tolerance to biotic and abiotic stresses. During the release of such varieties, it should be made mandatory for the



concerned Institute/SAU releasing such a variety/hybrid, to take up seed production in adequate quantities, using existing facilities created under the National Seed Programme (NSP) and roping-in their own Krishi Vigyan Kendras (KVKs)/Regional Stations. On production of Foundation Seed, the Dept. of Agriculture & Cooperation (DAC), Ministry of Agriculture (MoA) can allocate them to National Level Agencies (NLAs) for Certified Seed production and supply.

At the level of DAC, Ministry of Agriculture, Govt. of India:

Suspend all the routine schemes namely National Mission on Oilseeds and Oil Palm (NMOOP), Mission for Integrated Development of Horticulture (MIDH), National Food Security Mission (NFSM), etc., that are in place since the last few decades, and continuing to exist, just by changing names, but having no matching impact in the target areas. The funds could be utilized where it is needed most in supporting seed production of novel varieties and linking it with ABCP at the State levels.

In the event of the merger of State Farms Corporation of India (SFCI) with National Seeds Corporation (NSC), there should not be 'Test Stock Seed

Multiplication' of newly identified varieties any more under the DAC support. The budget for that purpose should be transferred to concerned commodity Institutes of ICAR/SAUs so that enough seed is produced for Minikit/ Front Line Demonstrations under the centrally sponsored schemes. This will help in promoting new/novel crop varieties released in the last 5 years, and thereby enabling farmers to realize higher yields, even under the adversities of climate change.

The NSC, wholly owned by DAC, MoA must stop purchasing seeds from open markets through a tendering process, often based on L1; this is the single biggest contributor to the gradual destruction of Indian Agriculture. Similar practices must be stopped with other NLAs for seed production and supply.

Present Seed Certification System, as practiced and endorsed by the DAC, MoA, is the biggest menace in Indian Agriculture (in fact could qualify as a scam of the highest order), which was documented and submitted to Joint Secretary (Seed) and Secretary Agriculture, DAC, MoA with facts and figures, State by State, for initiating corrective measures, a year back. Appropriate corrective measures must

be initiated without further delay.

Equip the Food Corporation of India (FCI) with modern warehouses, silos to store food grains and food legumes, thereby avoiding wastage and compromising quality, with other logistic support.

Move towards corporate agriculture by clubbing small-farm holders and dry-land farmers, and offering major stakes by roping in leading agri-business houses namely, Reliance, Godrej, Tata, etc.

Support State level Agro Industries Corporation for manufacturing of small agricultural tools like improved "ergonomic" sickle & spade, seed drill/planter, weeder, thresher, decorticator, sorter/grader, etc., following approved designs and involving local manufacturers, to be supplied to farmers.

Development of Watershed, in a mission mode, in rain deficient areas to recharge existing open wells, and to raise the level of aquifers. Also support land configuration for harvesting rain-water to mitigate moisture stress.

At the Joint Levels of Ministry of Agriculture and Ministry of Commerce:

Discourage private market players from

unnecessarily importing important agri-commodities for personal gains, particularly in Pulses and edible Oilseeds, by raising the import duty. It is essentially required to ensure good crop prices for Indian produce, and in the best interest of the farmers. It will also serve as a confidence building measure by ensuring procurement and offering special incentives. Such steps may lead to achieve sustained self-sufficiency in Oilseeds and Pulses sector.

Money spent by DAC for promotion of organic agriculture will be a colossal waste unless the area converted to C-4 and certified by Agricultural and Processed Food Products Export Development Authority (APEDA) are further utilized for production of organic food and exported, besides marketing locally.

At the level Ministry of Food Processing Industries, Govt. of India:

Harvest and post-harvest losses in major agricultural produce is estimated at Rs.92,600 crores annually. Similarly, losses in fruits and vegetables are close to Rs.40,8000 crores. Unavoidably, matching investment is desperately needed for post-harvest storage infrastructures. Services in pre-conditioning, pre-cooling, ripening, packaging, labelling, etc. should be made available. Developing cold chains and quick transportation systems to save perishable fruits and vegetables, and constructing "accessible" cold storages in large numbers for different crops in strategic areas and Involvement of Council of Scientific and Industrial Research (CSIR) Institutes namely Central Food Technological Research Institute (CFTRI) and National Institute of Nutrition (NIN) in developing Nutri-Foods products using traditional nutrients (kodo, quinoa, quality protein maize, etc.), and their appropriate commercial manufacturing processes for value-addition through inexpensive technology, primarily targeted towards the malnourished sections in the society are necessary. However, given the recent trends in Food & Nutrition, premium lines can also be developed



for health conscious, middle to high income groups, which will make this venture profitable, while subsidizing the low-income groups.

Special package for landless tribal farmers

Some cash incentives along with seeds of moringa, tapioca, elephant foot yam, sweet potato, vegetable (climbers) for backyard cultivation, besides a pair of goat/sheep, half a dozen poultry birds, and kits for rearing honeybees may be provided. Scheme for skill development of Tribals for processing of local forest products may be launched. CSR Funds may be utilized for the purpose.

In the Areas of Food Adulteration

Literally, the Country is physically sick due to adulterated food, condiments, beverages, synthetic milk, milk-products, in addition to the malpractices of hoarding of pulses and other essential commodities aimed at creating artificial crisis and leading to skyrocketing of prices, thereby depriving access to food to millions of middle/lower middle class people. Such sinister acts must be stopped by bringing in appropriate legislations

and, if required, deploying civil defense forces to win over this war that is silently killing our countrymen.

Needless to say, every Government must adopt a pragmatic, down to earth approach to meet basic needs of Rural India and save millions of malnourished smallholder farm families, the lower middle class, and the landless half-starved people living below poverty level, who are subjected to untimely death, often by committing suicide.

I am asking on behalf of millions of my countrymen for these urgently needed reforms in Agriculture as a sector, because I know the Honorable Prime Minister has the will, courage and the utmost determination to deliver!

M S Basu, Ph. D

Ex Director ICAR,

Visiting Scientist (Model Seed System Development) ICRISAT (CGIAR) &

UNIDO International Consultant on Aflatoxin Management, Malawi (Africa)

Founder Consultant, HIL Seed Division, Govt. of India Enterprise. Independent Consultant to Business Planning & Development (BPD) National Agricultural Innovation Project (NAIP) -Funded by World Bank

BOLSTERING AGRI BUSINESS

URGENT NEED TO CHANGE THE TRADITIONAL ROUTE

“Agri-business is the sum total of all operations involved in the manufacture and distribution of farm supplies, production activities on the farm, storage, processing and distribution of farm commodities and items made from them” (John David and Gold Berg). Actually, it is of recent origin. Agri-business as a concept was born in Harvard University in 1957 with the publication of a book “A concept of Agri-business”, written by John David and A. Gold Berg. It was introduced in Philippines in early 1966, when the University of the Philippines offered an Agri-business Management (ABM) programme at the under-graduate level.

Asian Experience

Myanmar’s mango is a good example on this score. Mango season runs from April to July and the fruit is mostly exported to China via border trade, with other small shipments also reaching Malaysia, Singapore and Thailand. The most popular variety – sein ta lone (diamond) – is mainly grown in Mandalay Region and southern Shan State and has earned a good reputation internationally.

The market is a tremendous one, but a number of problems inherent stand in the way. Myanmar can only meet about ten percent of the demand because it doesn’t produce enough high-quality fruit. Not only Myanmar, most of these economies suffer from traditional approach. Such economies could export significantly more mangoes if it lifted its quality and value-added the product. Markets like Japan only want fruits that have been carefully processed.

Re-exporting is another area by which others reap the benefit. China, Singapore and Malaysia buy mangoes from Myanmar, processes them and then re-exports the finished product.

Transportation problems are very common on this score. Farmers try to save money by overloading mangoes when they transport them, which damages the fruit and reduces their value. Besides, farmers also pick the fruit before they are fully ripe. Farmers sometimes rush to harvest their crops when they hear a good



price was available. Inadequate cold storage facilities have been another bottleneck. Actually, the industry needs capital investment to develop processing factories and better transport networks.

So far Bangladesh is concerned agricultural trade has been an important contributor to improved food security and price stability. Efforts are on there to expand the scope of international trade in agricultural products. Bangladesh has been successful in exporting cereals and high-value products [e.g. shrimp and fish] in part as a result of preferential trade agreements. Policy reforms backed by investments could further enable Bangladesh to bolster exports in these areas while meeting relevant quality and safety standards, among others.

India’s agro-business has been

registering good upward swings too, among other Asian nations.

Africa: Coming Up?

Examples are not difficult to locate so far as Africa is concerned. In Ghana, cocoa plays the dominant role. World cocoa production was around US\$ 10 billion. Ivory Coast, the world's leading producer of cocoa with 2.4 Mha under cocoa, and Ghana, the second after Ivory Coast (1.5 Mha) between them produce around 53 percent of the world's cocoa. More than half of the world's chocolate comes from the cocoa plantations of Ghana and Côte d'Ivoire, where hundreds of thousands of smallholder farmers supply lucrative fair-trade markets in developed countries. Ghana produces high-quality cocoa that earns a premium price on the world market. Cocoa is an important cash crop in some such economies - contributing 7.5 percent of GDP in Côte d'Ivoire and 3.4 percent in Ghana in 2008. It accounts for as much as 70-100 percent of household incomes of cocoa farmers in Ghana.

Ghana, though is on track to achieve its one million metric tonnes of cocoa target in the last quarter of the year, yet will face some gloomy days ahead. Increasing temperatures will lead to massive declines in cocoa production by 2030 in Ghana and Cote d'Ivoire, both in West Africa.

The CIAT's [Colombia-based International Centre for Tropical Agriculture] new report - the first of its kind into the likely effects of climate change on cocoa production in the region - anticipated that areas of cocoa suitability will begin to decline by 2030, as average temperatures increase by one degree Celsius. It also disclosed that an expected annual temperature rise of more than two degrees Celsius by 2050 will leave not only Ghana, but many of West Africa's cocoa-producing areas also too hot for chocolate. Warmer conditions mean the heat-sensitive cocoa trees will struggle to get enough water during the growing season, curtailing the development of cocoa pods, containing the prized cocoa bean - the key ingredient in chocolate production, according to the report.



By 2050, a rise of 2.3 degrees Celsius will drastically affect production in lowland regions, including Western and Brong Ahafo. Cocoa trees are expected to struggle as the region's dry season becomes increasingly intense.

Over a third of Ghana's economy is agricultural. Products range from bananas, cassava (tapioca), cocoa, coffee, corn and peanuts to timber. Two of Ghana's major exports, gold and cocoa, enjoyed unprecedented high prices last year. In addition, Ghana experienced a record bumper crop of cocoa. These factors helped increase Ghana's exports. Ghana now plans to boost its exports by selling cassava, textiles and palm oil in foreign markets. Ghana's economic and trade health depends on whether it can maintain its robust export growth at a rate that exceeds oil price increases. This is more likely if gold and cocoa prices stay high, and if Ghana can introduce more of its products and services to foreign markets. Cocoa has to continue with its vital contributions.

In a summarized form we can jot down that agri-business involves three sectors: Input sector: It deals with the supply of inputs required by the farmers for raising crops, livestock and other allied enterprises. These include seeds, fertilizers, chemicals, machinery and fuel; Farm sector: It aims at producing crops, livestock and other products and Product sector: It deals with various aspects like storage, processing and marketing the finished products so as to meet the dynamic

needs of consumers.

Therefore, Agribusiness is de facto sum total of all operations or activities involved in the business of production and marketing of farm supplies and farm products for achieving the targeted objectives.

FAO has rightly opined: 'the 1990s saw a decline in the growth of world cereal consumption. This was not due to limits in production capacity but rather to slower growth in demand, partly caused by exceptional and largely transient factors. Growth in consumption will resume, leading to growing dependence on imports in developing countries. The potential exists for traditional and new exporters to fill this gap, but problems of food security and environmental degradation will need to be addressed.... Cereals are still by far the world's most important sources of food, both for direct human consumption and indirectly, as inputs to livestock production. What happens in the cereal sector is therefore crucial to world food supplies. Since the mid-1960s the world has managed to raise cereal production by almost a billion tonnes. Over the next 30 years it must do so again'.

Tremendous scope to forge ahead!!

Dr B K Mukhopadhyay,
A noted Management
Economist, an
International
Commentator on
Business and Economic
Affairs and Professor [Management],
ICFAI University, Tripura



BABY CORN

A GOLD MINE OF OPPORTUNITIES

It's not about ideas. It's about making ideas happen. Enormous innovations are happening in farm sector as Baby corn, Sweet corn and Mushroom entrepreneurship is flourishing in Aterna, Manoli, Pubsera villages of Sonapat district in Haryana. The farmers here have started innovative farming models, processing and forward linkages, including export of these crops. Being an entrepreneur is a way of life and a way of looking at the world. An entrepreneurial farmer makes farming decisions in a complex competitive and collaborative environment. Dr. SK Chauhan, Chief Technical Officer (Horticulture) at H.Q., Krishi Bhavan, New Delhi took the initiative of introducing hitherto unknown crop of Baby corn during 1998 in Aterna village. Through a seminar, "Farmer-Scientist-Industry interactions for organic production of Baby corn and Mushroom", which he had organized in the farm of a progressive farmer, Shri Kanwal Singh, he was able to instil the idea of a new crop and was able to motivate the farmers in the village to take up its cultivation. Since then his efforts were directed towards finding suitable varieties/hybrids of Baby corn for the area. Further, setting up of a Baby corn "Canning Unit" by Kanwal Singh, engendered a new revolution. For Aterna with depleting groundwater level, baby corn proved to be a boon. In an interaction with Agriculture Today, Dr. Chauhan throws light on how an ordinary village created its own revolution.



How different are the cultivation practices of Baby Corn from that of normal corn?

The cultivation practices for baby corn are simple and almost similar to that of ordinary maize, except harvesting of its green cobs will take place within 2-3 days of their silking i.e., at a very young stage. Hence it is a short-duration crop which takes 50-70 days for cultivation and harvesting. Standard dose of compost and urea are sprayed on the field. The outer green husks are removed and the de-husked baby corns are properly packed in thermocol trays, covered with cellophane sheets and which are then ready to be send to markets. Additional benefit with the production of baby corn was that the green fodder from the crop increased the milk production of cows by 20-25 percent. The pesticide free cow dung of the cattle formed a good base for Vermicompost, which further added to the soil fertility and crop health. The baby corn had thus improved health of human, cattle, soil and environment and brought prosperity and happiness to farmers.

How Baby corn farming was better than rice, wheat and paddy cultivation in the villages?

Continuous rice-wheat cropping system in the village had led to several problems like depletion of underground water and soil health degradation. It was time to diversify the cropping system to make it more remunerative to the farmers. Baby corn was a good option for crop diversification as it suits peri-urban agriculture. Being a short-duration crop of 50-70 days during kharif, two crops of baby corn could be cultivated which will not only increase the income of the farmers but also maintained good soil health.

How cultivation of Baby Corn affected the economic



condition of the farmers?

Initially the cost of cultivation was quite high due to high-cost of imported seeds from Thailand which amounted to Rs.250-300 per kg. But with the introduction of hybrid HM 4 by Haryana Seed Development Corporation (HSDC), the seeds are currently supplied at Rs.60-75 per kg, making it more economical for the farmers. The farmers started earning an income of Rs.200,000/- per hectare per annum. In addition, it also makes the availability of green fodder round-the-year for their milch cattle.

What are the market prospects for baby corn?

Baby corn can be marketed as fresh husked and de-husked young cobs, canned products and pickles. It is mostly cultivated in Asian countries like Thailand, India, China and Taiwan. Its consumption in Asia is the highest in the world. Now, its area under cultivation and markets are expanding worldwide, especially in Asia, Africa and South America. Asian countries like Japan and Malaysia are importing it. Most of the baby corn growers sell their produce to local markets. But an effective market chain is already in operation for the marketing of baby corn in

India. Farmers of Aterna village sell their major portion of produce to Azadpur Mandi and huge part of it is also exported to other countries.

How has baby corn changed Aterna?

In one and a half decade, not only Aterna but also its surrounding villages, Manoli, Khurampur, Bhaira, Jaati and Sersaha, have turned to baby corn cultivation. Baby corn farming has provided employment and financial security to the villagers. Around 1,200 farmers of Aterna and its surrounding hamlets cultivate baby corn, and their families are engaged in de-husking, packaging, transporting and in allied activities. It has proved to be a money spinning crop for the farmers. Mr. Kanwal Singh has now set up a small processing unit in Aterna for canning baby corn, sweet corn, mushroom, tomato and other fruits. He procures the produce from other farmers and can these crops in his unit for further marketing. Through his hard work, he has not only changed his life but also has provided encouragement to other farmers besides empowering women in the area. He has received several awards from the government of Haryana and ICAR for diversification of agricultural crops.

INDUSTRY – FARMERS PARTNERSHIP – WORKSHOP ORGANIZED BY AYURVET

Ayurvet Research Foundation is committed to undertake research and development initiatives towards quality, safe and healthy food for livestock and human being. Ayurvet works with cooperation and in partnership with farmers not only ensuring better sustainability of farming community but simultaneously taking into account significant role and importance of environment.

Industry- Farmers Partnership holds key to boost farm income and prosperity. Under the PM's vision of doubling farm incomes, increasing productivity is one of the seven major strategies. However, we find farmers putting almost 90% time, energy and investment in productivity improvement only. Dr. M.J. Khan on 11th November, 2017 addressed 300 odd farmers in workshop organized by Ayurvet Limited at their animal feed factory near Panipat in Haryana and was honored by Ayurvet Managing Director, Sh. MJ Saxena. He addressed farmers on doubling farm income and requested farmers to look into all five areas which can add up income such as reducing the cost of production, saving pre and post-harvest losses, farming diversification in a farming systems approach, value addition through value chain development and better market connect, packing and branding to fetching better part of consumer spent. The workshop was organized for the farmers to take best from the expert's knowledge, get the solutions for the problems faced in the fields and increase awareness



of farmers about latest agriculture technologies and livestock practices.

Dr. Khan further elaborated on the concept of reducing cost of production by optimum tilling and optimal use of water, seeds, pesticides, fertilizers by adopting new technologies. For example, the old concept of more ploughing to get best wheat crop is no longer scientifically supported. In fact

zero-till saves cost and bio-resources. Flooding the field for rice yields is not scientific as the crops need moisture and not flooding. Similarly top-dressing of fertilizers is not only wastage of money but also causes environmental damage. We need to learn new management practices to get the best from the land.

In the workshop many farmers were given token of appreciation for their hard-work, using best quality seeds and adopting eco-friendly measures of farming. Large number of women participated in the workshop showing the zeal and enthusiasm among the farmers in the farming community. The workshop was a great success as the farmers benefitted from the workshop with the ultimate goal of 'Science for a better life and creating sustainable solutions'.




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AGRICULTURE
TODAY

POLLUTION

WHAT GOES AROUND COMES AROUND !



The Festival having turned the corner, this leaves behind a puzzle of sorts.

So much written on, debated, argued as regards to Air Quality and now seen! (PROMINENTLY DELHI GASPING, currently). The word on water quality is yet not final! That such would make one trustingly view that all, as concerned individuals come to see the role they could possibly play, collectively, to harness the potential of the collective, drop by drop.

Soil Quality is not much and maybe, only lately now spoken about in our Country. In a nation where 'health care' means 'disease cure' with precious little legitimate health promotion, the same applies for soil

also. The promotion of soil health is not in the myriad of products one can buy. It is in the things that one does, the health promoting practices that one does, holding the core truth in mind: while soil chemical, physical

and biological characteristics are all important, the greatest from these and amongst the most responsive, is biological.

Tending to this microbial life means allowing nutrient rich food



from cover crop, compost and crop residue, good water infiltration, little erosion, ample air through improved drainage, reduced tillage, judicious use of nutrients and NOT KILLING THEM WITH PESTICIDES AND FUNGICIDES ! (AND STUBBLE BURNING A FIT CASE FOR BAN !)

Combination of bad air, water and soils is lethal; our crops and food also survive the same debilitating effects because of the inter connectedness that is undeniable (and moves up the food chain). Food differs on a nutritional basis in how it was raised.

Add to that all the fertilisers, pesticides, fungicides, herbicides that goes into their growing and then imagine what the human and animal is ingesting, as on date! Words ending "cide" also include homicide and suicide..killing! (STUBBLE BURNS CROP RESIDUE AND WITHIN IT CHEMICALS APPLIED ADD TO THE PROBLEMS !)

Simply "organic" means nought as the consumer has no way of knowing the truth behind it. Equally at risk is the grower who would generally not know the health aspects of his produce (having being trained, knowingly or unknowingly that only yields and price matter and nought beyond !)

A simple and reliable tool is a BRIX read. Herein the burden of growing healthy crops and building healthy soils falls on the farmer...Jai Kisan ! In a sense what the teacher and teachings do to a people the farmer and his harvest does to health of a community and nation.

The destructive insects represent plight over ground for the crop / plant. How to repel these without causing more problems? The idea is that a healthy crop would ably defend itself against the nature's onslaught, by way of insects and pests. It is observed that additional sugar in plant tissue is generally co related with fewer issues of insects and pest attacks. Plants having a



The use of refractometer by farmers which enables measure sugar content of a plant, in degrees of BRIX demonstrates the strength of plants and validate that beautiful bugs are Nature's demolition squad against low energy plants

higher level of sucrose and those that are vigorous emit wavelengths of energy that do not attract pests. This can come about (as in case of humans) by good and balanced soil diet, which soil life can help make. Chemical treatment can cause imbalance and toxicity.

The use of refractometer by farmers which enables measure sugar content of a plant, in degrees of BRIX demonstrates the strength

of plants and validate that beautiful bugs are Nature's demolition squad against low energy plants.

This is perhaps the most practical tool to evaluate, on site, the produce quality. Farmers across areas have noticed and correlated their readings with observations to insects infestations, mineral content, shelf life, vigour and chemical contamination etc.

An enlightening experience of sorts and cosmetic visual signs are oft discarded. Closer to bigger picture ?

The Agriculture experts and a host of ancillary that are there to guide and assist farmers across the Country may find it well worth their time to teach the practical use of this inexpensive tool to growers of crops. Soil fertility needs could also be worked out from these readings amongst others.

To borrow the essence voiced as in the advertisement , below, "mitti ki jaan "must flow into crops and into human and animal health. The cycle which organically existed must be so seen and brought into perpetual play !



Ashok Trivedi,
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FINDING THE VALUE CONVERGENCE IN FARM-TO-FORK (MARKET LINKAGE) AGRI-START-UPS

Let's start with the story of the humble tomato. What did you pay for the last tomato you bought? Rs. 25/kg? And what's the highest price you have ever paid for a tomato? Rs. 85/kg? Why does this happen? And more importantly....

Who pays the Price?

Typically, an intermediary acquires tomato from a farmer at ~INR 4 per kg. After changing hands through 5 or so intermediaries, it reaches the customer at ~INR 20/kg, with a 1–10% margin at each point between them. The questions to ask are:

- Will the customer pay for increased premium in price when rain plays spoilsport and damages tomato crops?
- Can a farmer be expected to absorb the loss? At what cost?
- How can a startup operating in the farm to fork model actually find the right opportunity to solve in this situation across commodities?

As a farmer and investor myself, this post is an attempt to understand the dynamics that have created this situation, and an attempt to find the value convergence point for all stakeholders in agriculture.

The Farmers' Side of the Story

Labour shortage: One of the biggest challenges in recent years in farming has been labour shortage—farm hands are fewer and the average age of farm labour is 45+. Paradoxically, while we say there are insufficient

employment opportunities in a country like India (5 million jobs have to be created every year), farming as a sector is experiencing distress for lack of labour. While there are companies trying to use technology to improve farm productivity, it does not solve the other big challenge farmers face – Pricing.

Pricing: Farmers are the only set of entrepreneurs who are not able to set a price for the commodity he/she is producing! If the supply of any commodity increases, there is a glut in the market and consumers enjoy low prices, which are unviable for the farmer (the Government has fixed Minimum Support Price (MSP) only for certain commodities.) On the other hand, if supply is low in the market and the price of the commodity increases, we would expect farmers to benefit due to

increase in profit; not so, as the government generally pitches in to save the consumer and shield prices (e.g., Onion last year and Tomato in recent times). Either way, market-based model or state-sponsored model, the farmer takes a hit on earning.

The unsolved opportunity

Of all the challenges faced by farmers, appropriate pricing, rather than productivity of a commodity is the single largest driver that makes or breaks a farm. For instance, a farmer produces 100 kg tomato and sells at INR 4 per kg, earning revenue of INR 400. On the other hand, when the same farmer produces only 50 kg of tomato and sells at INR 10 per kg, he earns a revenue of INR 500. Fair price for commodities is the area that most farmers are seeking support in.





Start-up entrepreneurs in agriculture should use this as an opportunity to create business models.

The Entrepreneur's Side of the Story:

Many start-up entrepreneurs in agriculture can relate to this gap between the price farmers are selling his produce (to intermediaries) and the price paid by consumers in urban areas. For instance, farmers sell milk at INR 20 per liter whereas an urban consumer buys milk at INR 44 per liter. The price difference ranges from 50% to as high as 500%.

Start-ups who try to eliminate the intermediaries in the supply chain try to pay the farmers a fair price while offering customers produce at high quality but at a low price. The forgotten link in this equation is the fact that when the commodities change multiple hands from farmer to consumer through intermediaries, there is not a lot of value addition taking place. Intermediaries do not invest in any infrastructure



(washing, sorting, grading) and their costs are low. On the other hand, a company working in this space will have to set-up infrastructure (base procurement centre, cold storage and other grading facilities)—escalating costs, fixed sales price and margin pressure.

While market linkage (farm to fork) is a great opportunity, it is important that entrepreneurs identify the nature of value addition that a consumer will be willing to pay premium for. When the nature of value addition is primary processing (sorting, grading) margins are likely to be thin; on the other hand, companies that are in

secondary and tertiary processing (example: Milk converted to Paneer, Pro-biotic Yogurts, Milk powder, Potato converted to Chips etc.) have scope to operate at reasonable margins.

So, an agri start-up in the value chain (farm to fork) should look for those areas/ commodities

a) which are unorganized (farmers disconnected from end consumers)

b) where customers pay for value addition

c) the value bridge between farm to fork is high (farmers can be paid premium as well as company can get better margins) before choosing the commodity.

This is the value convergence point at which a company can operate profitably, positively impact farmer incomes (in line with the Governments' vision) and create quality products for consumers.

AB Chakravarthy,
Agriculture sector expert,
Menterra Venture Advisors



NONGTHOMBAM BIREN SINGH

FROM FOOTBALLER TO POLITICIAN

A footballer turned politician, Nongthombam Biren Singh single handedly destroyed the Congress bastion in Manipur and created the first ever Bharatiya Janata Party Government of Manipur. Praised as affable and a very accessible person, Shri Singh has made friends cutting across political parties and social spectrum. With an agenda to not only to reform but to transform Manipur, the land of Jewels, Shri Singh has embarked on an uphill task of bringing growth and development to the state.

Nongthombam Biren Singh, was sworn in as the Chief Minister of Manipur on 15 March 2017. A former footballer, Shri Singh served in the Border Security Force.

Born on 1 January 1961 and hailing from Luwangsangbam Mamang Leikai, a rural area in Imphal East district, Shri Singh graduated from Manipur University in Arts. He began his career as a footballer and got recruited in the Border Security Force (BSF) playing for its team in domestic competitions. Later, he resigned from the BSF and turned to journalism. Despite the lack of formal training and experience, he began the vernacular daily Naharolgi Thoudang in 1992 and worked as its editor till 2001.

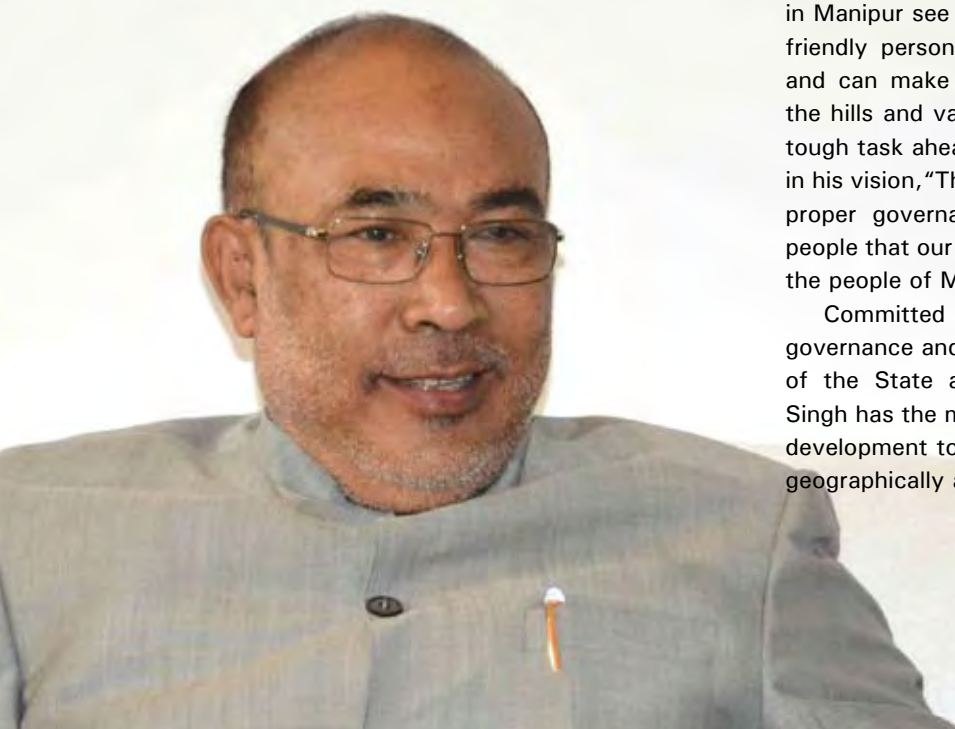
His years in journalism confronted him with the issues the hill state was facing and soon he was taken into the fold of politics. His political career began in 2001, when he along with other leaders, started the Democratic Revolutionary People Party. In 2002, he was elected to the Legislative Assembly of Manipur, as the Democratic Revolutionary Peoples Party (DRPP) candidate in the constituency, Heingang. Realizing the true potential of Singh, he was invited to the congress party. He joined the Congress party in 2003 and was handed the portfolios of Irrigation and Flood Control along with Youth Affairs and Sports. In October 2016, Biren resigned from the Manipur

Legislative Assembly and the Manipur Pradesh Congress Committee (MPCC), and formally joined the BJP on 17 October 2016 and later became the Spokesperson and Co-convenor of the Election Management Committee of BJP Manipur Pradesh. He won the 2017 Manipur Legislative Assembly Election from Heingang Assembly Constituency. In March 2017, he was elected as leader of the BJP Legislature Party in Manipur and with a majority of MLAs having been presented to the Governor, he was sworn in as Chief Minister of Manipur on 15 March 2017. He created history by becoming the first ever BJP Chief Minister in Manipur.

Familiar with the fragile ecosystems of the region, he believes in maintaining ecological balance to ensure sustainable development. He had vowed to protect the agricultural lands and wetlands of the state considering the continuous shrinking of paddy lands and wetlands at an alarming rate. He is also considering ways and means to introduce the practice of double-cropping in the state and improve irrigation. Also under serious considerations are steps to stop unnecessary acquisition and encroachment on agricultural land. Reaffirming the State Government's determination and efforts to preserve and protect the endangered Manipuri Pony breed, the CM has taken the initiative to develop more habitations in various areas for Manipur ponies to breed to raise their population to healthy levels.

Politicians and people cutting across party lines in Manipur see Mr. Singh as a very accessible and friendly person. He is also popular in the media and can make friends easily among people from the hills and valley. But Mr. Singh is in for a very tough task ahead of him. But he remains steadfast in his vision, "The roadmap for me will be delivering proper governance to the people. I assure the people that our team will bring good governance to the people of Manipur,"

Committed to transparent, corruption free governance and equitable development of all areas of the State and sections of the Society, Shri Singh has the mammoth task of bringing in holistic development to a region that presents a challenge geographically and demographically.



“I think that with improved water management, Bihar may emerge as the harbinger of the next ‘green revolution’ in the country”

RAM NATH KOVIND
President



“Private sector participation has been increasing in many segments of the value chain. However, more investment is required in contract farming and raw material sourcing and to create agri linkages. Many international companies in India have taken a lead in contract farming initiatives. This is a clear opportunity for global supermarket chains to consider India as a major outsourcing hub”

NARENDRA MODI
Prime Minister

“The time has come that food processing goes to the farmers and actively engages with the farmer and takes technology to them”

PIYUSH GOYAL
Union Minister for Railways and Coal



“The organic farming has become a national and global requirement for providing nutritious food to people as well as to maintain sustainable production and soil health”

RADHA MOHAN SINGH
Union Agriculture Minister



“If we do not go organic, our future will not be safe”

PAWAN CHAMLING
Sikkim Chief Minister



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