

# AGRICULTURE The National Agriculture Magazine TODAY

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## AUTOMATING THE NEXT AGRI REVOLUTION





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**Asstt. Editors** Sanjay Kumar  
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 Punjab SS Virdi  
 Bihar Gautam Kumar

**Business Manager** Perna Singh  
 9910621421

**Circulation Incharge** Mukesh Kumar

**Layout & Design**

**Graphic Designer** A. Rehman

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**Editor Dr. MJ Khan**

**E-mail:** editor@agriculturetoday.in  
 business@agriculturetoday.in



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 contact us at  
 the above  
 addresses!**

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*From the Editor's Desk*

## The Mechanical Advantage



India's farm labour was one of the success factors that propelled the country's agriculture towards development in its formative years. But recently, the situation had in fact reversed. The rural workers in search of better job prospects and employment are migrating to urban centers. The exodus of farm workers has created a void in terms of manual labour and the Indian farms are embracing the next best option, Mechanization.

Agriculture mechanization, in Indian situation, thus emerged out of a dire situation of coping with labour shortage. In India, farm mechanization was mostly tractorization. The Indian farmers were far more enthusiastic in acquiring tractors than other types of farm equipment. This probably justifies the expansion of tractor industry which has grown substantially, reaching a production capacity of over 500,000 machines a year, the power tiller sector has remained under-developed at only about 30,000 units annually. Low level of awareness regarding the existence of such equipments, their limitations in on-road use and their ergonomic constraints explain their poor popularity.

Farm mechanization being a costly affair and considering the farmers' resistance to adoption of new technology in their age old profession of agriculture, the government, through a slew of supportive measures have supported the promotion of machines in agriculture. Subsidies, Farm Machinery Training & Testing Institutes, State Agro Industries Corporations and Sub Mission on Agricultural Mechanization (SMAM) have engendered a positive outlook for mechanization in Indian farms.

India despite being agriculturally inclined has sparingly espoused the benefits of mechanization. This would be an opportune time to embrace agri mechanization as the labour charges are spiralling and employing manual labour is no more economical. The overall farm mechanization in India has reached only about 40%, when compared to 95% levels in advanced countries. This leaves enough scope for mechanization in India.

Farm mechanization helps in timely completion of various farm operations which also works in favour of proper utilization of soil moisture for multiple cropping. Multiple cropping can increase annual agricultural production from a particular piece of land increasing the profitability of the farmers.

Agricultural operations are usually labour intensive and the current scenario of spiralling labour costs and receding labour force are making farm mechanization an unavoidable choice. Besides, mechanization reduces time and expenses of farm operations reducing the overall cost of production. This encourages farmers to expand their farmland in comparison to farmers using animals for farm operations. The farmers can compete better in the market with reduced cost of production.

Although farm mechanization offers number of opportunities, there are many number of challenges that need to be sorted out if farm mechanization has to unleash its true potential. One of the biggest challenges to farm mechanization in India is the presence of large number of small and fragmented land holdings which makes operations by large machines difficult. So we need to develop custom made machines that can fit into Indian conditions.

The limitations that exist in the expansion of farm mechanization in India needs to be dealt with immediately. As we aim to produce more food in the future, the options that help in this objective should be fervently pursued and implemented.

**Dr. MJ Khan**

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**Tom Vilsack**

Secretary, U.S. Department of Agriculture



## Indian Institute of Management, Ahmedabad EXECUTIVE EDUCATION PROGRAMME

### AGRICULTURAL INPUT MARKETING

January 11-16, 2016

This programme provides the participants with an overview of principal concepts and tools of contemporary marketing management of agricultural inputs from market environment analysis, segmentation, and product positioning to the design of distribution channels and communication strategy in order to maximize the value to customers. This programme is designed for Executives/Managers/Officers dealing with marketing of agricultural inputs such as seeds, fertilizers, crop protection products, farm machinery and equipments, feeds, and environment-friendly products like bio-inputs.

**Faculty Chair : Prof. Vasant Gandhi**

**Fees: Rs.1,00,000**

### MANAGING CONTRACT FARMING

January 25-29, 2016

Managing Contract Farming is been attentively viewed by agribusiness firms and government as a tool for managing raw materials, to develop markets, transfer technology and provides inputs including credit to small farmers. The objective is to develop a broader understanding of the concept and develop skills in designing and implementing contract farming programmes on a sustainable basis. Indian Institute of Management, Ahmedabad had conducted studies on contract farming and fresh food supermarkets to document the experiences of firms and farmers. This programme is an effort to share those experiences with the executives associated with contract farming and procurement activity.

**Faculty Chair : Prof. Sukhpal Singh**

**Fees: Rs.90,000**

### RURAL MARKETING

February 15-19, 2016

Rural markets are gaining importance in emerging economies. A large number of businesses are involved in the marketing of various products in the rural areas of India and elsewhere. The main objective of this programme is to develop a strong foundation of applied knowledge, concepts, approaches and analytical skills in the participants for successful marketing of products and services to rural consumers and users. This programme is meant for Senior and middle level managers/executives/officers handling rural market functions like distribution, product planning, test marketing, new market exploration or those assigned to develop their company's existing market further in rural areas across FMCG, service, and non-farm products. Executives from companies/NGOs exploring new rural markets or trying new products in rural markets or marketing rural food/non-farm products in urban markets will also find this programme useful.

**Faculty Co Chairs : Prof. Sukhpal Singh and Prof. Vaibhav Bhamoriya**

**Fees: Rs.90,000**

**For more information, contact: Officer (Executive Education), IIM, Ahmedabad**

**Phone: +91-79-6632 4072, 73-77, Fax: 91-79-2630 0352**

**email: [exed@iimahd.ernet.in](mailto:exed@iimahd.ernet.in) • [www.iimahd.ernet.in/exed](http://www.iimahd.ernet.in/exed)**

## Fake Organics

*Most of Indian organic products sold nationally need not be organic at all!*

**T**he presence of pesticides beyond the admissible levels in the fresh farm produce has not only reduced the credibility of Indian products overseas, but also locally as the consumers have started doubting the safety of such products. It comes as no surprise that the consumers are shifting towards the healthier option – Organic Food. In fact the market for edible organic products in India is growing at 25-30 per cent. A study prepared by industry body Assocham and TechSci Research projected that the domestic organic food market would touch USD 1.36 billion mark by 2020. According to government data, organic farming is practised in 12 States on about 4.72 million hectares. In 2013-14, organic food production was 1.24 million tonnes. In 2014, the size of the organic food market, which is highly unorganised, was USD 0.36 billion, and organic pulses and foodgrains took the lion's share of the market. The government, also through many schemes and programmes are promoting organic cultivation in India.

Notwithstanding the safety of organically grown vegetables, their cultivation eliminates the possibility of damaging natural resources such as land, water and air. More importantly, the organic products give more value to the farmers as the organic products are sold at premium price. Rising health consciousness, changing lifestyles, mounting disposable spending and growing availability of organic food products in shopping malls and retail outlets have spurred this phenomenal growth. The organic markets have a huge growth prospect. Unfortunately, the farmers in remote areas are not aware of this opportunity. The potential for organically raised pulses and food grains are huge in Middle East and South East Asia. India has already good trading channels with these countries. Their demand for organic products can be easily met if the farmers are made aware of this opportunity and imparted training for raising organic crops. At this point of recognizing the huge potential that exists nationally for the organic range of products, the question 'that are we geared up for this demand just by increasing the organic production in the country' is pertinent. What about the credibility of the organic products? The umpteen number of organic products neatly stacked in the departmental stores need not be organic at all. These organic products never adhere to a standard – Indian or International. Yet, they are deftly sold as 'organic brands', that too at premium prices.

Shocking though, there are no unified national certification logo that deems a product organic. The FSSAI certification issued by the Health Ministry, although mandatory for food products, does not deem any food 'organic' much to the misconception of the larger populace. The 'India Organic' certification found on organic food packets are issued by the Agricultural and Processed Food Products Export Development Authority, merely for export purposes and not for local consumption. Add to this, the Commerce Ministry has issued a set of guidelines called National Programme for Organic Production, which are sometimes taken for granted as certification. Usually the only certification that appears on the store bought packets are one issued by the company itself! Store-bought food could be classified 'green' or even have the Agmark certification but experts agree that is not synonymous with 'organic'.

A survey by a research firm revealed that over 60 per cent of 'organic' shoppers haven't got the slightest clue of what the plethora of labels found on these products mean. These 'organic' products are also 20-50 per cent more expensive than their non-organic counterparts.

Organic food essentially has zero genetic engineering, is devoid of hormones and steroids, uses no synthetic pesticides or chemical fertilizers, uses naturally obtained crops, uses live-stock maintained organically, has the food processing and handling done naturally, ensures storage and transportation do not damage the food and carries a labelling that presents these vital information to the end customer with one certified nationally identified logo. Even if one parameter in these aren't fulfilled, the 'organic' status might be rejected as is done by stringently monitored standards of the EU, for instance.

So while organic products have suddenly engaged the attention of the consumers, merely increasing the organic production isn't enough. Taking cue from this consumer interest in organic products, the Indian government must institute a body that certifies the veracity of organic products. This would not only unify the organic movement in the country but also ensure that the consumers get the real products and not the fake ones.



## Kerala's Bleeding Plantation Sector

*Kerala's plantation sector is challenged on many fronts*

It took seventeen days and three lakh workers spread across the state to end the stir that had crippled Kerala's plantation sector. The strike by Kerala's tea and rubber plantation workers, which threatened to snap the backbone of the state's farm economy, was called off in the wake of a wage settlement that was arrived more than a fortnight later following a meeting of plantation managements, trade unions and the government.

The labour trouble, which started over a month ago when 3,000-4,000 workers at Kannan Devan Hills Plantations (KDHPL) in Munnar stuck work, had since spread across the state's government and private tea and rubber estates. Nearly 300,000 plantation workers had gone on strike. With it, work at the state's tea and rubber plantations, which contribute nearly Rs 21,000 crore to its exchequer annually, had come to a grinding halt.

The workers unhappy with the current wage structure has stirred up the campaign against the management of plantations. Interestingly, the statewide agitation was triggered by the spontaneous uprising of women workers at the Munnar Kannan Devan Hills Plantations Limited (KDHPL), in early September, 2015. The women workers, ventured into a die hard agitation without the involvement of trade unions, managed to get the KDHPL to reinstate last year's 20 per cent bonus. This triggered similar movements in estates elsewhere in Kerala, particularly in the high range districts of Idukki and Wayanad.

The labour trouble is the newest to emerge out of a series of issues being faced by the plantation sector. The plantations sector has been facing some serious losses recently. This stir had cost the KDHPL, the epicenter of the strike, Rs 27.80 crore due to loss of production and another Rs. 5 crore into paying the workers the extra 10 per cent bonus - a demand which was agreed to in order to diffuse the situation.

Fall in prices of tea and rubber, land issues and climatic changes have hit production and have left the sector bleeding. The prices of tea and rubber have taken a hit in the last couple of years and have followed a downward path which have prompted about 30 per cent of small owners to exit the business.

Rubber cultivation is shifting to low-cost countries and to non-traditional regions within major rubber-producing countries. Climate change, technological advancements and the growing acceptance of synthetic rubber as opposed to natural rubber are all taking a toll on production. The state has also a number of ageing plantations with low-yielding trees and considering the malign conditions for rubber production, the plantations are in no mood to replant. Rising imports of natural rubber have further affected the domestic industry. Last year, India imported a record 415,000 tonnes of rubber, mainly from Thailand, Malaysia, Indonesia and Vietnam. Domestic production, meanwhile, dipped to a 12-year low of 655,000 tonnes. Analysts expect imports to continue rising. This year, they are likely to grow 18 per cent, touching a record high of half a million tonnes. Besides, at prices as low as Rs 90 a kg, imported block rubber costs much less than rubber produced in India. According to the Rubber Board, domestic production tumbled by 14 per cent to 143,000 tonnes in the first quarter of the current fiscal. In June, the fall was 21 per cent, compared to a year ago. Industry sources say that this is the third consecutive year that the production of natural rubber has fallen in India, which is its second largest consumer. Last year, it fell 16 per cent and in this year 15 per cent.

The plantation sector in the state is in doldrums. At one end, there are the demand of the workers, whereas on the other the management woes. While the workers need to have updated wages in accordance with the rising inflation, the management needs profits to meet the requirements of labor and themselves. The government has to step in to help both the segments in the plantation sector. They can implement better schemes that would take off the burden of inflation from the workers and also support the plantation sectors through subsidies and policies. The entire sector needs to come out of the shades of incompetent management and employ better technology to conquer newer markets. They have to change their strategy to increase efficiency of their plantations and improve production.

## Throbbing Spurious Pesticide Market

*India is witnessing a worrying trend of thriving spurious pesticides market*

**S**ide by side with a well-developed and robust agrochemicals industry worth Rs. 25000 crore, in India another equally plump industry of spurious pesticides is flourishing. This was recently corroborated by a FICCI Study on 'Counterfeit Pesticides in India' which was recently released by Dr. J S Sandhu, Deputy Director General, Indian Council of Agriculture Research (ICAR) and Agriculture Commissioner to Government of India, at a discussion organised by FICCI in association with Tata Strategic Management Group (TSMG) Delhi on the theme 'Menace of Spurious/Counterfeit Pesticides in India'.

Pesticides play undeniably an important role in India's agriculture. Indian agriculture being vastly tropical is constantly exposed to a host of pest and diseases. To deliver its huge responsibility of meeting food demands of 1.2 billion population, Indian agriculture is dependent on pesticides which have over the years stepped in to effectively salvage the crops and maintain India's food sovereignty. Pesticides pitch in different stages of food production from pre production to post harvest. Although the pest dynamics have changed over the years, our pesticides industry has also moulded accordingly supplying a range of newer molecules. But unfortunately, along with this a fake pesticide market has also appeared which is challenging the country's agriculture sector.

The presence of counterfeit, spurious, adulterated or sub-standard pesticides and fertilizers have been growing. According to the study, about 30 per cent of the total market is spurious or counterfeit and its incidence is increasing at a dangerous pace. Apart from crop loss and damage to soil fertility, use of sub-standard products incurs loss to farmers, the industry and the government, besides the loss of faith of farmers in pesticides.

The spurious/counterfeit pesticides occupies to the extent of 25 per cent by value and 30 per cent by volume in the country. The growth is also impressive as it is growing at 20 per cent per year and if not addressed is expected to reach level of 40 per cent by value by 2019. The phenomenon is severe in Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Maharashtra, West Bengal, Haryana and Karnataka. This is worrying as these are some of the agriculturally significant states.

The use of spurious pesticides can have devastating effect on agriculture. The study points out that 25 per cent use of spurious products can reduce overall yield by four per cent, resulting in loss of 10.6 million tonnes of food production in the current year. The counterfeit pesticides contain even more dangerous chemicals, the use of which can take the environmental damage to next level. It can cause irreversible damage to environment by use of toxic ingredients due to degradation of soil through illegal chemicals, thereby rendering it useless for cultivation of succeeding crops; ground and surface water contamination caused by unknown toxic chemicals and heavy metals and imbalance of natural flora and fauna and negative health impacts on humans and animals. Besides the afflictions on environment, India's image as a leading food producer is also at stake as the possibility of rumors or sabotage by other countries or rejection of Indian exports food items from developed importing countries would increase. In such a scenario, export of 29 million tonnes of food grains worth Rs. 1, 578 billion can be affected. Apart from food grains, export of 3 million tonnes of fruits and vegetables worth Rs. 88 billion is also at stake due to spurious pesticides.

Tackling such a precarious situations thus becomes highly relevant. The government should intervene at national as well as state level through different measures. The licensing should be made more stringent and regular inspections should guarantee that outlets selling spurious pesticides are delisted and sealed. The industry should unify against this threat and establish help centers to clear the doubts regarding the authenticity of the pesticides. Moreover the manufacturers can make more pronounced trademarks or holograms that cannot be duplicated by the fakes. Regular awareness campaigns should be carried out by manufacturers, where farmers can learn how to distinguish between real and fake products.

India has a fairly well-developed agrochemicals industry which not only caters to the domestic demand, but also to export market. Judicious use of pesticides and agrochemicals is very important for the sustained growth of Indian economy and agriculture. So our approach to this issue should gather a little bit more urgency. The menace of counterfeit agro chemicals should be weeded out at the earliest instance.

## Bonanza for Hoarders

*Hoarders have pocketed Rs.8000 crore in the recent onion crisis*

**T**his year's onion crisis turned out to be a bonanza for hoarders. An analysis by the NITI Aayog on this year's onion crisis shows traders could have milked a whopping Rs. 8,000 crore from consumers in August and September by manipulating prices. Onion price rise is a regular phenomenon in India. Onion prices tend to move up between June and September, as the winter crop is exhausted before the early summer harvest arrives. Occasionally this phenomenon spins out of control and create a grave situation.

It is those unfortunate years where onion prices have doubled and tripled in comparison to the previous years. This year it was widely believed that the shortages were climate induced as the onion production took a hit due to deficient rains and hail storms. However, with Niti Ayog's analysis it becomes clear that it wasn't mere nature that played villain but there was also a human element in it. The Aayog recently met the ministries concerned to find a long-term solution to recurring onion crises. It arrived at the cost of market manipulation on the average monthly consumption of onions in the country, multiplied by the extra amount consumers paid in these two months. India usually consumes a little over a million tonnes of onions a month. Retail onion prices had jumped to almost Rs 70 per kg in many cities in August and September this year, nearly Rs 40 more than the average price a year ago.

The signs of such a crisis were fairly evident as early as February when untimely rains and hailstorms played spoilsport destroying the standing crops in many states. This year, a large part of onions harvested in March-May was destroyed by rain and hails in February and March. Also unusually dry weather in Maharashtra and Karnataka delayed early kharif sowing. This created an extended period of shortage, which was milked by hoarders. When the government agencies failed to take notice of these events, hoarders and traders quite cunningly used the events to their advantage and started hoarding this commodity much to the annoyance of the government. Even the private traders were quick to respond to the crisis in summoning consignments from other onion producing countries.

The analysis has thus brought out the need for state-intervention in the onion market. It is interesting to note that most of the agencies such as National Agricultural Cooperative Marketing Federation of India Ltd (Nafed) and Small Farmers' Agribusiness Consortium (SFAC) incur Rs 100-200 crore on storing onions which is miniscule compared to what consumers had paid extra in the country's most recent onion crisis. This implies our shoddy storage arrangements and our zero resolve to anticipate matters despite having enough warning signals.

India's market is not a level playing field, for markets are riddled with problems like outdated storage structures, insufficient storage capacity and a thriving population of middlemen and hoarders who eat away a lion's share of profit. The murky nature of the market, with the presence of middle-men pocketing hefty profits during a crisis while procuring crops at lesser prices and hoarding have shifted the balance of market towards the advantage of a chosen few. Although the presence of hoarders in the market operations were a common knowledge, this might be one of the few instances where the hoarders' hand in price manipulation has come to the fore.

Despite a record onion harvest in 2014, many farmers in Maharashtra lost a large share of their produce due to inadequate storage facilities, leading to prices rising. India needs at least 15-20 lakh tonnes of storage capacity, but it does not even have one-third of this capacity. Hoarders are more vigilant and sensing even a mild distress in the market they stock up creating a staged shortage. Additionally, onion does not enjoy the benefits of Minimum Support Price.

The government has moved in only late i.e., once the crisis became acute and when the consumers had paid exorbitant amounts. The price stabilization fund which have been introduced to tackle such situation by market interventions are also post crisis strategies. So is the government's move to import 10,000 tonnes of onion. We need pre-emptive measures to tackle manipulative price rise. If the hoarders can sense the shortage beforehand then why not government bodies. The way a price stabilization fund has been instituted, a body to forecast shortages and to take collective action against it before it gets blown out of proportion is needed.



## Andrew Yule opens tea lounge in Kolkata

➤ Andrew Yule & Co – that owns 15 tea gardens in West Bengal and Assam – inaugurated its model tea garden and tea lounge (for serving tea) at Eco Park, New Town, on the northern fringes of the city. The inauguration was done by the Chief Minister Mamata Banerjee over video conferencing. The (model) tea garden will produce around 300 kg of hand-made tea annually. According to Sunil Munshi, Director-Personnel and Head of Tea Division, Andrew Yule, the (model) tea garden, made on an acre of land, came up with an estimated investment of Rs 1.1 crore. Investments have been made jointly by Andrew Yule and HIDCO. “If successful the model will be replicated on a macro (larger) scale in Bengal and neighbouring States,” Munshi said. Some of the areas where the model can be replicated include Siliguri and Darjeeling in West Bengal and in Assam. In order to recreate the right environment (soil texture and otherwise), some 40 trucks carrying soil from the Dooars region of North Bengal were brought in. The just inaugurated tea lounge has three areas – AC, non-AC, and a tent – and looks to recreate the ambience of a tea garden here in the city.



## Godrej Agrovet to bring 20,000 ha under oil palm in Karnataka

➤ Godrej Agrovet Ltd has set a target of bringing around 20,000 hectares of area under oil palm in the districts allocated to it in Karnataka by 2020. Samir Pai Raikar, Deputy General Manager, Oil Palm Plantations, Godrej Agrovet Ltd, said that the company has got allotments in Belagavi, Dakshina Kannada and Udupi districts; two taluks in Dharwad district; and three taluks in Uttara Kannada district. The Karnataka government has identified 2.5 lakh hectares of land as having potential for oil palm cultivation. As of now, it is grown on 13,000 hectares. The government is developing these potential areas under the public-private partnership model. Five agencies have been allotted specific districts for oil palm development activities. Godrej Agrovet is one among them. Their role is to develop oil palm plants, expand the area of cultivation, take up farm extension activities, buy FFBs from



the growers at the price fixed by the State government, and process them in their units. In Belagavi, the area identified by the government is around 40,000 hectares; Udupi and Dakshina Kannada put together the potential is in around 2,000 hectares, and around 1,000 hectares in Dharwad and Kalghatagitaluks of Dharwad district. “We would like to cover at least 50 per cent of the potential area target by 2020,” Raikar said.

## Monsanto to cut 12% of workforce

➤ Monsanto Co said it will eliminate 2,600 jobs as part of a cost-savings plan, joining a growing list of major corporations that are struggling to contain the damage from the decline in world commodities



prices. The St. Louis-based agricultural giant announced the reductions — the equivalent of 12 per cent of its workforce — as it reported a loss of 19 cents a share in the fiscal fourth quarter and warned profit would remain weak through 2016. Like DuPont Co and Glencore Plc, Monsanto, the world's largest seed maker, is taking steps to combat the effects of a commodity slump that reduced farmer incomes for two straight years.

## ITC Aims Rs 18k-Cr Revenue from Agri Business by FY21

► Bhopal Diversified group ITC is expecting nearly three-fold jump in turnover of its agri division to touch. 18,000 crore in the next five years, driven mostly by procurement and retail initiatives in rural markets. ITC expects the agri business division to have a turnover of Rs 6,500 crore in the ongoing fiscal, up from Rs 5,672.07 crore in the last fiscal. A majority of the business is generated from its 'e-Choupals', a web-enabled supply chain network in villages and rural hypermarkets 'Chaupal Sagars'. ITC Agri Business Division COO Rajnikant Rai said in the last five years, the agri division has been witnessing an average growth of 15% to 20%. "In the financial year 2009-10, we were at Rs 2,500 crore and now we are more than double of that in five years. Our target for financial year 2020-21 from this division is Rs 18,000 crore," he said. Currently, the company has 6,500 e-Choupals and 25 Chaupal Sagars in 11 states. Besides, ITC also has 24 Chaupal Sagars where it sells a host of items, from fertilisers and hair oil to mixer-grinders and tractors.



## McCormick Terminates Contract With Kohinoor Before Lock-in Period Ends

► McCormick & Co Inc, the world's largest maker of spices, seasonings and flavours, has terminated its rice supply and business transfer agreement with Indian basmati rice and processed foods maker Kohinoor Foods Ltd (KFL), according to two executives. The development comes two years ahead of the lock-in period specified in the exclusive agreement the two companies had signed in 2011. US multinational McCormick and KFL had also formed a joint venture -Kohinoor Speciality Foods (KSF) -to market and sell pre-cooked basmati rice, ready-to-eat rice and frozen foods, under the Kohinoor' brand in India. Top executives at KFL and KSF confirmed that \$4.5-billion McCormick has terminated the agreement.

## Nutrela heads South, West with soya awareness drive

► Nutrition and food major Ruchi Soya Industries - part of the Rs 28,000 crore Ruchi Group - has bet big on its Nutrela soya foods brand, which it aims to push in the South and West regions of India. Nutrela, a household name in soya food - chunks, mini chunks, granules and oils - enjoys robust demand in the North and East regions, where the company has observed around 90 per cent of consumption for the brand. While India is the world's fifth largest soya producer, the total soya food consumed in the country annually is over two lakh tonnes. Around 75-80 per cent of this is in the North and East regions. "Penetration and awareness of soya food products in southern and western India is relatively low. There also exists scant knowhow about cooking soya food in these regions. Since there is low penetration of soya food itself in the regions, the possibility of the brand 'Nutrela' to be promoted and grown here is high," Ruchi Soya Industries Chief Executive Officer (Consumer Brand Division) Nilesh Mazumdar said. As a new strategy to tap the regions, Ruchi Soya has announced a tie-up with the Protein Foods and Nutrition Development Association of India (PFN-DAI) to implement a nutritionist outreach programme in Karnataka and Maharashtra. In Karnataka, under phase-I, 1,000 schools will be approached, covering a total of 150,000 students, to whom the benefits of soya products will be explained. Also, in Maharashtra, 300,000 students have been targeted for the campaign. Mazumdar said the company is planning to reposition the Nutrela brand as 'complete nutritious food'. The Nutrela brand clocked revenues of Rs 750 crore last year, growing at a CAGR of 18 per cent.





## Centre wants states to tame price of pulses

► Caught unawares, the Modi government now wants the states to take the lead in taming the galloping prices of pulses which are retailing at Rs 190 per kg. Centre has stepped up efforts to cool the rising prices through imports and invoking the price stabilisation fund. However, these initiatives are expected to take some time to yield results. Government officials said only Andhra Pradesh, Tamil Nadu and Uttar Pradesh had conveyed to the Centre their requirement for imported pulses. With other states not showing interest, the Centre had gone ahead to place tenders for import of 5,000 tonnes of arhar or toor dal and an equal quantity of urad. Much to the dismay of the Centre, the states were still

hesitant to make available pulses through the public distribution system apprehending that it may set a precedent. “Most of the pulses trade, including imports takes place through private traders,” a government official said. Officials said the current shortage of pulses was due to crop failure in parts of Maharashtra and Karnataka. The lower yield of pulses in Myanmar, one of the countries from where India imports the commodity, also put a squeeze on the supply. Of the 5000 tonnes of arhar that had reached JNPT port near Mumbai, 1800 tonnes has been allocated to Andhra Pradesh, while the rest is awaiting customers. The Centre had offered incentives to the state government by agreeing to pay the

milling charges, the port handling charges and transportation charges from the price stabilisation fund. The government has ordered another 4000 tonnes of arhar of which 2000 tonnes is in transit. However, these orders are miniscule given the two million tonne shortfall in the domestic production. In 2014-15, India produced 17.20 million tonnes of pulses on account of deficient monsoon and untimely rains. This is nearly five million tonnes less than the consumption of 22.48 million tonnes in 2013-14. In a bid to avoid a repeat of the crisis situation next year, the Centre has also decided to create a buffer stock of pulses between 40,000 tonnes and 70,000 tonnes mainly through imports.

## Government Restricts Rice Seed Exports

► The government restricted export of rice seeds, a decision that the industry said will help curb overseas shipments of basmati rice seeds and ward off any attempt to patent premium Indian aromatic rice by other countries. “Export of rice of seed quality has been moved from ‘Free’ to ‘Restricted’ category,” the Director General of Foreign Trade (DGFT) said in a notification. It said that export is permitted under license subject to certain conditions such as submission of a licence to carry on the business of a dealer in seeds; declaration that the export consignment of seeds has been chemically treated and is not fit for human consumption. Export packets will also be labeled that seeds are treated with chemical insecticides and cannot be used for food or feed purposes, it added.



## Govt seeks bids to hire partner to set up online agriculture market

► Government agency Small Farmers' Agribusiness Consortium (SFAC) has invited bids to hire a strategic partner to set up an online platform for the proposed national agriculture market that seeks to integrate 585 wholesale markets across India. In July this year, the Cabinet had approved setting up of an online national agriculture market that will provide more options to farmers to sell their produce and also marked Rs 200 crore for its establishment. An amount of Rs 100 crore has already been allocated in current year's Budget which is being used for the development of this platform. “SFAC has invited bids for appointment of a strategic partner for implementing the national agriculture e-market in the country. We hope to receive good response,” Agriculture Secretary Siraj Hussain said. Bids should be submitted by November 3 and tenders will be opened on the same day, he added. With the

help of a strategic partner, Small Farmers' Agribusiness Consortium (SFAC) will set up an appropriate common e-market platform, which will be deployed in the selected 585 regulated wholesale markets keen to join the e-platform. As many as 10 states, including Andhra Pradesh, Odisha, Rajasthan, Madhya Pradesh, Gujarat and Jharkhand, have shown interest to come on board. According to the proposal, the Union Agriculture Ministry will provide software to state governments free of cost. It will also give grant as a one-time fixed cost subject to the ceiling of Rs 30 lakh per mandi for related infrastructure for installation of the e-market platform. Small Farmers' Agribusiness Consortium (SFAC) will implement the national e-platform in three phases in 2015-16, 2016-17 and 2017-18. Currently, farmers are restricted to selling their produce at mandis that charge various taxes.



## ‘Centre to invoke price stabilisation fund to keep pulses prices in control’

► With prices of tur (arhar) dal touching the Rs 200/kg mark in some retail outlets across the country, Finance Minister Arun Jaitley said the Centre “would invoke” the price stabilisation fund (PSF) to augment supplies and lower the rates. Speaking to reporters after a review meeting, Jaitley hoped that the move would help cool prices and pointed to onion rates having been controlled. “We have decided to invoke the PSF which will take care of the handling cost of stock lifting including milling and processing charges. We are hoping there will be considerable stocks coming into the market over the next few days,” he said.

The PSF was set up this year by the Agriculture Ministry, though it was announced during the 2014 Budget. It has a corpus of Rs 500 crore and is used to manage prices of agricultural and horticultural products through market interventions. Jaitley stated that the government will be looking to import an additional 2,000 tonnes of tur and it was up to States, who have been requested to lift quantities, to subsidise the price of the pulse as has been done by Andhra Pradesh and Tamil Nadu. The Centre has so far imported 3,250 tonnes of tur from Myanmar and east African nations such as Kenya, Tanzania and Mozambique through the MMTCL Ltd.



## Govt may hike import duty on wheat to 25%

► In a bid to curb imports and promote sale of excess wheat stocks with government agencies in the open market, the food ministry has proposed a hike in import duty on wheat from 10% to 25%. Sources said that after consultation with finance ministry, the food ministry has moved a proposal for increasing import duty on wheat. The issue would be taken up for discussion with the revenue department. Officials said that the proposed move was to curb imports and liquidate poor quality grain procured by the Food Corporation of India (FCI) and state agencies under relaxed quality standards. In August, the government had imposed 10% import duty on wheat till March 2016. The duty was imposed for the first time since 2006 after private flour millers and food companies mostly from Tamil Nadu started to import wheat from Australia because of physical proximity and comparative price factor. The government had stated that the measure to impose import duty would result in revenue of Rs. 90 crore in the remaining part of the current fiscal. “More than five lakh tonnes of wheat has been imported mostly from Australia. More imports are likely to take place from Russia which would hit our sale of excess wheat stocks in the open market,” an official said. This is biggest ever wheat import since 2010 when the country had imported two lakh tonnes of

grain. In 2014 – 15, the country had imported only around 29,000 tonnes of wheat.

Export prices of Australian wheat are ruling in the range of \$260-\$270 per tonne, making the grain cheaper than locally available grain, making it attractive for the flour millers in southern India. According to ministry of consumer affairs data, the retail prices of wheat on Tuesday was reported at

Rs.32 per kg and Rs 19 per kg in Chennai and Delhi, respectively. Trade sources said un-seasonal rains on the wheat crop earlier this year had adversely affected the quality of the grain. The state owned—FCI has huge wheat stocks — in excess of 34.4 million tonnes— on September 1 which far exceeds buffer norms of 20 mt for October 1. The central government is keen to sell off the wheat on a



priority basis, which was procured under the relaxed quality norms, through public distribution system and through Open Market Sale Scheme (OMSS). Only around 8 lakh tonnes of wheat had been sold under OMSS to private purchasers. FCI requires around 20 to 22 mt of wheat annually for distribution through Public Distribution System (PDS). “We have around 8–10 million tonnes of excess wheat stocks,” the official said. The country’s wheat production is estimated to have declined to 88.94 mt in the 2014-15 crop year, as against the record production of 95.85 mt in 2013-14.

## Maharashtra govt gives 'crushing' blow to sugar factories

➤ The start of this year's sugar season in Maharashtra seems to be in a state of flux. The Maharashtra government has decided not to provide licenses to operate this year's cane crushing (starting October 15) to the factories those have made less than 75% fair and remunerative price (FRP) payments to cane farmers. Earlier, the government had declared that mills will be allowed to crush in the sugar season of 2015-16 subject to the condition that those mills, which are yet to make FRP arrears to cane farmers, will have to give an undertaking on a Rs 200 stamp paper that they will clear the dues within a month. Moreover, sugar factories have made it clear that they may not be in a position to make one single



FRP payment, but cane workers are also up in arms saying that they will not allow mills to begin crushing unless their wages are revised. Senior officials at the Sugar Commissionerate in the state has received around 164 applications from mills in the state. These include 101 cooperative mills and 63 private mills. In addition, Western India Sugar Mills Association (WISMA) has indicted that some of the mills may begin crushing late by November 1. According to some WISMA officials, it will be difficult for mills to make FRP payments for the new season in one single amount since prices have been low. Sugar prices in Maharashtra are currently in the range of Rs 2,650 to Rs 2,700 per quintal. The demand is expected to rise on the eve of the festival season. Spokesperson of the Swabhimani Shetkari Sanghatana Yogesh Pande, said: "The recent spurt in sugar prices have led to comfort for sugar millers to clear outstanding cane payment dues. Maharashtra mills sold 1.8 million tonne sugar in August and September at higher prices which led to additional gain of Rs 640 crore. Further Rs 1,052 crore have been disbursed to millers for FRP payments under loan incentive scheme of the Centre." Further, some factories are expecting to receive Rs 1,000 crore soon. Total FRP outstanding was Rs 2,600 crore. A rise in sugar prices will lead to increased availability of funds from lender banks. Around 34 lakh tonne of sugar stock with increase in sugar prices by Rs 400 per quintal should make additional Rs 1,360 crore available to millers, he added. According to the Sugar Commissioner, Rs 1,300 crore has been disbursed through the Centre's scheme of Rs 6,000 crore soft loan. In Maharashtra, around 70 proposals have been scrutinised. The Centre had recently extended the last date for filing applications for the soft loan to October 16.



## Karnataka PDS to go digital

➤ Karnataka food and civil supplies minister Dinesh Gundu Rao informed that the state's fair price shops will go digital within the next three months. The state is mapping and feeding Aadhaar and biometric information of ration card holders into a server. All transactions in the public distribution system (PDS) will have to be authenticated digitally, using point of sale machines at shops, said Rao. The move comes in the backdrop of similar digital initiatives undertaken in states such as Kerala, Andhra Pradesh and Chhattisgarh to ensure transparency and plug PDS leakages.



## Kerala millers oppose hike in customs duty on Australian wheat

► The Kerala Roller Flour Millers Association has strongly objected to the Centre's move to further raise the customs duty on imported Australian wheat, saying it would affect the entire roller flour mills industry in South India. The projected 25 per cent customs duty will take the landing cost of imported wheat to over Rs 2,400 per quintal, which is too high to be afforded by the consumers, PK Ahammed, the Association President said. South India imported 4 lakh tonnes (lt) of Australian premium white wheat and it enabled the Association to maintain the price of wheat products within reasonable rates and quality. However the imposition of 10 per cent customs duty with effect from August 7 had made a serious setback to South Indian roller flour mills. "We had to pay customs duty on

four ship loads (about 1,45,000 tonnes) of wheat which was purchased prior to imposition of custom duty as they arrived after August 7. The total landing cost of imported wheat with custom duty amounted to Rs 2,100 a quintal," he said. In view of the customs duty on imports and with the prices going up in Australia, he pointed out there would not be any more imports. The price of Australian wheat has increased up to \$265 a tonne and this, coupled with hike in the dollar exchange rate by about Rs 2 per dollar, affected the prices. "We would request the government not to take any steps for increasing the Customs duty any further as even now the cost of imported wheat is exorbitantly high," he said. According to him, the situation is very grave as the new crop in India will be available from



April 2016 only. Even then, it is not sure whether the new crop will be of good quality. If the quality continues to be inferior, it will be a very critical situation.

## Data regarding horticulture crop, vegetables, spices to go online in J&K

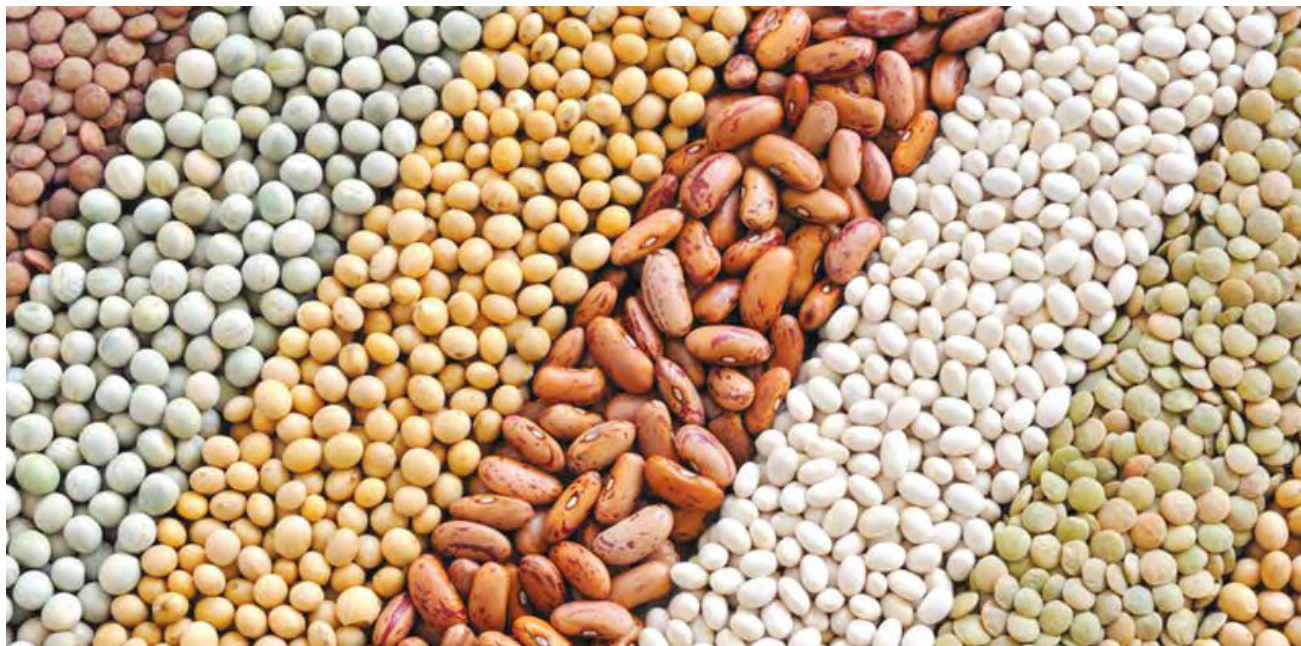
► Data regarding horticulture crop, vegetable, spices at district level will soon be kept available online with the help of HAPIS software. In order to submit online estimation of horticulture crop, vegetables and spices, a workshop cum training session was held at Agriculture Complex Lalmandi under the chairmanship of Mamta Sexana, Advisor to Horticulture Ministry, Government of India. Director Agriculture Kashmir Altaf Aijaz Andrabi, was also present on the occasion. Training regarding uploading of on line data was imparted to concerned officers and officials of the department so that online estimation of vegetables, fruits and spices shall be uploaded at district level for which Ministry of Horticulture, Government of India has developed a software HAPIS. It is pertinent to mention here that previously the area/ production estimation was given at State level but now online estimation will be uploaded at District level. The advance estimation of the crops will be uploaded at the end of November, while second in April,



third in ending July and final estimation will be given by the end of November. It was impressed upon the officers to upload the online information separately for all vegetable crops. To start with the officers were asked to upload the weekly information about the area and production of potato and onion crops. It was also desired that comprehensive figures about the area and production of different vegetables/spices for the previous years 2013-14, 2014-15 & 2015-16 be also uploaded online. The Chief Agriculture Officers and officials dealing with the online portal were also present in the workshop.



## New crop insurance scheme to charge 2% premium for pulses



► To provide a safety net to growers of pulses, which could also help boost production, the Centre's proposed new crop insurance policy has pegged the burden of premium on pulses at a moderate two per cent of the sum insured. Officials said according to the broad contours of the new crop insurance scheme, which has been prepared and is now awaiting Cabinet nod, the premium on horticulture crops has been fixed at five-six per cent of the sum insured or on actuarial basis, whichever is lower, while that on non-horticulture crops has been fixed at two-three per cent. The difference between the actual premium charged by the insurance company and what the farmer pays will be subsidised by the Centre, officials added. This means that if a farmer gets his pulses crop insured for Rs 200,000, his annually premium would be somewhere around Rs 4,000 or even lower. At present, the average crop insurance premium on pulses, which a farmer has to pay ranges between 10-12 per cent of the sum insured, which acts a big deterrent. The scheme would be a combination of weather-based and

yield-based insurance for crops. The government has been working on a new crop insurance scheme for a long time, but there has been some differences over the premium to be charged from the farmers and its impact on the Centre's subsidy. However, officials said the premiums have been finalised after much deliberation. The financial burden on insurance companies would also be minimised as participants would be invited through open tenders conducted by the state governments. "In the currently operational modified National Agriculture Insurance Scheme, premium is charged at market rates due to which for some crop the farmer burden is as high as 10 per cent of the sum insured. The new improved crop will lower this burden," another official remarked. Village or block could continue to remain as a unit for measurement of insurance claim as with the existing schemes. According to a study by private weather forecasting agency Skymet along with industry association Assocham, less than 20 per cent of India's 130 million farmer families have crop insurance, which is why a

vast majority of them are exposed to the vagaries of weather. Even among loanee farmers, insurance penetration is not 100 per cent, for whom it is mandatory to get an insurance cover as soon as they avail of a crop loan. "Of the un-insured farmers, 46 per cent were found to be aware but not interested while 24 per cent said the facility was not available to them," the study showed. Only 11 per cent felt they could not afford to pay the insurance premium. Poor design of insurance products, particularly related to claims settlement, has led to farmers not being covered, despite significant government subsidy, the study pointed out. According to rules, farmers' insurance claims have to settle within 45 days of the risk assessment. However, often, claims are not attended even after six months. This was one of the factors behind farmers' not opting for crop insurance. However, there are some aberrations as well and in some states such as Rajasthan and Bihar, where 40-50 per cent of total area under crop is covered through insurance.

## CCEA approves Rs7,000 crore loan from banks to clear urea subsidy

► The Cabinet Committee on Economic Affairs (CCEA) on Wednesday gave approval for Rs7,000 crore loan that was taken by the Government from public sector banks to clear outstanding urea subsidy bill during the last fiscal. The Centre provides urea to farmers at a fixed maximum retail price (MRP) of Rs.5,360 per tonne. The difference between the cost of production and MRP is provided as subsidy to manufacturers. The CCEA has 'given its ex-post facto approval for a Special Banking Arrangement (SBA) for a loan of Rs7,000 crore with the consortium of public sector banks, led by State Bank of India (SBI) and Punjab National Bank (PNB), for settlement of outstanding indigenous urea subsidy bills of fertiliser companies in 2014-15', an official statement said. The SBA has already been implemented/operationalised to overcome the liquidity problems of the fertiliser companies, it added. "Under the above SBA, a total of Rs6,806.66 crore for settlement of subsidy bills with the two consortiums of public sector banks, led by SBI and PNB, was raised by Government." "The above loan amount along with interest liability on the part of Government thereon amounting to Rs64.03 crore was paid to the banks," the statement said.

Briefing media about the CCEA decision, Telecom Minister Ravi Shankar Prasad said "this shows our commitment to the cause of farmers who are entitled to get fertilisers at a reduced cost." The loan together with government interest thereon has been repaid from budget estimate for 2015-16 within the sanctioned budget under the vote on account. The Centre is making available fertilisers, namely urea and 22 grades of P&K fertilisers, to farmers at subsidised prices through fertiliser manufacturers/importers. "For making funds available to the fertiliser companies against their subsidy claims, the Ministry of Finance had approved SBA for an amount of Rs7,000 crore with Government interest liability limited to G-Sec rate. "Accordingly, an SBA was worked out with the two consortiums of banks, led by State Bank of India (SBI) and Punjab National Bank (PNB), for an amount of Rs7,000 crore to meet the outstanding subsidy claims of fertiliser companies," the statement said. India produces about 22 million tonnes of urea and imports about 8-9 million tonnes to meet the domestic shortfall. Fertiliser subsidy stood at about Rs70,000 crore during last fiscal.

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## Kisan to provide accurate data on crop yields to fasten crop insurance payments

► To fasten payment of crop insurance claims to farmers, the Centre has launched a pilot programme Kisan, which will use satellite and drone-based imaging and other geospatial technology to get timely and accurate data on crop yields. The project envisages use of space technology and geo-informatics (GIS, GPS and Smartphone) technology along with high resolution data from UAV/drone based imaging for improvement in yield estimation and better planning of crop cutting experiments (CCEs), needed for crop insurance programme. The Pilot Study is proposed to be launched in one district each of Haryana, Karnataka, Madhya Pradesh and Maharashtra during Kharif season of 2015 and two districts each of these States



during Rabi season of 2015-16. Once the Pilot Study is successful, it will be extended to the other parts of the country. The KISAN project will be implemented by Mahalanobis National Crop Forecast Centre (MNCFC), an attached Office of Department of Agriculture, Cooperation & FW, in collaboration with ISRO Centres (Space Applications Centre, Ahmedabad & National Remote Sensing Centre, Hyderabad), India Meteorological Department, CCAFS, State Agriculture Departments and State Remote Sensing Centres. The centre also launched an Android-based app for collection of data of hailstorm? An Android App, designed by ISRO (National Remote Sensing Centre, Hyderabad) has also been launched, which will help real time data collection about hailstorm occurrences along with photographs and geographical coordinates (longitude and latitude).



## An intel unit to track food prices

► With the abnormal rise in prices of essential commodities such as onions, potatoes, pulses, tomatoes and edible oils becoming a seasonal affair, the government is considering creation of a specialised entity that can help forecast demand and supply of such items. It will monitor the situation both in the domestic and international markets. The issue came up for discussion at the inter-ministerial committee on prices and availability of essential food items chaired by consumer affairs secretary C Vishwanath. "Every year we are only doing the firefighting, once the prices start increasing. If last year we were grappling with prices of potato, this year it's pulses and onion. Next year it may be another item," said a senior government official. Sources said that Vishwanath has asked officials from other ministries to give their inputs soon so that the proposal can be formalized. They added there is a need to have a real-time tracking of only a few items. The entity can be asked to get the details of sowing and estimating the likely harvest by taking government and other credible data so that it can suggest measures that need to be taken to tackle any crisis. The move gains significance considering the fact that this year there was forecast of a sharp fall in domestic production of pulses and arhar in particular. Though government took a decision to import arhar in big quantity, it later came to light that there was less production even in other countries that are major pulse producing nations. "All discussions regarding the medium and longterm measures are held only during the months of crisis. Then everyone forgets until another crisis surfaces. We need to put a system in place that can alert us to take necessary steps. In certain cases we may have to import items like pulses and oilseeds well in advance," said a consumer affairs ministry official.

## Chilli farmers in A.P. set to get a slot in cyberspace

► Now, chillies and their farmers too will have an address and an identity in the virtual world. The Guntur regional office of the Spices Board India has initiated efforts towards adding value to the chilli produce of the Telugu-speaking States of Andhra Pradesh and Telangana through latest technology. As part of the pilot project 'e-Chilli,' the board has selected 10 villages in Guntur district which are known for their high yield of this variety of the spice.

A database of about 1,000 chilli farmers from these villages was created and their produce updated regularly. According to E. Mohan Rao, Deputy Director (Marketing), Spices Board, Guntur, efforts are on to put up this information on the Internet in the coming few days.

"Previously, we did not know the origin of the chilli or who produced it

once it enters the market. Similarly, we were also not sure about how much quantity is available with which farmer. This pilot project simplifies the whole process of chilli business," said Mr. Rao.

"We will give unique code



numbers to each farmer and their stock will have GPS stickers too. We will help them package the stock with attractively designed bags." According to Mr. Rao, a separate space will be created online where prospective buyers can keep track of the chilli quantities and their location which in turn can fetch a better price for the farmers.

"The project duration is three years. We will be slowly adding more farmers and villages in to the project. Ultimately, our aim is to bring the chilli farmers of Guntur, Prakasham, Warangal and Khammam," Mr. Rao added. In the year 2014-15, the quantity of chilli exported was 3,45,000 tonnes. He said that if the project is successful then a similar initiative will be implemented for all other spices produced in the country.

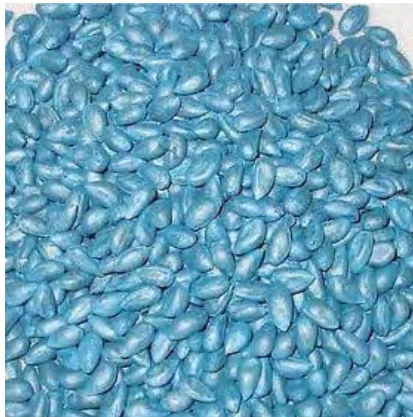
## SIMA's research arm to develop coloured cotton

► The Southern India Mills' Association (SIMA) for Cotton Development and Research Association (CD&RA) has decided to promote naturally coloured cotton on 100 acres immediately, its Chairman CK Narayanasami said here recently. Speaking at the 40th annual general meeting of the association, he recalled the efforts taken by the Ministry of Textiles towards exploring the possibilities for development of naturally coloured cotton and the Government's decision to support the project both – directly and through CCI. "Central Institute for Cotton Research (CICR), Dharwad University and SIMA CD&RA have been identified as the implementing agencies for this project. We plan to promote the naturally coloured cotton on 100 acres. We are also taking efforts to develop long staple coloured cotton," he said. Meanwhile, M-55, a long staple high yielding variety developed by CD&RA, has been taken up for national trials in 2014-15 in 20 centres across the country, he said and pointed out that this variety recorded a yield of 2,470 kg/hectare, 38 per cent ginning outturn and 7.8 elongation.



## Punjab agri university develops disease-resistant cotton seed

► In a bid to deal with increasing incident of pest attacks on the cotton crop, especially in the bordering districts of Punjab and Rajasthan, Punjab Agricultural University (PAU) has developed a seed variety f-2288, which shows tolerance to sucking insect-pests and other diseases. "It is expected to become popular in the bordering areas of Punjab and Rajasthan where good quality canal water is a limiting factor and Bt cotton is not performing as good as in other regions of the state," Baldev Singh Dhillon, VC, PAU said. Dhillon said the new cotton variety would be helpful to farmers specially in the Hanumangarh and Sri Ganganagar districts (Rajasthan) and Muktsar, Fazilka, Abohar and Ferozepur districts (Punjab) where irrigation facilities are not robust. At present, farmers in Punjab mostly grow Bt cotton,



the only genetically modified crop approved for cultivation in the country. This kharif season, cotton has been sown more than 4.5 lakh hectare of agricultural land in the state. However more than 1.3 lakh hectare of cotton field had been attacked by whitefly, a common pest. Dhillon said the field

trials of f 2288 non-Bt cotton variety has sown encouraging results in the large scale field trial and the yield has been quite similar to the Bt cotton variety. "While only a small group of farmers have sown this cotton variety after it was approved by Punjab state varieties approval committee recently and next year it would be taken up for large scale commercial cultivation," R K Gumber, a senior scientist with crop improvement division of PAU said. About the key benefit of the new cotton variety, Gumber said that the cost of seed would be much lower than Bt cotton variety and the yield would be similar to Bt cotton variety. "However inputs costs like pesticides spray and irrigation for the growing f 2288 variety would be much less than what it requires for the growing Bt cotton variety," he claimed.

## Largest online rice database launched

► The world's biggest genetic rice database online is now available free, a move scientists hope will contribute to a "green revolution", a leading rice research group said on Wednesday. Information on the genetic sequence of 3,024 rice varieties can now be accessed through the Amazon Web Services system, a cloud computing platform, the International Rice Research Institute (IRRI) said. The head of IRRI's genetic resources centre, Rory Hamilton, said the database would make it faster and easier to develop new rice varieties in the face of climate change and a growing world population. These new varieties could be higher-yielding, more nutritious and more resistant to pests, disease, drought or floods. "What used to be a 20 year task... we can do in two or three years," Hamilton told AFP. He stressed that with about half the world's population dependent on rice, it was crucial to develop varieties for another "green revolution." The first "green revolution" - the development of higher-yielding crop varieties particularly wheat and rice - took place between the 1960s-1990s and has been credited with preventing massive food shortages. The genetic sequencing and initial analysis for the new database was funded by grants from the Bill & Melinda Gates Foundation and the Chinese Ministry of Science and Technology. Hamilton said that this was likely the biggest genetic database of any crop ever placed online.

## E-platforms to be deployed in 100 mandis by March

► As part of creation of a unified national market for agriculture commodities, the government proposes to deploy the electronic trading platform in about 100 regulated wholesale markets across the country by March 2016, a senior agriculture ministry official said.

The pilot launch of the proposed e-platform will be done by December this year, said Ashok Dalwai, Additional Secretary, Ministry of Agriculture. He was speaking on the sidelines of a workshop on strengthening MSP and procurement mechanism of farm commodities in Karnataka, organised by the Karnataka Agriculture Price Commission.

Dalwai said the National Agriculture Market (NAM), being implemented through Agri-Tech Infrastructure Fund with a budget of Rs 200 crore, is a virtual market and will have physical markets at the back-end. About 11 States have come forward to carry out reforms in their agriculture marketing laws, he added. TN Prakash Kammaradi, Chairman, KAPC, suggested that a statutory status should be granted for the MSP on the lines of the State advised price for sugarcane.

## Dependence on edible oil import might rise to 68%

➤ A sustained fall in local output is set to increase India's dependence on imported edible oil to an alarmingly high 68 per cent in the oil year November 2014-October 2015. The Solvent Extractors' Association estimates total vegetable oil imports, both for cooking and for other uses like making soap, surpassed last year's record in 11 months of the current oil year. India is on road to importing 14.1 million tonnes in 2014-15. This could threaten supply and prices if the governments of exporting countries like Indonesia, Malaysia and Argentina frame policies in favour of their farmers and

processors and to the detriment of Indian importers, traders and consumers. "India is being used as a dumping ground for edible oil. Excessive imports have exerted tremendous pressure on local prices and Indian farmers are losing interest in oilseed. This is alarming for the country's food security," said BV Mehta, executive director of the Solvent Extractors' Association. The government has put in little effort to increase oilseed yield, which is less than 50 per cent of the global average. Also, consumption in India has increased substantially with changing food habits of lower middle class

consumers. "We estimate imports to climb one million tonnes next year," said Atul Chaturvedi, chief executive officer of AdaniWilmar, producer of the Fortune brand. Dependence on edible oil import might rise to 68%. Both the kharif and rabi seasons last year had lower output of oilseed. Domestic availability of edible oil has reduced by 600,000 tonnes per year in the last few years. "The solution to India's oilseed deficit lies in better planting material, ability to lease land for contract farming and switching from wheat to rapeseed in Punjab and Haryana," said Dorab Mistry, director, Godrej International.

## Apple exporting nations snap at India's port curbs



➤ Apple exporting countries such as the US, Chile, New Zealand and the EU have locked horns with India over recent port restrictions imposed by the Centre on import of the fruit. The World Trade Organisation's agriculture committee (CoA) has advised the countries to settle the matter through bilateral discussions, but it might boil over into a larger dispute if no understanding is reached. "Some countries tried to rake up the matter at a recent meeting of the CoA, but India opposed the move by asking the members to first state what provision of the Agreement on Agriculture had been flouted," a Commerce Ministry

official told. The Commerce Ministry had issued orders on September 14 restricting import of apples only to NhavaSheva Port in Navi Mumbai. The move is likely to give some relief to local producers of apples in States like Himachal Pradesh, Jammu & Kashmir and Uttarakhand, who had taken a hit due to a sharp increase in import of apples earlier this year and the resultant drop in prices. But apple exporting countries are, obviously, unhappy as disallowing imports from ports such as Chennai, Kolkata and Krishnapatnam, is adding to their transportation costs. Traders have estimated that prices of imported ap-

ples could go up by Rs 50 per kg (from existing prices of Rs 100-150) by December if the port restrictions are not removed. Although the CoA Chairman asked the complaining countries to first try and sort out the matter bilaterally with India, the Centre does not seem to be in a mood to relent. "The decision to restrict imports of apple to one port had been taken to streamline our import procedures and does not concern other countries," an official in the Directorate-General of Foreign Trade (DGFT) said. Import of apples into India from countries such as the US, China, Australia, New Zealand and Italy increased to over 2 lakh tonnes in 2014, a 5 per cent jump from the previous year. Domestic production of apples is about 19 lakh tonnes annually. Imports shot up sharply early this year as traders feared a slump in production in Himachal Pradesh and Uttarakhand due to adverse weather conditions. However, there was no major loss of crop. Interestingly, while the Agreement on Agriculture may not have any specific rules against imposing port restrictions, the General Agreement on Tariff & Trade (GATT), the foundation stone of the WTO, may have provisions that could be used to challenge the port restrictions.

## Indonesia's rubber output to dip next year flat in 2015

Indonesia's rubber output is expected to ease next year due to the effects of an El Nino and haze from forest fires, the main rubber group in the world's No.2 producer said recently, but is seen unchanged in 2015 at 3.2 million tonnes. Indonesia is expected to face moderate El Nino dry conditions which could strengthen from September to December, while fires on Sumatra and Kalimantan have shrouded large parts of South-east Asia in so-called "haze". While it was too early to give a production forecast for next year, haze conditions preventing farmers from tending their trees, a lack of sunshine and dry soil would all hinder production. "It will go down next year but we are still doing analysis," Moenardji Soedargo, chairman at the Indonesian Rubber Association (GAPKINDO) told Reuters. "Compared to last year, 2015 is more or less unchanged."



Indonesia's rubber exports were likely to fall slightly to 2.5 million tonnes this year from 2.6 million tonnes in 2014, he added, due to increased domestic demand. Soedargo said Indonesian rubber farmers had been hit hard by low prices. Singapore and Tokyo rubber futures have fallen to levels last seen in 2009, weighed down by slower economic growth in China, the world's biggest rubber buyer. "The price level today doesn't reflect the actual fundamentals - it's been overdone," he said.

## Soyameal exports look bleak as neighbours lower demand

Without much publicity Pakistan, Nepal, Sri Lanka, Bangladesh have started processing soyameal, used as poultry and cattle feed, cutting their import dependence and affecting India's trade to the extent that exporters see no future in the business. "Exports look bleak at the moment unless until domestic soyabean prices drop," said D N Pathak, executive director of Indore-based Soybean Processors Association of India (SOPA). The country exported about 10.5 lakh tonnes of soyameal in the marketing year ended September 30, he said. Spot prices of soyabean, the main raw material to make soyameal, have gone up to more than Rs 3,500 per 100 kg from about Rs 3,250 in a month, according to the industry body data. Prices need to fall to about Rs 2,900 per quintal if soyameal export has to be viable, Pathak told Financial Chronicle by phone from Indore. High prices have made India uncompetitive against cheap supplies from Argentina and Brazil, the world's two major producers. Companies in countries like Pakistan, Bangladesh are importing soybean at cheaper prices and processing at their own facilities to manufacture soyameal, Pathak said. Even direct purchase of soyameal from Argentina is cheaper than India, he said.

Soyameal from Argentina is available at about \$375 a tonne, inclusive of freight costs while the India-manufactured product costs about \$ 500 a tonne. Prices of soybean are also being traded around the same level.

## India, Germany to set up 'Centres of Excellence' in farm sector

A memorandum of understanding (MoU) was signed between the German Agribusiness Alliance (GAA) and the Agriculture Skill Council of India (ASCI) for jointly establishing 'Indo-German Centres of Excellence in Agriculture'. The MoU was signed by Union Agriculture Minister Radha Mohan Singh and his German counterpart Christian Schmidt. The centres will aim to create a platform for practical agri-skill development in India. "The prime objective of this collaboration would be to provide practical professional skill training as well as practical demonstrations of modern technologies and methods (capacity building) to various stakeholders of the agriculture development ecosystem," said Joerg Rehbeim, Spokesman, GAA. Rehbeim added that the GAA hoped to raise awareness on emerging areas of agri-technologies and their application through the initiative and adopt best development practices from both countries for efficient cultivation methods. "The proposed Centres of Excellence shall provide both short- and long-term practical, professional skill training on modern technologies and methods...the activities would target to reach farmers as well as farm workers and wage workers in agriculture-related industries," said Sanjeev Asthana, Chairman, ASCI. The GAA unites leading associations and companies in the German agriculture and food sectors focusing on agricultural machinery and equipment, as well as agricultural trade.



# Automating the Next Agri Revolution

**Farm Mechanization is another giant leap for Indian style of agriculture. Hesitant and reluctant to fully accept the benefits of farm mechanization, Indian farming has restricted itself to only a few machines in farm. With**

**constantly declining resources including human capital, Indian agriculture is now faced with the twin challenges of securing food security and farm profitability. At times, these two objectives are contradictory and at odds with each other. Farm mechanization**



**holds the key to this riddle. Although the farm mechanization practised in the more developed nations which have vast tracts of farm lands cannot be literally translated in the Indian soils, custom made indigenously developed agri machines can very well aid in mechanizing Indian Farms. India is looking ahead for a home built machine based agri revolution.**



Once India's core agriculture strength had been the millions of working hands, which made India's farming business cheap and dependable. As India marches towards economic sovereignty, the farm labour forces are dwindling. The country as such is witnessing a transition where in the agricultural workers are abandoning their agricultural bastion and finding shelter in the urban centers of development. The exodus of farm workers has created a void in terms of manual labour and the Indian farms are embracing the next best option, Mechanization.

Agriculture mechanization, in Indian situation, thus emerged out of a dire situation of coping with labour shortage. Coinciding with green revolution, India's face of farm machine was tractors which was a symbol of prosperity and progress in the eighties. Later with change in the agri landscape and shortage of manual labour, other forms of agri machines entered Indian farms. Judging by the current scenario, the farm machines are here to stay and more are yet to enter.

### **Labour shortage equals Farm Mechanization**

India's farm labour was one of the success factors that propelled agriculture towards development in its formative years. The helping hands were assured of employment

and the farmers of cheap labour. But recently, the situation has in fact reversed. The rural workers in search of better job prospects and employment have migrated to urban centers.

Several independent studies have confirmed this phenomenon. The study conducted by industry lobby group Federation of Indian Chambers of Commerce and Industry (Ficci) and audit and consulting firm KPMG observed that the size of the agricultural workforce in India reduced by 30.57 million between 2004-05 and 2011-12 and the share of agricultural workforce in the total workforce reduced from 56.7% to 48.8% during this period. The study titled 'Labour in Indian Agriculture: A growing challenge' also pointed out that states like Uttar Pradesh, Karnataka, West Bengal, Bihar and Rajasthan accounted for 79 per cent of the reduction in the workforce.

A survey by ASSOCHAM and National Institute of Labour Economics Research & Development has found that India adds around 72 lakh members to its workforce every year, and the total work force will rise to 485.6 million by 2016-17 and to 495.1 million by 2019-20. The survey also found that manufacturing, construction and services including transport, communication, hotels, education and real estate are the major creators of non-agricultural employment. Importantly, about 37 million workers have





left agriculture in India.

As a result, labour shortages are being faced by many states. This has even led to wage escalation affecting the profitability of the farming sector. Adding to the whole scenario, certain government schemes have also aided in increasing the wages. Because of Schemes like MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), rural wages have been growing by 17% on average since 2006-07 and have outstripped urban wages.

Also, as the country prospers and when new industries prop up, better opportunities emerge for workers. This has also been another reason for the waning of labour from the agriculture sector. The emergence of services sector and retail industry has raised the need of labour and much of this demand is met by the outflow of labour from agri sector.

### Peaking Tractor Sales

If tractor sales are to be believed, farmers seem to have come to reality with the benefits of mechanization and the threat of labour shortage. Between 2003-04 and 2013-14, domestic tractor sales more than trebled from under 1.9 lakh to over 6.3 lakh units, after averaging about

2 lakh units annually through the nineties and the early part of the last decade. The above surge was mainly on the back of rising farm incomes underpinned by a global commodity boom, resulting in higher crop realisations and also forcing hikes in official minimum support prices to align them with world prices.

But apart from the rising farm incomes, labour shortages were a critical factor guiding the rise in tractor sales in the last ten years. The last decade witnessed high overall growth rates for the Indian economy,

leading to large-scale job creation in construction, manufacturing and the services sector. Between 2003-04 and 2011-12, an estimated 37 million people were pulled out from farms.

Labour shortages were also reflected in rural wages, which started growing at double-digit annual rates in nominal terms from mid-2008 onwards, crossing 15 per cent by 2009-10 and peaking at 20 per cent-plus in 2011. They remained at over 15 per cent right until early 2014. This again was favourable for substitution of capital for labour and sales of tractors.

The winning streak came to an end last year which coincided with the drop in crop price realisations following the end of the global bull run in commodities and aggravated by crop damage from monsoon failures in combination with untimely rains and hailstorms. Besides, rural wage growth, too, has slowed down to 5 per cent to 6 per cent as non-farm job opportunities have dried up amid general economic sluggishness.

All these have, in turn, impacted tractors sales that fell to 5.5 lakh units in 2014-15. In a recent survey of farmers, tractor and agri-input dealers, and agriculture department

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officials across Uttar Pradesh, Rajasthan, Gujarat and Madhya Pradesh done for TMA by Francis Kanoi, a market research agency, 54 per cent of the survey respondents felt that the demand for tractors has decreased, while another 11 per cent said it was static. The bulk of those who painted a bleak picture said that tractor purchases were affected because of problems faced by farmers during the last one year. These pertained to un-remunerative crop prices, poor yields from less rains and overall lower farm incomes. This, even as there was general acknowledgement of the need for tractors keeping in view labour shortages and also to facilitate timely agricultural operations and transport of produce.

However, future looks a little better than this year. After a slide of 13% in tractor volumes in FY-15, ICRA the credit rating agency expects the tractor volumes to grow modestly by 2-4% led by onset of good monsoon, moderation of cyclical headwinds and recovery in non-farm demand. Mahindra & Mahi-

ndra, India's largest tractor maker had forecasted a growth of 5-6% in FY-16 last month, if the monsoons are normal. The agency expects the medium term compounded annual growth rate to remain at 8-9%, as the long term industry drivers remain favourable and Government of India (GOI)'s efforts towards rural development and agri-mechanisation; besides other factors like scarcity of farm labour, healthy credit availability, moderate penetration and shortening replacement cycle will continue to encourage demand for tractors.

Domestic tractor volumes which remained decent in the first half of FY-15, witnessed severe slump of 22% year on year (YoY) in Q3FY15 and 30% YoY in Q4FY15 in absence of any pickup in demand with farm sentiments being negatively impacted owing to dip in farm incomes because of aforesaid factors. Further, non-agri demand pull has also remained subdued with slow pick-up in pace of infrastructure and construction activity. While domestic tractor sales

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acquiring tractors than other types of farm equipment. This probably justifies the expansion of tractor industry which has grown substantially, reaching a production capacity of over 500,000 machines a year, the power tiller sector has remained under-developed at only about 30,000 units annually. Low level of awareness regarding the existence of such equipments, their limitations in on-road use and their ergonomic constraints explain their poor popularity.

Power tillers are another segment of farm equipment which has received scant attention from the Indian farmers. Despite India being home to mostly small and marginal farmers whose operational landholding falls below 2 hectares, they prefer large tractors over the smaller and useful power tillers. A power tiller is far cheaper to buy and use compared to a small tractor. The lower diesel consumption of a power tiller vis-à-vis a small tractor helps farmers save on operational costs, regardless of the fact that a power tiller normally takes longer to complete the same job. The average fuel consumption of a power tiller is about 1.25 to 1.5 litres per working hour, against 2.0 to 2.5 litres of a small tractor. Besides, the maintenance cost of power tillers is also far lower than that of tractors. This apart, power tillers are more economical even for other uses, such as for running water pumps and grain threshers. In terms of operational efficiency, too, a power tiller excels

remained somber, export segment continued to perform well through the fiscal with a 20% YoY growth during FY15, ICRA highlights in the report.

According to ICRA research, during the last fiscal, most regions exhibited sluggish sales growth in the negative territory. The central region was the most severely hit with Madhya Pradesh registering a volume de-growth of 25% (YoY) on the back of high base (27% CAGR growth during FY10-FY14) and negative sentiments on account of debilitating demand drivers, especially the crop failures/ damages.

High irrigation penetration in Northern region limited the volume

decline and eastern and western market registered 10% and 4% decline respectively with major contraction in Bihar and Maharashtra markets during FY15. South, however, de-grew only by moderate 7% during FY15 mainly because of the relatively better monsoons in Karnataka which saw volumes grow by 10% during FY15 even as AP and TN markets saw declines of 16% and 18% respectively during the same period owing to sombre demand sentiments.

### The less popular equipment

In India, farm mechanization was mostly tractorization. The Indian farmers were far more enthusiastic in







over a small tractor in several respects. Its easier manoeuvrability comes handy in small and fragmented farms, where a tractor is difficult to operate. Also, in soils that are prone to compaction under the weight of a tractor and the driver sitting on it, a power tiller is deemed more suitable. More importantly, in undulated and hilly terrains, where terraced farming practised, a power tiller is quite often the only machine that can work.

Apart from power tillers, weeders and harvesters also have penetrated the markets, albeit less popular. Cotton pickers and sugarcane harvesters are being designed for Indian conditions. Very recently, the Central Institute for Cotton Research (CICR) has developed the country's first indigenous, self-propelled stripper type cotton harvester, which is expected to give a new dimension to cotton harvesting on small farms (anywhere from 1 acre to 3 hectare). This stripper harvester is more suited for Indian cotton as compared to the imported spindle type harvester. The biggest advantage of the harvester is that it costs just one third and is also suitable for high density planting system (HDPS) cultivation technique. New Holland Fiat (India), the first to launch the sugarcane harvesters, started with imports and then the company started assembling it in India. With volumes growing, New Holland is all set to manufacture sugarcane harvesters in India. John Deere India followed New Holland and launched their machines specially made for India and the company is figuring out what works for the Indian market. It is importing these machines from the US. An

Indian manufacturer based in Rajkot, Tirth Agro Technology, is taking on these global farm mechanization giants with its indigenously manufactured sugarcane harvester at lower price points.

Combine harvesters also have garnered some customers in India. The demand of combine harvesters for harvesting wheat crop in Punjab, Haryana and Uttar Pradesh encouraged the local manufacturers to develop local combines. More than 48 manufacturers, mainly in Punjab, produce self-propelled and tractor operated combines for harvesting wheat, paddy, soybean and gram. Most of the combines are suitable for harvesting wheat and paddy. Farmers also use them for gram and soybean. Claas Crop Tiger and Kartar K3500 are the only combines which have been tested by FMT-TI, Budni for gram and soybean.

Another area where mechanization rules the roost is the processing sector. Agro-processing includes farm-level processing to improve quality of produce and technology for loss prevention in storage, handling and transport. Major equipment which have been developed and adapted for farm level processing include cleaners, graders, dryers, shellers, decorticators, storage structures milling equipment etc. Cottage and industrial level secondary processing includes, rice mills, grain mills, dal mills, oil mills, preservation and processing of animals, fruits and vegetables etc. to increase shelf life and their quality. Today more than 73% of paddy, 55% maize, 24% pulses and 45% oilseeds and 45% sugarcane are processed by modern machinery besides other commercial crops.

**In India, farm mechanization was mostly tractorization. The Indian farmers were far more enthusiastic in acquiring tractors than other types of farm equipment**





The total turnover of food market is approximately Rs. 250000 crores as estimated by Ministry of Food Processing of which value added products comprised of Rs 80000 crores. The total export is estimated at about Rs 11000 crores with rice contributing 29% and marine products 42%.

### Government Support

Farm mechanization being a costly affair and considering the farmers' resistance to adoption of new technology in their age old profession of agriculture, the government, through a slew of supportive measures have supported the promotion of machines in agriculture.

The Department of Agriculture and Cooperation is implementing a scheme for Promoting Agricultural Mechanization through "Outsourcing of training and demonstrations of newly developed equipments". The objective of the scheme is to create awareness about agricultural equipment and machinery among the end users and other stakeholders. Through this scheme, State Governments organize demonstration of improved/newly developed agricultural/horticultural equipment as identified by them at farmers' fields so that the farmers get acquainted about their use and utility for production of different types of crops.

Post Harvest Management being one of the thrust areas for the Dept., a scheme on "Post Harvest Technology and Management" is being implemented, with an outlay of Rs. 40.0 crore during XI Plan period. Under the scheme the technologies developed by ICAR, CSIR and those identified from within the country and abroad for primary processing, value addition, low cost scientific storage and transport of agricultural produce are promoted to minimize wastage during post harvesting processes. The main components of the PHT&M scheme are establishment of low cost Post Harvest Technology (PHT) units for transfer of primary processing technology, supply of PHT equipments to end users with Government assistance, demonstration of PHT technologies and training of farmers, entrepreneurs and scientists.

The Department is promoting Farm Mechanization by making agricultural equipment available among farmers at cheaper rates. A level of 25-50% subsidy on procurement cost is made available under revised "Macro Management of Agriculture (MMA)" scheme for different categories of equipment. The subsidy on tractors and power tillers is available on the models approved by the department under institutional financing. Besides tractors and power til-

lers, combine harvesters are also available to the farmers as per approved pattern of subsidy. As an individual farmer may not be in a position to purchase high cost equipment on his own, Self Help Group of farmers (SHGs), user groups, cooperative societies of farmers etc. are also made eligible for assistance under the programme.

The Farm Machinery Training & Testing Institutes (FMTTIs) located at Budni (Madhya Pradesh), Hissar (Haryana), Garladinne (Andhra Pradesh), and Biswanath Chariali (Assam), have been imparting training to farmers, technicians, retired/retiring defence personnel etc., in the selection, operation, maintenance, energy conservation and management of agricultural equipments. These Institutes have also been conducting testing and performance evaluation of various agricultural implements and machines.

For enhancing production and productivity, as well as for reducing the cost of production, the induction of improved/new technology in the agricultural production system is very important. The demonstration of newly developed agricultural equipment including horticultural equipment at farmers' fields has been included as a component of the restructured scheme. The scheme "Promotion and Strengthening of Agricultural Mechanization through Training, Testing and Demonstration" is being implemented during the Eleventh Plan. This scheme envisages conduct of demonstration of improved/newly developed agricultural/horticultural equipment, identified by the State Governments/Government Organizations at farmers' fields, to acquaint them about their use and utility for production of different types of crops.

The Government of India had advised the State Governments in the year 1964, to set up State Agro Industries Corporations (SAICs) in the public sector to act as catalysts in providing access to industrial inputs

to farmers, for their use in agriculture. Thus, 17 SAICs were set up in the joint sector with equity participation of the Government of India and the respective State Governments of Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh, Tamil Nadu and West Bengal during 1965 to 1970. Many of the State Governments have increased their equity participation as a result of which the Government of India, at present, is a minority shareholder. SAICs have since expanded their basic functions by commencing manufacture and marketing of agricultural inputs, implements, machines, after-sales-service, promotion and development of agro-based units/industries.

Promotion of Farm Machinery and Equipment in North-Eastern Region is also another area where government has laid emphasis.

As an integral component of the effort of Dept. of Agricultural Cooperation (DAC), Min. of Agriculture, to restructure and streamline all Agriculture Development Schemes in the XIIth plan, it is envisaged to have one integrated Sub Mission on Agricultural Mechanization (SMAM) which would aim at catalyzing an accelerated but inclusive growth of agricultural mechanization in India. SMAM puts "Small and Marginal Farmers" at the core of the interventions with a special emphasis on "reaching the unreached", that is, bringing farm mechanization to those villages where the technologies deployed are

decades old. Besides, the Mission also proposes to cater to adverse economies of scale by promoting Custom Hiring Services through rural entrepreneurship model.

The proposed components under Sub Mission on Agricultural Mechanization under National Mission on Agriculture Extension & Technology are as under during 12th Five year plan

- Promotion & Strengthening of Agricultural Mechanization through Training Testing & Demonstration
- Post Harvest Technology (PHT) & Management
- Financial Assistance or procurement subsidy for selected Agricultural Machinery and Equipments
- Establishment of farm machinery banks for Custom Hiring Pattern
- Establishing Hi-Tech Productive Equipment Centres to Target Low Productive Agricultural Regions.
- Enhancing Farm Productivity at village level by introducing appropriate farm mechanization in selected villages
- Input subsidy to small /marginal farmers through cooperative for adopting suitable farm mechanization.
- Assistance for Mechanized farming

**The Department is promoting Farm Mechanization by making agricultural equipment available among farmers at cheaper rates. A level of 25-50% subsidy on procurement cost is made available under revised "Macro Management of Agriculture (MMA)" scheme for different categories of equipment**





makes operations by large machines difficult. So we need to develop custom made machines that can fit into Indian conditions. Taking cue from, Make in India Campaign, many corporates have come up with smaller version of machines suitable to Indian conditions. Greaves Cotton Ltd, one of India's leading engineering companies recently launched its new range of farm equipment products ahead of the kharif harvesting season. Greaves Cotton introduced mini power tiller (7HP) and paddy weeder under its Sampurna Swadeshi programme. Special efforts should also be extended to support agriculture in North Eastern region of India, where the country is targeting its next wave of green revolution. The region is characterized by fragmented land holding and small farm sizes. Farm lands are undulating to various extents in the hilly states. This also restricts easy manoeuvring and operation of big and heavy machineries. This necessitates smaller and lighter machineries for use in sloppy land.

Although many number of farm implements are being developed by research institutes and private organizations, these are not readily available uniformly across the country especially in North East region. This is a major impediment in promotion and adoption of mechanization.

The limitations that exist in the expansion of farm mechanization in India needs to be dealt with immediately. As we aim to produce more food in the future, the options that help in this objective should be fervently pursued and implemented. There are certain factors such as reliability and quality of agricultural machinery; availability of products, spare parts and after sales-services in close proximity; availability of bank credit on terms where currently the farmers have to mortgage both the equipment purchased and his land and lack of effective consumer protection in rural areas for redressal of cases of product problems, and poor after-sales- services, etc., which has to be addressed before hand.

### The Scope and Challenges

India despite being agriculturally inclined has sparingly espoused the benefits of mechanization. This would be an opportune time to embrace agri mechanization as the labour charges are spiralling and employing manual labour is no more economical. The overall farm mechanization in India has reached only about 40%, when compared to 95% levels in advanced countries. This leaves enough scope for mechanization in India.

As the resources are dwindling, the sole motto of farming systems around the world would be maximum productivity per unit area. Farm mechanization helps in timely completion of various farm operations which also works in favour of proper utilization of soil moisture for multiple cropping. Multiple cropping can increase annual agricultural production from a particular piece of land increasing the profitability of the farmers.

Agricultural operations are usually labour intensive and the current scenario of spiralling labour costs and receding labour force are making farm mechanization an unavoidable choice. Besides, mechanization reduces time and expenses of farm operations reducing the overall cost of production. This encourages farmers to expand their farmland in comparison to farmers using animals for farm operations. The farmers can compete

better in the market with reduced cost of production.

Crop diversification is another area which has been receiving considerable attention from the government. Mechanized farming on the other hand with its timeliness and precision of operation encourages crop diversification. Mechanization can open new venues for farmers to invest in new crops.

As owning an expensive machine may be not possible for farmers, there is always a choice of custom hiring. Custom hiring of various agricultural machines and implements in turn could turn up as a new livelihood opportunity for unemployed youths. Production, repair and maintenance of machines, implements and spare parts can also employ large number of educated youths. Thus farm mechanization, on the contrary, enlarges the employment opportunities both on-farms and non-farm sectors through increase in area under plough, multiple cropping, development of agro-industries and related services.

Although farm mechanization offers number of opportunities, there are many number of challenges that need to be sorted out if farm mechanization has to unleash its true potential. One of the biggest challenges to farm mechanization in India is the presence of large number of small and fragmented land holdings which



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# Farm Mechanization – An Overview

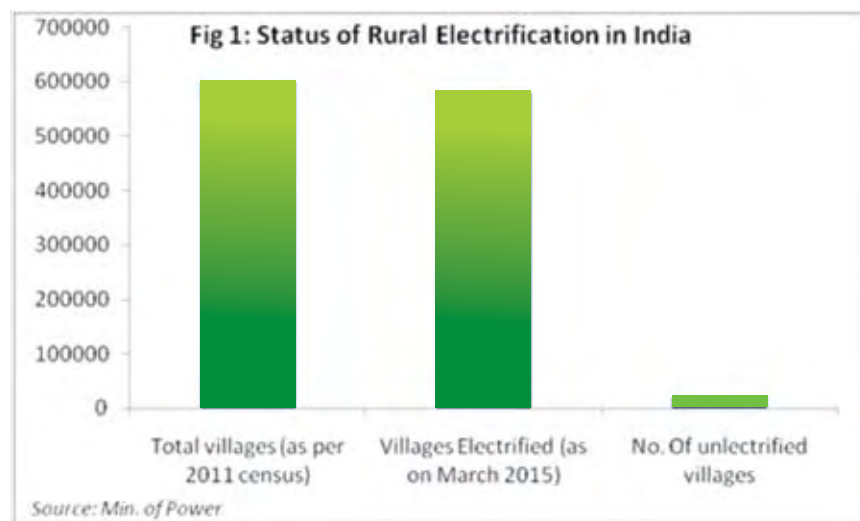
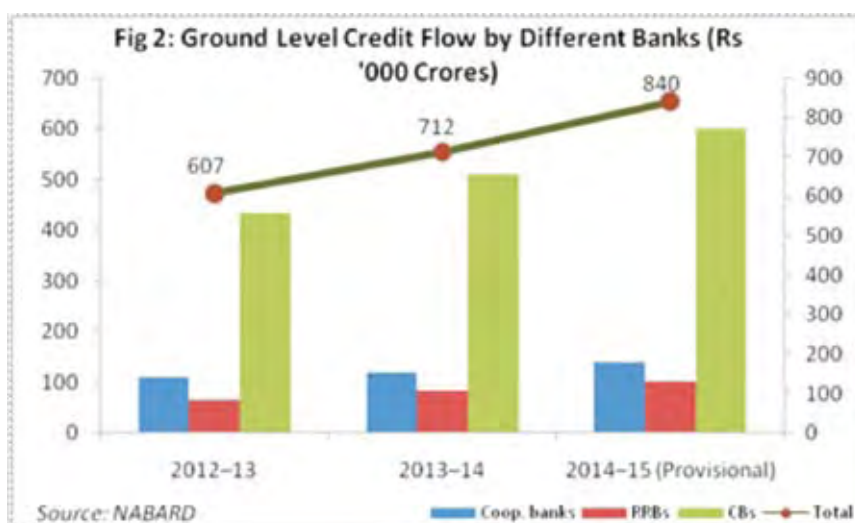
India has an arable land area of over 160 million hectares with almost 90% of it being under the status of net cropped area.

Agriculture operations in India have changed significantly in the last few decades with advances in science and technology. At the time of independence and also during the green revolution in India, large parts of the country had traditional agriculture that was mostly dependent on human labor and draught animals. Over the time, modern agricultural practices have been adopted in many places showing visible signs of adoption of farm mechanization. Albeit slow when compared to some of the developed countries, farm mechanization has picked up in the country in the recent past and Indian agriculture is undergoing a gradual shift from dependence on human power and

Agriculture sector is the third largest consumer of electricity in the country. Agriculture sector consumes 18.5% of the total electricity available in the country, while industrial sector

through policy initiatives and budgets in various five year plans so far.

India has been able to improve its rural electrification status in the recent years, which is important for



the agribusiness and the farm sector. According to 2011 census, India has almost 6 lakh villages spread across different parts of the country and many of these villages are very remote in terms of accessibility and topography. Despite the vastness and the geographical challenges in many areas, India has almost 97% of its villages as electrified, as on March 2015. As seen in Fig 1, out of 597464 villages in the country, 577698 of them are electrified.

## Growth in Rural Credit Availability

Any effort towards providing infrastructure facilities including farm mechanisation to the agribusiness and the farm sector remains incomplete and becomes futile if the farmers do not have access to institutionalized credit. A lot of effort is currently in progress to enhance the credit infrastructure of the country so that the rural people and farmers in particular get easy and affordable credit facilities from nationalised banks, NBFCs and other organised

animal power to mechanical power because of increasing cost for upkeep of animals and growing scarcity of human labor. There are some distinct growth drivers for increased mechanization in the country.

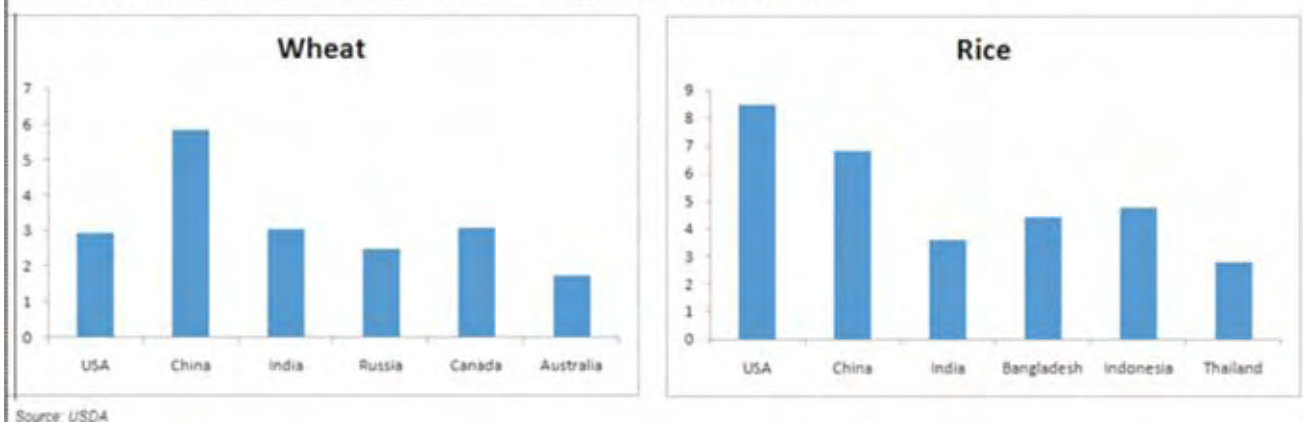
## GROWTH DRIVERS OF FARM MECHANIZATION IN INDIA

### Growth in Rural Electrification

uses need maximum electricity consumption, currently at 42% in the country. Domestic sector is the second highest consumer of electricity with 23.5% of the total available electricity in the country. Needless to say, for the growth of the farm sector and increased mechanisation, electricity is important. The country has been actively engaged in improving the infrastructure related to electricity



Fig 3: Comparative Yield Status of Major Food Grains in India and other Countries (tonnes/ha)



credit institutions. Fig 2 gives an overview of the increasing status of ground level credit flow through various categories of banks like the cooperative banks, the regional rural banks (RRBs) and the commercialised banks. The ground level credit flow in 2012-13 was Rs 607000 crores which increased to Rs 840000 crores in 2014-15. The majority of the ground level credit flow has been from the commercial banks. In 2014-15, commercial banks shared 71.4% of the total credit given by various categories of banks.

### Scope of Major Increase in Yield

India is a country that consumes large quantities of rice and wheat and has the largest area in the world growing these two crops. However, the country produces lower yields of rice and wheat. This translates in to a significant scope for increasing the yield and further ensuring food security through adoption of increased mechanisation. Fig 3 depicts the comparative status of yield between India and other major producing countries of wheat and rice. Increasing the yield with the help of increased farm mechanisation and other improved techniques, could drastically reduce the area of land needed to produce the current quantity and of food grains free up the land for other profitable cultivation purposes, thus increasing the volume of agribusiness in the country.

### Schemes and Initiatives for Farm Mechanisation in India

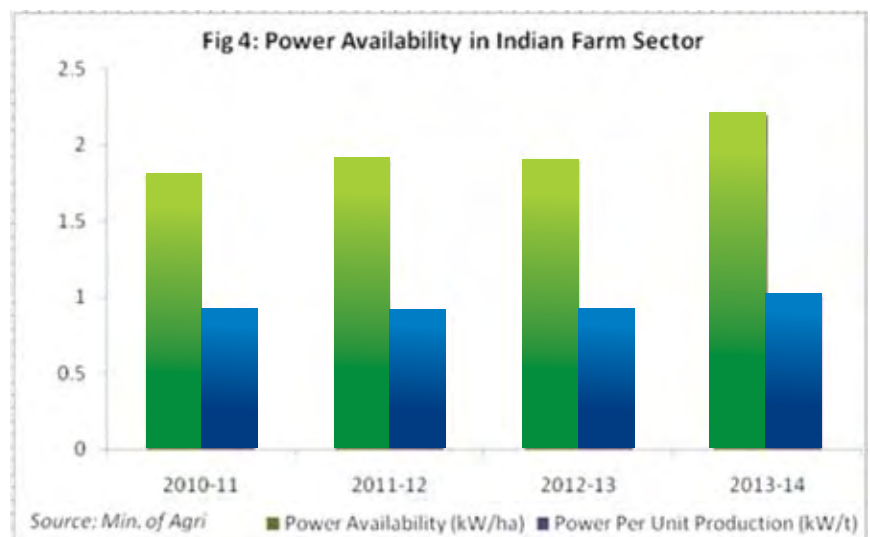
The farm power availability for small and marginal land holdings is the lowest and currently in India, small and marginal holdings constitutes 80% of total land holdings. This is a natural deterrent for large scale adoption of farm mechanisation as viability is a challenge. To circumvent this issue, Government of India initiated a schemes in the form of Custom Hiring Centres (CHCs). CHCs can be an effective platform to make available various farm machineries and equipments to small and marginal farmers and improve mechanization in places with low farm power availability. CHC are located in a place where by and large small land holdings are located within a radius of 5 to 7 kms. So

far, CHC scheme has shown results in major states like Madhya Pradesh, Haryana etc.

Other than this, Sub Mission on Agricultural Mechanization (SMAM) was implemented in all the states, to promote the usage of farm mechanization and increase the ratio of farm power to cultivable unit area up to 2 kW/ha. This shall also promote CHCs to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership.

### Current Status of Farm Mechanization in India

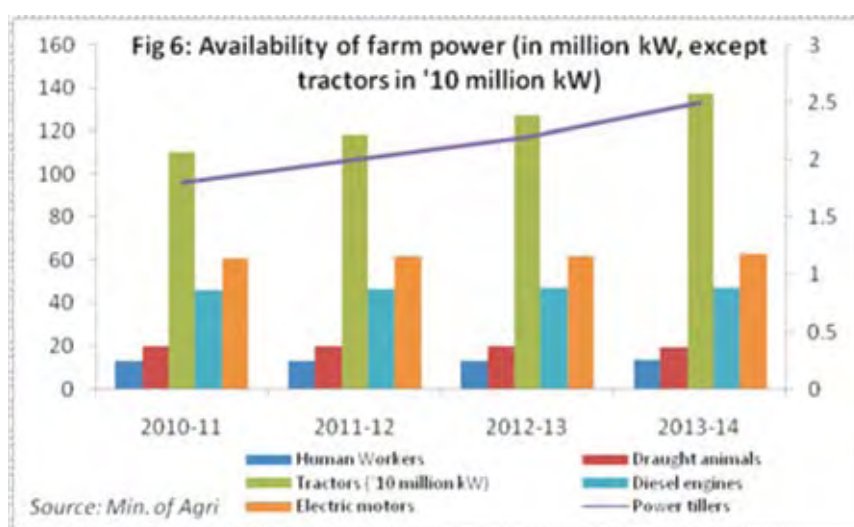
The current status of farm power availability reveals that the rate of increase is quite slow paced, both in terms of power availability and power per unit of production. Fig 4 shows that the power availability between





2010-11 and 2013-14 in India has increased by just 0.4 kW/ha. Power per unit of production has hovered around just 1 kW / tonnes with hardly any increase in the recent years. The different sources of power available on the farm India can be broadly categorised into mobile and stationary operations. Mobile power includes human (men, women, children) working on agricultural fields, draught animals (bullocks, buffaloes, camels, horses and ponies, mules and donkeys), tractors, power tillers and self propelled machines (combines, dozers, reapers, sprayers etc.). The stationary power includes diesel/oil engines (for pump sets, threshers, sprayers and other stationary operations) and electric motors (for pump sets, threshers, sprayers and other stationary operations).

Fig 5 reveals the status of different sources of farm power in the recent years in terms of numbers. The draft animal power has been consistently decreasing over the years which is a positive sign towards farm mechanisation. Between 2010-11 and 2013-14, use of draft animal power has decreased by almost 2%, from 53 million in 2010-11 to 52 million in 2013-14. Use of human workers as source of farm power is still considerably higher when compared to some of the agriculturally advanced nations and in 2013-14, India had 272 million human workers working as source of farm power, an increase

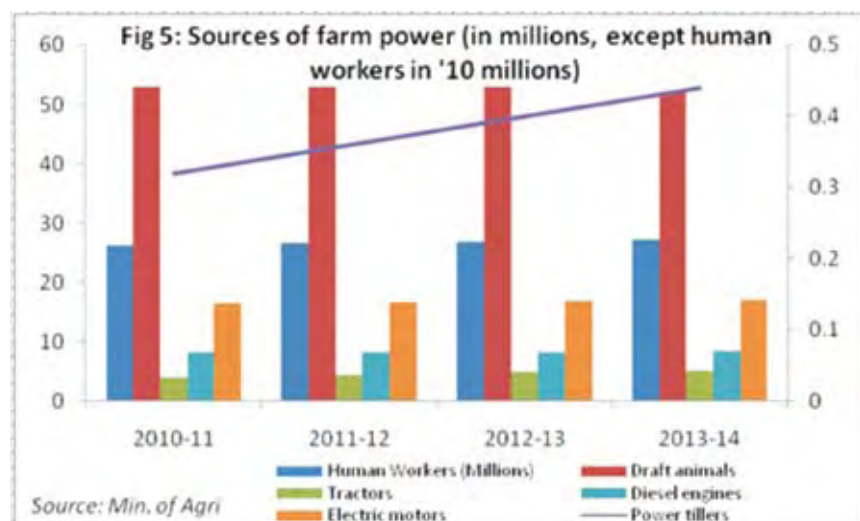


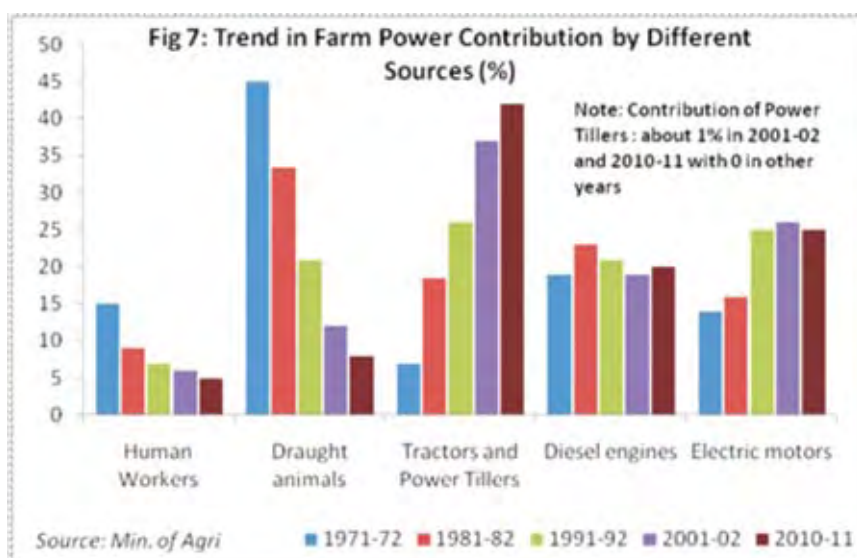
by more than 3% when compared to that of 263 million in 2010-11. Use of tractors in the country has increased from 4 million in 2010-11 to 5.2 million in 2013-14, marking an increase of 30%, whereas number of power tillers increased by 37.5% between the period (0.32 million in 2010-11 and 0.44 million in 2013-14).

Figure 6 provides an overview of the farm power status in the country in terms of total kilo watt (kW) availability from different sources of farm power. Between 2010-11 and 2013-14, substantial increase in power availability was witnessed with farm machineries like tractors and power tillers. Power availability increased from 1100 million kW in 2010-11 to 1370 million kW in 2013-

14, posting an increase of 24.5% during the years. Similarly, availability of farm power from power tillers has increased by almost 40% between 2010-11 and 2013-14 (1.8 million kW in 2010-11 and 2.5 million kW in 2013-14).

Starting with the early phases of green revolution and during the seventies, human labour and draught animals used to contribute the major share of farm power, with 15% and 45% of the total share coming from human workers and draught animals respectively. During the beginning of the eighties, the percentage share of these two sources of farm power decreased significantly. During 1981-82, human workers and draught animals contributed 9% and 33.5% of the total farm power. However, it is interesting to see that since the eighties and till the current days, it has been more than 30 years, but India as a country has not been able to significantly reduce the share of human workers in the farm power. In 2010-11, the contribution of human workers was 5% of the total power contribution by different sources, a reduction of a mere 4% in over a period of 30 years. However, the contribution of draught animals as a source of farm power has significantly reduced during this period. In 1981-82, draught animals contributed 33.5% of the total farm power which significantly got reduced to 8% in



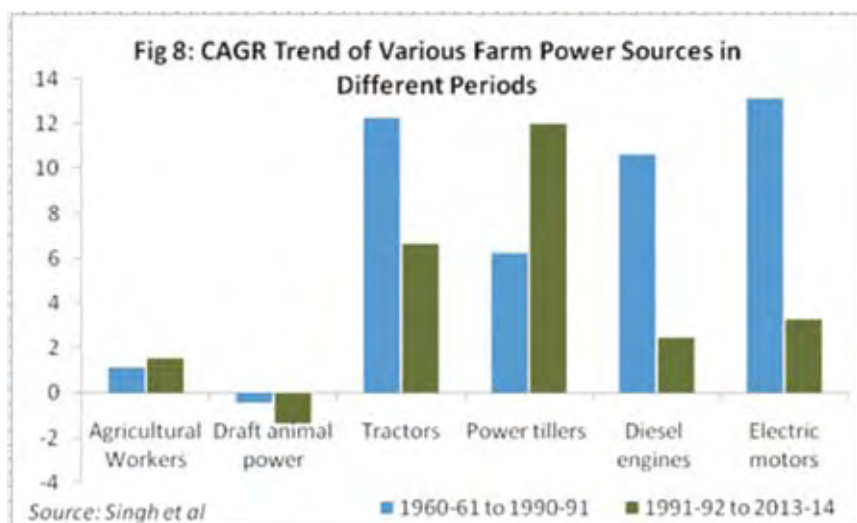


2010-11, witnessing a consistent decline in the last decades (Fig 7). When one examines the increase of the share of tractors in total farm power contribution by various sources, one feels tempted to say that whatever farm mechanisation India has achieved in the last four decades is synonymous to popularising tractors in the country. While the tractors had a share of just 7% of the total farm power in 1971-72, in 2010-11, its share increased to 42%. Interestingly, India being a country of small and marginal farmers, ideally the power tiller could have increased its share but one finds that till date, its share has been a meagre 1% of the total contribution to farm power by different sources.

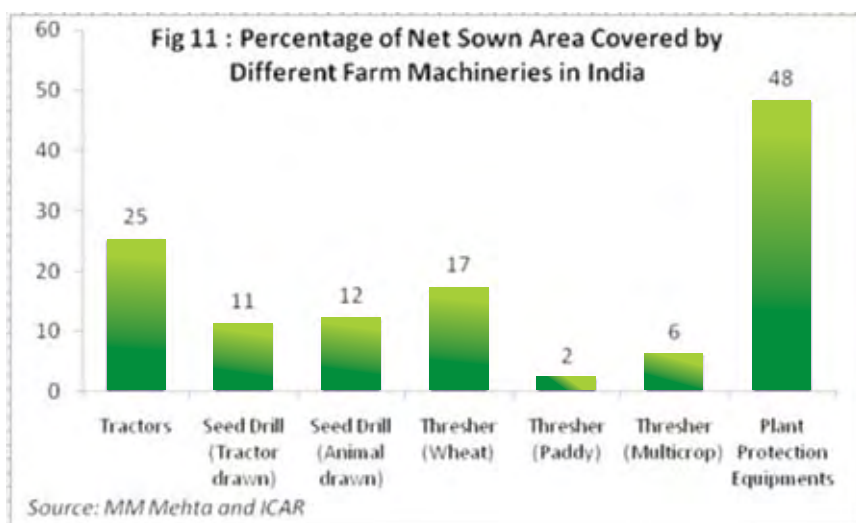
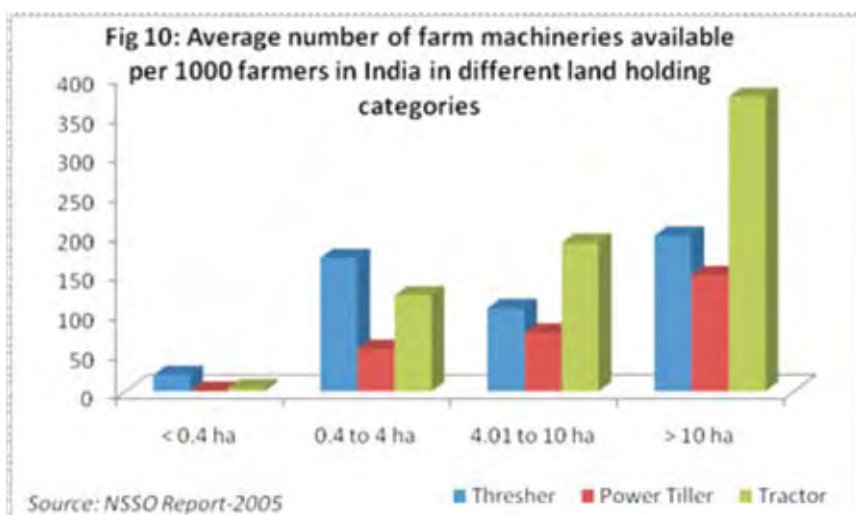
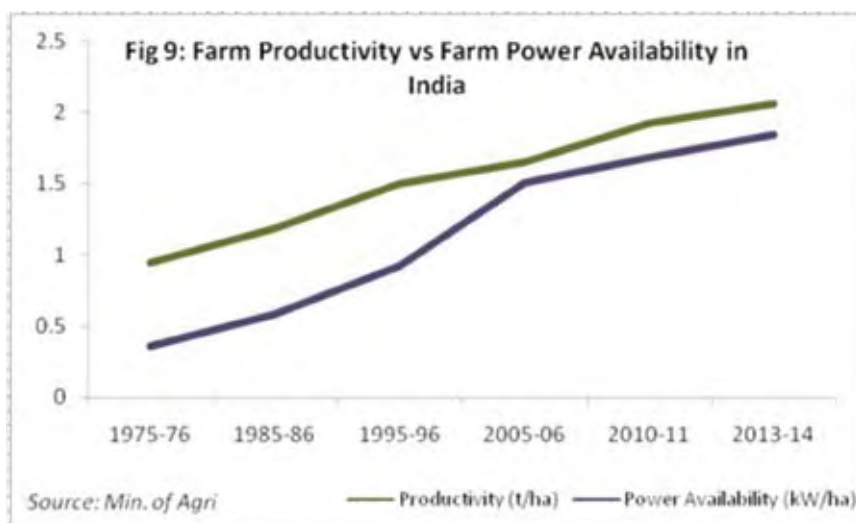
Fig 8 provides an overview of contribution of different farm power sources in terms of compound annual growth rate in two distinct periods- 1960-61 to 1990-91 and 1991-92 to 2013-14. During the period from 1960-61 to 1990-91, the CAGR growth for tractors was the highest at 12.27%, which decreased to 6.65% during the period from 1991-92 to 2013-14. Growth of draft animals contribution to farm power witnessed a negative CAGR during both the period, -0.42% from 1960-61 to 1990-91 and -1.33% from 1991-92 to 2013-14. It's noteworthy that growth of mechanisation on an overall basis can be seen to be more from 1960-61 to 1990-91 than the period from 1991-92 to 2013-14. CAGR

of diesel engines during the two periods in concern are 10.66% and 2.5% respectively, while the electric motors posted a CAGR of 13.12% and 3.29% respectively. One can attribute the higher CAGR growth from 1960-61 to 1990-91 to the green revolution in the late sixties acting as a significant growth driver. India's well orchestrated Green Revolution brought respect and wellbeing to a large section of Indian farmers. Apart from Green revolution, during the mid sixties and the seventies, India witnessed many revolutions which have put our agrarian economy on a sound footing. These include white revolution, blue revolution and grey revolution. Grey revolution is synonymous to machinery revolution. This could be a factor leading to higher CAGR of various mechanised sources of farm power in the country from 1960-61 to 1990-91. However, over the years, the Indian green revolution has gradually faded and the yields have reached a plateau, consequently perhaps slowing down the growth of mechanisation too in the last couple of decades.

When one compares the growth trend of farm productivity to that of farm power availability (Fig 9), one finds that farm productivity has increased by over 119% from 1975-76 to 2013-14. In 1975-76, the farm productivity in the country was a meagre 0.94 t/ha which increased to 1.15 t/ha in 1995-96. In 2005-06, the farm productivity was 1.65 t/ha which consistently increased to 2.06 t/ha in 2013-14. The increase in farm power availability has been able to keep pace with the increase in farm productivity, indicating at the fact that farm mechanisation has played a key role in the overall improvement of agricultural productivity in the country. In 1975-76, the total farm power availability in the country was just 0.36 kW/ha which increased to 0.92 kW/ha in 1995-96. Farm power availability maintained its growth and in 2013-14, the availability was 1.84 kW/ha. When compared to the farm power availability in 1975-76, this







marks an increase of 411% in 2013-14.

One of the major challenges towards increased farm mechanization in India is the land holding pattern where a huge majority of the farmers are small and medium farmers. It is difficult for an individual farmer with small land holding to adopt mechanisation as it goes against the economies of scale. As a result, the benefits of whatever farm mechanization has taken place in the country have largely gone to the large farmers. Fig 10 shows the average number of farm machineries available to every 1000 farmers in India in different land holding categories. For farmers with land holding of less than 0.4 hectares, availability of threshers, power tillers and tractors are respectively 21, 1 and 4 for every 1000 farmers in this category. Farmers having land holding between 0.4 ha to 4 ha, the availability of these farm machineries are 170 (threshers), 54 (power tillers) and 122 (tractors) for every 1000 farmers in the category. The large farmers have reaped the majority of the benefits of farm mechanization and it is clear from the data that for every 1000 farmers with land holding size of greater than 10 ha, there are 198 threshers, 148 power tillers and 375 tractors.

Fig 11 shows the status of farm mechanization currently prevailing in the country in terms of the percentage of net sown area covered by different farm machineries. Tractors are currently utilised in 25% of the net sown area. Wheat threshers occupy 17% of the net sown area, while paddy threshers cover a meagre 2% of the net sown area. 6% of the net sown area is covered by multi-crop threshers. Tractor-drawn seed drill and animal drawn seed drill constitute 11% and 12% of the net sown area. Amongst various farm equipments, it is the plant protection equipments that figure prominently in the picture of adoption of mechanisation covering 48% of the net sown area.

### Approximate Market Size of Farm Machineries and Equipments in India

Name of machinery	Approx. Annual Market size (in terms of numbers)
Tractor	Above 600000
Power tiller	60000
Combine harvester	5000
Thresher	100000
Rotavator	75000
Rice transplanter	15000
Conveyor reaper	5000
Zero till seed drill	30000
Multi-crop planter	2000
Laser land leveler	3000
Power weeder	25000

### Tractor Market- The Blue Eyed Constituent of Farm Mechanization in India

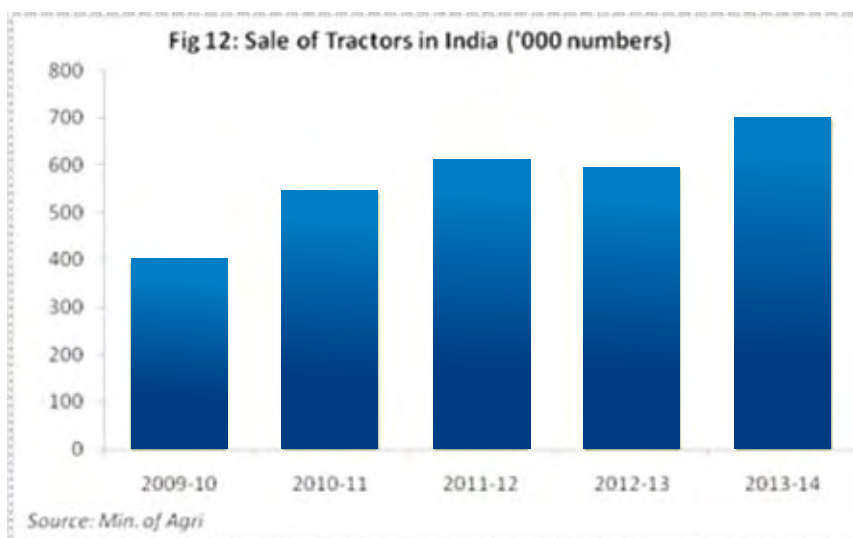
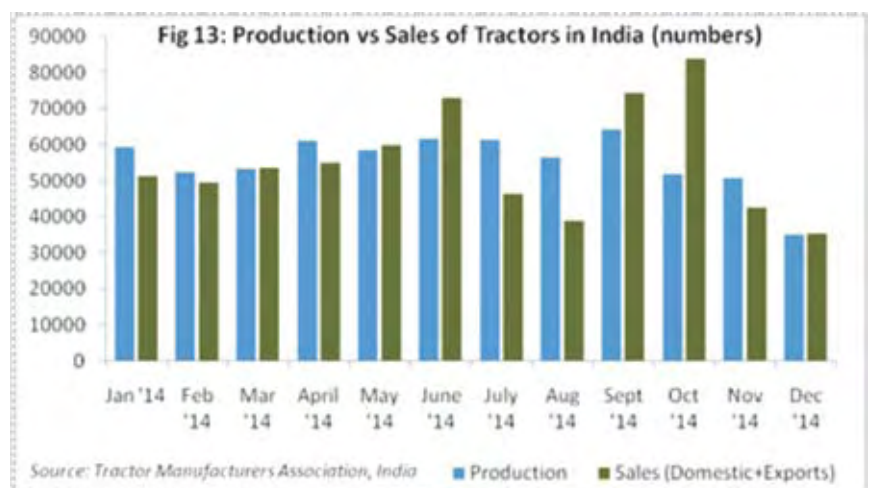
Tractor industry in India has been playing an important role in the agriculture sector, being an integral part of agricultural machinery industry. The country has come a long way from the time when it used to import tractors to the current scenario when tractors are being indigenously manufactured with a number of local and MNC players opening up their production units in the country. Indian

tractor industry has become the largest market worldwide and many experts attributing farm mechanization in the country to "tractorization". However, despite initiatives of the government to boost up agriculture and agricultural machinery industry in the country, tractor penetration level in India can still be considered low when compared to the world standards. Also, the penetration level of tractors is not uniform throughout the country.

During the period from 2009-10 to 2013-14, sale of tractors has registered a CAGR growth of 12%. In 2009-10, 3.9 lakhs units of tractors were sold in the country (Fig 12). The comparatively lower sales in this year could perhaps be attributed to poor monsoon in the

previous year resulting in building up of stocks at dealers' level. However, sales started picking up and in the consecutive years in 2010-11 and 2011-12, tractor sales in the country were 5.4 lakhs and 6 lakhs respectively. However, it fell to 5.9 lakhs in 2012-13 before again registering an increase to 6.97 lakhs in the following years of 2013-14. However, historically, sale of tractors in the country has shown non-uniform distribution across the country, with mainly the northern region driving the growth while other potential regions like the southern parts of the country not registering too many sales.

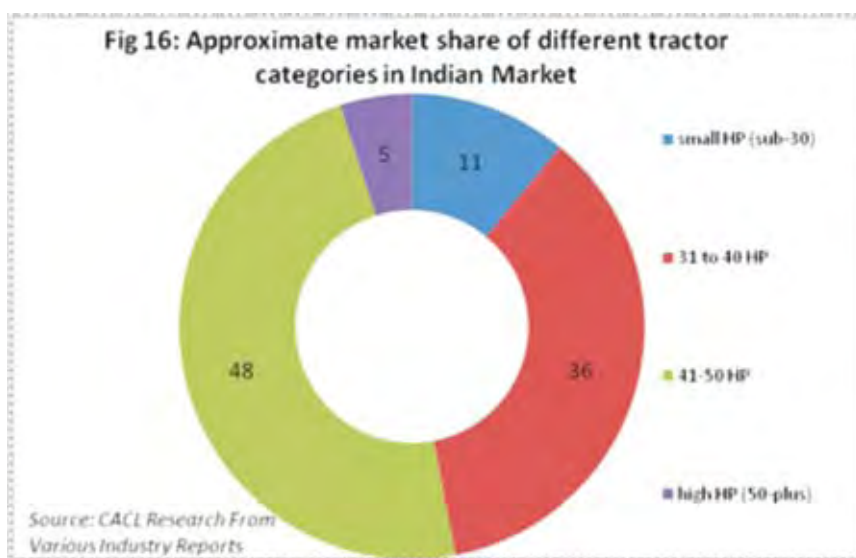
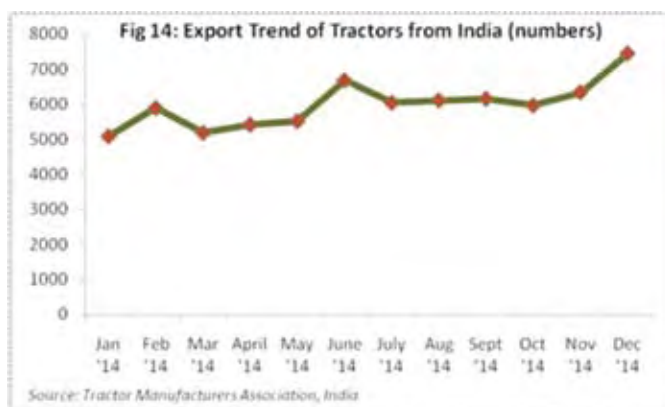
Market experts feel that the current financial year could again witness a decline in sales of tractors



due to premature receding of monsoon and sales flattening out since October 2014. This would result in stock correction with the existing inventory at dealer level being cleared first before taking in new units.

Fig 13 shows the monthly production vs sales of tractors in the country. From January to December 2014, both production and sales exhibited a fluctuating trend. Month in which highest number of units was produced in the country during 2014 was September with 64386 units being rolled out from various companies. Months like April





Mahindra and Mahindra (M&M), TAFE, John Deere, New Holland, International Tractor Limited (ITL) with their Sonalika brand of tractors, Escorts, HMT etc. Some of the notable regional players are Punjab tractors, Gujrat Tractors, Haryana Tractors etc. Six major players (M&M, TAFE, John Deere, New Holland, Escorts, Sonalika) currently constitute almost 98% of the market share. M&M is the behemoth in India tractor market for quite a long time now. Currently, M&M shares a market of about 40%, followed by TAFE with about 24% of the market share (Fig 15). Sonalika (9%), Escorts (10) and John Deere (10) form the next strata of players with sizeable market share. New Holland is comparatively a new entrant to the Indian tractor market as compared to the already mentioned players but its market share has gone up to about 5%.

India has traditionally been a market of low horse power (HP) tractors. Lower HP tractors mostly consist of below 20 HP and between 21 to 30 HP. However, in the overall scenario, Indian tractor market can be broadly categorized into four major segments- small HP (below 30), 31-40 HP, 41-50 HP and high HP (above 50 HP). Players like M&M, TAFE, Sonalika mostly operate in the first three segments. Players like John Deere, New Holland etc. are trying to have a niche in the higher than 50HP segment. Fig 16 provides the breakup of Indian tractor market in terms of HP categories.

(61048 units), June (61805 units) and July (61364 units) are the other months which were significant in terms of production of tractors in the country in 2014. In all, 667096 units were produced in the country in 2014. On the other hand, October 2014 registered the highest number of tractor sales in the country, consisting of both domestic sales and export, with 83947 units being sold. September 2014 was also significant in terms of sales with 74509 units being sold.

Manufacturers of tractors in India also registered overseas sales every year. Fig 14 shows the export trend during the twelve month period from January to December, 2014. In total, various companies in India exported 71828 units of tractors, accounting for almost 11% of the total production in the year. The highest

was in the month of December when 7448 units were exported from the country. Other months when export was significant were the months of June (6676 units), August (6111 units), September (6156 units) and November (6338 units). Neighbouring countries like Nepal, Bangladesh, Sri Lanka and far off countries like the United States remain major export destinations for Indian tractor manufacturing companies. In the recent years, some of the Indian players have started expanding their footprint in African and new South-East Asian markets. This could be a new growth driver for the industry in the coming future.

Tractor industry in India is composed approximately of about 13 big players (both Indian and MNCs) and few regional manufacturers. Currently, the major players are

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Mini Combine Harvester



Brush Cutter



Power Tiller



Weeder



Rice Planter



Tractor



**GREAVES  
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# The Specialist in Professional Farming

As manufacturers of machinery for soil cultivation, sowing and plant protection, LEMKEN currently employs approximately 1,100 people worldwide. The company is in the sixth and seventh generation of ownership by the LEMKEN family. LEMKEN's headquarters are located in Alpen, a town in the Lower Rhine area of Germany, 50 km north-west of Düsseldorf. LEMKEN produces about 17,200 machines per year with a turnover of 363 million € in 2013. Thus LEMKEN is one of the leading companies in Europe. With a market share of more than 40 % for reversible ploughs and cultivators, LEMKEN is established as German market leader. LEMKEN India was incorporated in August, 2010 and since then, the company has contributed immensely for mechanization of Indian farms. In an interview with Agriculture Today, Mr. Vijay Rawal, Director, LEMKEN India Agro Equipment P. Ltd., discusses the operations of the company in India and its future plans.



## When did LEMKEN start its operations in India?

LEMKEN GmbH & Co. KG is a German company based in Alpen, Dusseldorf and it started its Indian operations in January 2010 with establishing a 100% owned subsidiary as LEMKEN India Agro Equipment Pvt. Ltd. in Nagpur. From the very initial stage, LEMKEN was having a concept of establishing a manufacturing facility in India to cater to the domestic demand. LEMKEN India manufacturing unit was completed by end of 2012 at MIDC Butibori, Nagpur, Maharashtra and commercial production commenced in January 2013 with introduction of Hydraulic Reversible Plough as its first product for Indian agriculture.

## What is the market share of LEMKEN in India and abroad?

LEMKEN in Germany has a legacy of 235 years in manufacturing of pre-harvest agriculture machinery which includes seed bed preparation, seed drills and sprayers for plant protection. LEMKEN is a renowned name in agriculture machineries worldwide and in Europe it enjoys more than 40% share in reversible plough segment. In India, LEMKEN introduced the

concept of hydraulic reversible plough and is a leader in this technology.

## What is the general outlook of farm mechanization in India?

With the first green revolution in 60's, Indian agriculture has taken a big turn and mechanization of agriculture started with usage of power operated threshers and continued with various tractor driven agriculture machinery. As expert says, mechanization of Indian agriculture has been limited to certain aspects of agriculture and it can be identified more as to tractor-ization and that is also in small tractor segment of 30 to 40HP. Indian farmers are very keen to adopt advanced mechanization technology but due to small land holdings they can afford only small tractors which do not support technology advantage of advanced farm machineries. This situation has also discouraged manufacturers to indigenously develop technology for agriculture machineries. With the beginning of 21st century, the talk of second Green Revolution in India started making rounds and to achieve this, agriculture machinery with advanced technology is needed. These machines will help the farmer in many ways, to list out a few:

- Reduction of manual labour intervention as today farmer is facing shortage of farm labour and if available, it is far more costly.
- Reduction in no. of operations thus reducing cost of production.
- Maintaining soil health and reducing the usage of chemical fertilizers and other inputs.
- Comes with quality benefits of safety features for operator, user-friendly, durability and low maintenance requirements with replaceable parts instead of repairing.

### **Are there any customized products that have been released by LEMKEN India?**

India's agriculture is composed of various crops with variety of soil texture which varies from village to village, so it is always challenging for any agriculture machinery manufacturer. In such a scenario, LEMKEN closely work with farmers in different regions and provide a customized solution through its product range to the issues associated with seed bed preparation.

### **What is the product profile of LEMKEN India?**

LEMKEN began its Indian journey in 2013 with introduction of reversible plough known as OPAL 090 and in 2014 introduced 2 more products namely ACHAT 70, an advanced tined cultivator for stubble cultivation and PERLITE 5, a rotary tiller with vertical soil penetration for seed bed preparation. All of these three products come in three variants and suitable for the 40HP to 75HP range of tractors.

### **Which is the most popular product of the company in India?**

Still the hydraulic reversible plough OPAL 090 is most popular LEMKEN product in India. It is a primary tillage implement for better turning and mixing of soil at a uniform depth and suitable for all kind of crops/soils. It increases porosity of soil, reduces weeds and improves yield significantly as well as quality of the crop with less chemical input. Since last one year, other products like tine cultivator and rotary tiller are also gaining popularity as farmers are observing the benefits of these products as demonstrated in their first crop cycle itself.

### **What are the CSR activities of the company?**

LEMKEN worldwide as well as in India is very actively involved in contributing to the society at large and rural community specially. In India, since 2014, LEMKEN has been associated with Ecumenial Sangam, Nagpur an organization working in Vidarbha region with rural community in the field of child education, community health and promoting organic farming and water management techniques in the villages. Apart from this, LEMKEN is also spreading awareness towards advantages of usage of technology in farming and to do so demonstrate the benefits by providing free of charge seed bed preparation for small farmers in different villages in different regions of India.

### **How does LEMKEN India maintain its association with its customers?**

Presently, LEMKEN India has a dealer network in different states of India and provide sale and after sales service support to its customers through trained personnel at all dealer levels. In case customers are located in the area where there are no local dealer nearby, LEMKEN India service team takes care of such customers. For LEMKEN India products, service is very important for its durability and performance and for that purpose only during end of monsoon season service camps are organized at all dealer levels and in some cases even at village level. At one end, these activities ensure that customer is able to fully exploit the benefit of investment made in these machines and on the other it helps to connect with the customer directly and take authentic feedback on product/ service and its benefits enjoyed by the farmer.

### **What are the future plans of LEMKEN in India?**

During 2015, LEMKEN India has concentrated on expansion of its sale & service network, and also establishing the new products launched recently. For short term, LEMKEN will concentrate in these two activities rigorously and also in the process develop the export market in those countries where after sale support network is available either through sister-concern or through global dealer network. For mid-term and long term, as the customer confidence grows in LEMKEN products, we will add more products from our global range of products as per the suitability for Indian market.



# 'The pressure for mechanisation in India is high'

The VDMA (German Engineering Federation) represents over 3,100 mainly medium-sized companies in the capital goods industry and is thus the largest industry association in Europe. The association represents the common economic, technical and scientific interests of mechanical engineering, in particular to national and international authorities and business circles. The liaison office in India at Kolkata of German Engineering Federation (VDMA) serves the Indo-German economic relations in the different engineering sectors. This office promotes the activities of the VDMA member companies in India. VDMA India office maintains close relations with the Indian Industry, Indo-German companies, Embassy and Consulates and various Indian Industry Associations. In conversation with Agriculture Today, Mr. Sumit Sharma, Regional Manager, VDMA discusses the role of mechanization in Indian farms and the future ahead.



## How significant are the associations like German Engineering Federation (VDMA) in today's world?

The VDMA is divided into 15 cross-sectional departments, with representative offices in Berlin and Brussels as well as liaison offices in India, Brazil, China, Japan and Russia, 38 trade associations and consortia, International Committee, 6 regional associations and several service organizations. The German mechanical engineering industry is an international leader - in 25 of 31 comparable specialized branches are German companies among the top 3 providers in the world. The engineering sector is the largest industrial employer in Germany with 1,003,000 employees (January 2015). It develops and produces key technologies for the world market. The export ratio is 76 percent. With a turnover of 212 billion euros (2014), it is one of the leading industries in Germany.

## How well is the agri machinery industry in VDMA India?

The VDMA Agricultural Machinery Association serves as a lobbyist, service provider and information broker for the manufacturers of agricultural machinery. It gives information about current market developments or aspects concerning market access,

for instance. VDMA's core competence is to create networks, to make and maintain contacts and to earmark the industry's image. Moreover, VDMA Agricultural Machinery acts as a reliable and dependable partner: for members and their customers, science and universities, affiliated associations and customer associations, for press and exhibition partners and all those looking for and needing information about the industry. In doing so, the association is internationally orientated.

## What is the potential of farm mechanization in India?

Farm mechanization in India facilitates timely, precise and scientific farm operations, increasing farm input and labor use efficiency. This would result in significant improvement of agricultural productivity. The agriculture processing sector has immense employment potential for rural people, provided these activities are undertaken largely in rural areas. India should develop a legislative and structural framework that encourages custom hiring (renting) services so as to facilitate better capacity utilisation of farm equipment. Also, an enabling framework to encourage land consolidation and development of land lease market to make efficient use of farm machinery. A lot more focus needs to be brought in to further enhance the growth of this sector and tap the immense potential it offers.

### **What are the opportunities for German companies in the Indian agri machinery sector?**

India is a big and important future market for the German Agricultural machinery companies. India's diverse and complete crop cultivation offers the opportunity for many German companies to explore this interesting market.

### **Has there been any partnerships or joint ventures between Indian and German counterparts?**

Claas India has been producing combine harvesters in India since middle 1980s and now have a strong base and market acceptance. A recent development has been the company Lemken which is manufacturing ploughs at their facility in Nagpur. Same Deutz Fahr, a German/Italian JV is producing high-end tractors at Ranipet near Chennai. Grimme, the world leaders in Potato harvesting machines have also started their operations in India. Many more companies are looking forward to enter the Indian market in the coming years.

### **What are the challenges for the foreign companies to establish in India with special reference to farm machinery sector?**

Market demands in India do differ from those in Western agricultural machinery markets. Western manufacturers often develop products specifically for the Indian market, rather than simply launching their standard product range. Costs play a crucial role in Indian purchasing behaviour. In order to lower acquisition costs, Western manufacturers often "strip" (simplify) their products. Operating costs, especially with regard to fuel consumption, are also decisive for market success. In order to be operated in the comparatively small Indian fields and to be driven on narrow roads and fragile bridges, machines usually need to be smaller and lighter. Implements should be able to operate with low- or medium-powered tractors. There is a tendency to prefer flexible, multi-purpose machinery rather than specialised equipment. Ease of operation and maintenance play a crucial role, because many farmers are not yet familiar with high-tech products. In many regions across India, female workers now outnumber their male counterparts in the fields. Consequently, operation of the machinery should not require too much muscle power. By-products are used more intensively than in more developed parts of the world. For example, for many Indian farmers, the quality and condition of the straw following combine harvesting is crucial, because the straw is subsequently used as animal fodder. Thus in some product categories, machinery must ensure not only the quality of the main product, but also the quality of by-products. Distances between plant rows are

usually narrower in India. Often machines of Western origin need to be adapted accordingly.

### **How do you rate the current farm machinery sector of India?**

We believe that it is growing at rate of 6-10% depending on the monsoon situation each year.

### **What do you foresee in this sector?**

The pressure for mechanisation in India is high, and the agricultural machinery market has recently been growing accordingly. However, the speed of mechanisation does not seem to be as rapid and linear as in other expanding markets such as China, for instance. In addition, the sudden explosive development of the market that was expected by some has not yet taken place, and probably will not take place in the near future. Instead, the two-digit growth rates of recent years could slow to more moderate growth in the upcoming years. Nevertheless, growth rates for Western agricultural machinery manufacturers in India do not necessarily have to conform to this. Indeed, the structure of Indian agriculture seems to be developing in a way which could become favourable for Western manufacturers in the long run. Currently, there is a polarisation taking place in Indian agriculture. On the one hand, farm sizes are continuing to shrink, and the average Indian farmer as potential customer seems to retreat into far distance. On the other hand, however, there is a growing rural exodus, and increasingly farm owners and agricultural workers are searching for new businesses. As a result, another customer profile has arisen: contractors. Presently relevant primarily in harvesting, contractors are expected to carry out all types of agricultural operation in the future. The Indian government is willing to provide support for this. The government views contracting as a bridge to increased productivity without a structural change toward larger farms – which is unwelcome in India. For Western manufacturers of agricultural machinery, this development can be regarded as beneficial. The requirements of professional contractors, who use the machinery much more intensively, are more concerned with efficiency, longevity and technical sophistication than may be the case for the average Indian farmer. And this is exactly where Western manufacturers can step. The pressure for mechanisation in India is high, and the agricultural machinery market has recently been growing accordingly. However, the speed of mechanisation does not seem to be as rapid and linear as in other expanding markets such as China, for instance. In addition, the sudden explosive development of the market that was expected by some has not yet taken place, and probably will not take place in the near future. Instead, the two-digit growth rates of recent years could slow to more moderate growth in the upcoming years.

# Innovative and Inventive

SAS Motors Limited was incorporated in April 2003 with the mission of making low-cost mechanization technology available to the Indian Farmers. Its flagship product is 'Angad Diesel Hal' – a gender friendly total solution for mechanization of small farms, that can plough, seed, de-weed, spray, irrigate with the required matching accessories. SAS Motors also provides a range of multi utility agricultural equipment and tractors. In a discussion with Agriculture Today, Mr. Ravindra Kumar, Managing Director, SAS Motors Ltd. gives a glimpse into the company's profile and his views on farm mechanization.



## What is the market share of SAS Motors?

The flagship product of SAS Motors Limited is Angad Diesel Hal – a self propelled specialised multi-functional Power / Rotary Tiller capable of addressing a majority of the farming needs – From Field Preparation, to sowing, to weeding, to irrigating, to spraying and even harvesting. Our product is unique and none of the competitors have such a multi-faceted machine. However, as the base prime mover for all these applications, we have close to 50% market share in spite of some very seasoned and matured players in this space.

## What is the product profile of the company?

The Company has two verticals right now – Farm Mechanization Products consisting of Angad Diesel Hal, Power Tiller, Small Tractor, Petrol Weeder, Rotavators, etc. and the other Vertical is of Vehicle division wherein E Rickshaw has been introduced by the Company.

## In India which is mostly composed of small and marginal farmers, expensive machineries are impractical. How did SAS Motors fill this gap?

We understand the Indian market, their need & challenges – Small & scattered land holding, acute scarcity of labour, specialised operations, more than 40% of farming labour constitute of female labourers and hence, to address all these challenges, we have developed this Self Propelled, Specialised Multi-functional Machine capable of addressing most of the farming needs and is also gender friendly, extremely cost effective both in terms of owning and operation.

## Most of the machines in use in India in farms are not gender friendly. How does your product 'Angad Diesel Hal' differ from others in this aspect?

This product has been designed especially for the Indian conditions and Indian Farming practice. The handle

and the linear speed of the Angad Diesel Hal has been specially designed to ensure absolute working comfort for the Female gender. The other working parameters are also synced for comfort of the female.

## How is the market environment in India for farm machines?

This is an area of concern in India. While the farming community needs to be encouraged to adopt better farming practices, modern tools and machines, the role of Subsidy, its pattern of distribution and too much of interference in his choice making has actually impeded the pace of farm mechanization in India.

## What are the challenges faced by this sector in India?

The market should be freed of too much of hand holding and the beneficiary should have complete freedom to decide what he wants to buy and in fact the subsidy itself should be completely withdrawn. This would help the farmer to decide what he wants to buy, from where he wants to buy and when to buy. He would procure his asset as per his requirement and need. This is the biggest problem being faced in this sector.

## How according to you India's farms can be made machine friendly?

The stakeholders – be it Government, the manufacturers, the Institutions and other agencies should help the farmers to understand and adopt best farming practices, also help the farmer understand the usage and cost benefit analysis and how these machines can aid him in better yield and savings.

## Where do you see the company ten years down the line?

We see ourselves as a major role player in the transformation of the Indian Farm Mechanization journey. We would be a major player in terms of Solution Providers to the Indian Farming Challenges and would have substantial share of Indian Farm mechanization.





## ***Bringing Innovations to Farmers...***



**PI Industries Ltd**

Udaisagar Road, Udaipur - 313001, Rajasthan

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# Adapting to Climate Change

**A**t the 21st Conference of the Parties (COP) in Paris, a few weeks from now, the Governments of more than 190 countries will meet to negotiate a new international agreement on climate change aimed at reducing global greenhouse gas emissions. On 2nd October this year, India submitted to the United Nations Framework Convention on Climate Change (UNFCCC) its own voluntary pledges for climate change action -- mitigation and adaptation -- in the form of the Intended Nationally Determined Contributions (INDCs).

Great hopes are pinned on the INDC approach to negotiating a successful global climate deal avoiding the sense of failure that followed the 15th COP in Copenhagen in 2009. The INDC-based system reflects a shift towards a more bottom-up approach compared with the earlier top-down agreement which relied only on scientific reports.

Mitigation action relates to addressing the causes of climate change by reducing emissions. Adaptation refers to dealing with the impacts of climate change. Ambitious mitigation efforts can lessen, but not prevent, future climate change. In a world that will continue to warm

the resource-poor communities in developing countries, least responsible for global warming, will be the worst affected by it unless urgent measures are undertaken to help them adapt and cope with its unavoidable consequences.

India's INDCs highlight the mitigation and adaptation action the country proposes to take over the next 15 years. To affect mitigation, INDCs target a 33-35% reduction of emission intensity by 2030 from 2005 levels, creation of additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent through afforestation, and increase in the share of non-fossil fuel energy in power generation to 40% of the total installed power capacity in 2030.

On improving adaptation measures India's INDCs state that investments will be enhanced in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management. It is estimated in the document that India's expenditure on development programmes with critical adaptation components has increased from about 1.5% of GDP in 2000-01 to 2.8% during 2009-10.

Rural communities whose

livelihoods depend upon environmental resources - land, water, biodiversity - are vulnerable to weather and climate variability.



**Dr. Rita Sharma**

Subsistence is jeopardised as water stress increases, soil fertility declines and biodiversity begins to disappear. Climate change causes the frequency and severity of extreme events to increase, exacerbating smallholder vulnerabilities. Mounting agrarian distress, in its extreme form has manifested itself in the spate of farmer suicides.

We examine here three development programmes, whose primary objectives are poverty alleviation, sustainable livelihoods creation, productivity enhancement, natural resource rejuvenation, but which also have high adaptation benefits for the resource-poor communities, namely (i) Mahatma Gandhi National Rural Employment Guarantee Programme MGNREGA; (ii) Integrated Watershed Management Programme (IWMP); and (iii) Agroforestry.

**MGNREGA [Rs 35,000 crores annually].** While the primary objective of MGNREGA is to provide 100 days of guaranteed employment to rural households, thus contributing directly to livelihood security, its adaptation benefits are three-fold (i) in times of natural disasters -- drought, floods, cyclones, inclement weather, when crops are damaged and employment through normal agricultural activities declines, MGNREGA offers a safety net to landless labourers and smallholder farmers in terms of income at minimum wage; (ii) the MGNREG Act itself has a strong focus on water conservation, drought-proofing, afforestation, tree plantation, minor irrigation works, renovation of





traditional water bodies, desilting of tanks, land development, flood control and protection, drainage and rural connectivity. Of the approximately 10 million works being undertaken in over 650 districts, about 70% are land, water and forestry-related. The creation of durable community assets through a rejuvenated and replenished natural resource base builds resilience of vulnerable rural communities; (iii) Asset creation on the individual farms of small and marginal farmers as well as on the lands of SC and ST farmers can enhance their irrigation potential leading to drought-proofing and better adaptation to rising temperatures from global warming.

To sharpen the adaptation component of MGNREGA its implementation processes need to be further strengthened: (i) allocation of adequate budget so that financial pipeline to the village panchayats is continuous and unbroken; (ii) payments to workers within the stipulated time; (iii) no dilution of its focus from natural capital creation - water conservation, drought-proofing and tree-plantation; (iv) as a further measure of relief, an automatic increase in number of days of work from 100 to 150 days, when disaster is declared; (v) quantification of adaptation benefits in terms of reduced vulnerability and improved resilience which should be regularly evaluated and monitored.

**IWMP [Rs. 4500 crores annually]** In providing sustainable livelihoods to communities living in rainfed areas the watershed approach is a potent instrument for adaptation to climate change. The IWMP aims to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover, water and tree plantation. The outcomes are prevention of soil run-off, regeneration of natural vegetation, rainwater harvesting and recharging of the ground-water tables. This enables enhancement of productivity, multi-cropping and the introduction of diverse agro-based activities,

all of which help to build resilience against scanty rainfall, crop-failure and drought. IWMP recognizes the importance of ecosystems, community participation, traditional knowledge, and project flexibility for promoting economic activity and addressing cultural differences and local needs. A participatory approach integrates and trains community members in planning and implementing various components of the programme, technical interventions for soil and water conservation measures, sustainable practices such as Systems of Crop Intensification (SCI), eco-system inputs - afforestation and agroforestry - for drought mitigation, and social interventions such as women's self-help group mobilizations, water-user associations and their capacity building for both farm and off-farm employment.

There is a need to quantify the overall effectiveness of watershed programmes. While there have been micro-studies to estimate the programme's contribution to poverty reduction, there is still a lack of understanding of how revitalized ecosystems might improve resilience to climate change and conversely, how increasing rural dependence on climate-sensitive agricultural income might increase vulnerability. Evaluations of IWMP have tended to describe changes in key indicators but little light has been shed on the extent to which risks have been reduced, vulnerabilities addressed and resilience strengthened. These dimensions need to be studied and the feedback provided to policy-makers.

**Agroforestry.** Trees deliver multiple benefits for humans, livestock and ecosystems. Tree-based farming systems contribute robustly to livelihoods by providing fruit, fodder, fuel, fibre, fertilizer and timber, enhancing food security, income generation and insurance against crop failure. The woody perennials generate natural capital and enrich the ecology through soil and water conservation,

nutrient recycling, carbon storage and biodiversity preservation. They enhance the resilience of small farmers to climate change. Agroforestry epitomises the gold standard that meets the triple win indicators of Climate Smart Agriculture, i.e., increased productivity and cash income, adaptation to climate change and mitigation of greenhouse gases.

The National Agroforestry Policy notified by the Government in February 2014 was a major step in providing momentum to Agroforestry. Efforts are being made to simplify the regulations on the harvesting and transportation of trees grown on farms. Access to quality planting material has to be promoted along with institutional credit and insurance products. Public and private investment in research, extension and capacity building is required. For effective implementation of the policy an Agroforestry Mission needs to be established expeditiously.

Adaptation to climate change is an important dimension of equity and climate justice. Development programmes which are designed to have co-benefits of adaptation are the most appropriate strategy for countries like India. The imperatives of employment generation, productivity enhancement, food, nutrition and livelihoods security, must always be the first priority. If adaptation benefits emerge as a by-product of sustainable development it is win-win situation as exemplified by the three programmes discussed above. Moreover, if adaptation action delivers mitigation co-benefits as well, as in the case of Agroforestry then we have a triple win gold standard.

**Rita Sharma is former Secretary to Government of India, Ministry of Rural Development; former Secretary to the National Advisory Council, former Extension Commissioner, Ministry of Agriculture; currently, Member, Board of Trustees of the International Rice Research Institute and World Agroforestry Centre and Chairperson of the Policy Group of the Indian Council of Food and Agriculture. Email: sharmarita2015@gmail.com**



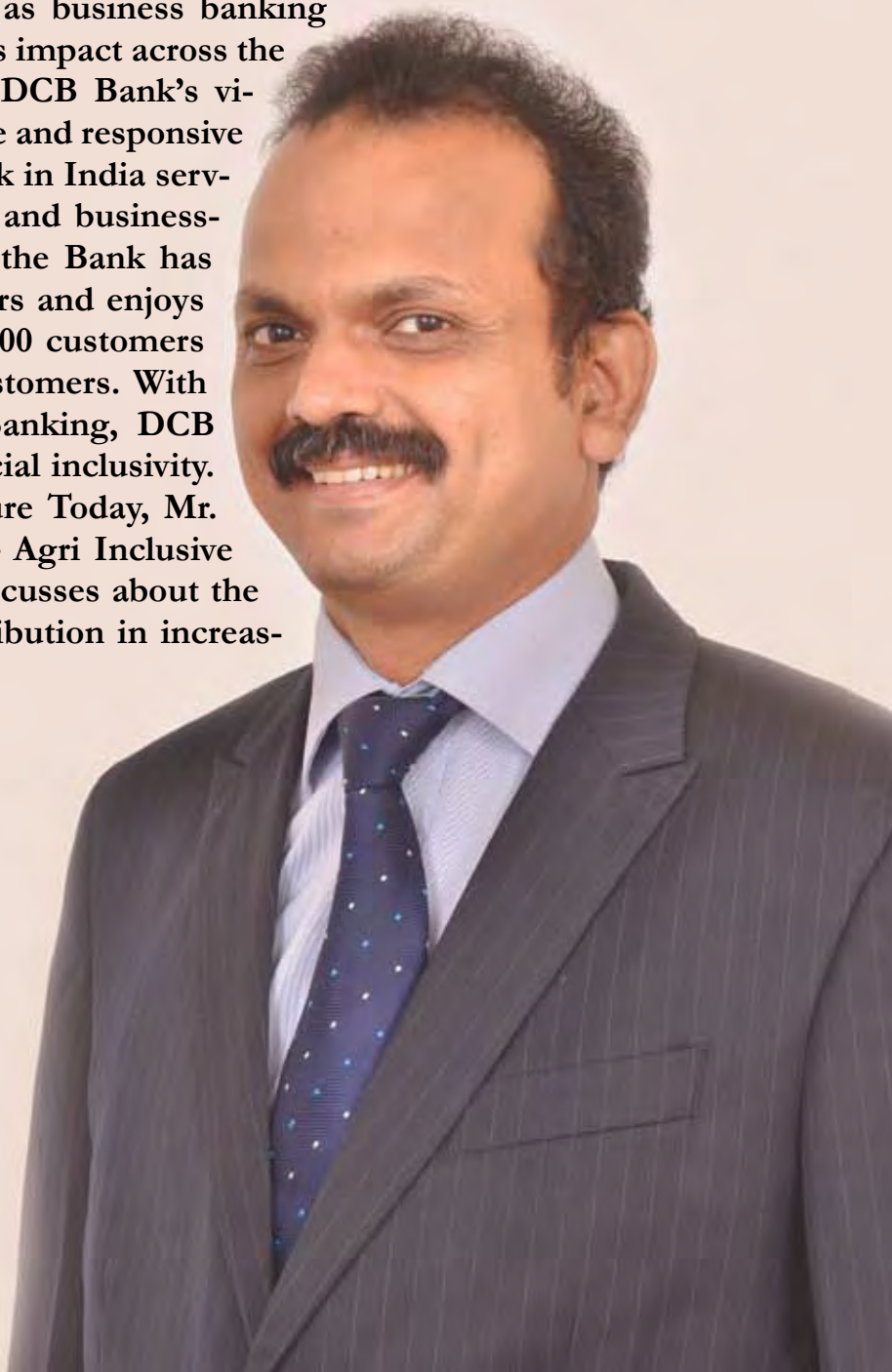
# DCB Bank

## Banking for the Unbanked

DCB Bank, an emerging new generation private sector Bank with contemporary technology and infrastructure including state-of-the-art internet banking for retail as well as business banking customers, has by now made its impact across the length and breadth of India. DCB Bank's vision is to be the most innovative and responsive neighborhood community Bank in India serving entrepreneurs, individuals and businesses. With a wide product mix, the Bank has attracted attention of customers and enjoys the patronage of around 500,000 customers nationwide as well as NRI customers. With its focus on Agri Inclusive Banking, DCB Bank is also broadening financial inclusivity. In an interview with Agriculture Today, Mr. Narendranath Mishra, Head – Agri Inclusive Banking (AIB), DCB Bank discusses about the bank's products and the contribution in increasing financial inclusivity.

**What is the geographic presence of DCB Bank? How many branches are present across the country?**

DCB Bank Limited is a modern emerging new generation private sector bank having 157 branches spanning across 17 states and 2 union territories as of Q1 FY'16.. DCB Bank's network of 157 state-of-the-art, customer friendly branches are situated across the states of Andhra Pradesh, Chhattisgarh, Delhi/ NCR, Goa, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, West Bengal and Union Territo-



ries of Daman & Diu and Dadra & Nagar Haveli. Around 50% of the branches are located in the western region of the country; Maharashtra, Gujarat and Rajasthan and in the last financial year the bank opened 24 new branches across Andhra Pradesh, Delhi NCR, Gujarat, Haryana, Madhya Pradesh, Odisha, Tamil Nadu and Telangana. DCB Bank has renewed its focus on Savings and Current Accounts (CASA), fixed deposits, AIB (Agri and Inclusive Banking), SME and mid-Corporate. Through the new branches, DCB Bank aims to provide its range of banking services primarily focused on farming, agribusiness and retail banking.

### **How is DCB Bank's product-mix designed to cater to the varied needs of customers?**

In order to provide comprehensive service to customers, DCB Bank has embraced the concept of 'all products at all branches'. Accordingly, the Bank provides comprehensive training to all branch staff across all locations. DCB Bank has created a diversified portfolio in order to ensure sustainable, predictable and quality performance. Keeping in view its inherent strengths, branch network and expertise, the Bank's target market is the self-employed segment (traders, shop keepers, small businessmen, MSMEs and SMEs).

The Bank has limited presence in the corporate salaried segment. The MSME/ SME sector plays a very important role in the growth of the Indian economy and it is estimated that MSME / SME contribute 17% to GDP and employs over 70 mn people in about 30 mn units. Further, MSME/ SME is estimated to contribute 45% of India's industrial output and 40% of exports. The Indian government's "Make In India" initiative is likely to favourably impact MSME / SME segments in the coming years. DCB Bank has approximately 500,000 customers and follows a cluster model to reach out to customers. The Bank aims to grow the customer base with a range of banking products and services to farmers and also reach out to micro-SME and SME segments.

### **What is the size of agri - business segment of DCB Bank? How much**

### **revenue was generated out of this segment last year?**

As on March 31, 2015, the Balance Sheet was at Rs.16,132 Cr. as against Rs. 12,923 Cr. on March 31, 2014, a growth rate of 25%. The AIB portfolio constitutes around 15% of the total asset portfolio of DCB Bank.

### **How is the agri-business product mix designed? Which is your flagship agri-business product?**

India's rural and semi urban areas have large untapped potential for banking opportunities. DCB Bank's AIB business meets the objectives of business growth and financial inclusion. The Bank offers a wide range of products to cater to the various needs of unbanked, under-banked, rural and semi urban population. DCB Bank is expanding its presence in Tier 2 to Tier 6 villages and towns with new branches.

The Bank's product portfolio includes farm equipment loan such as tractor loan, dairy loan, loan against gold jewellery, warehouse construction loan, finance against warehouse receipts, crop loan and land development loan, working capital for agribusiness. The Bank's rural and semi urban focused branches also educate new to bank customers on inculcating the saving habit. DCB Bank has pioneered the small ticket recurring deposit, no frill account and micro insurance for farmers and individuals at many locations. We also offer financial products for small businesses and SMEs.

The Bank has introduced "Kisan Mitra". As the name suggests, is a liability product which fulfils the requirement and enhances the saving habit in rural areas. It is a product specially designed for members of co-operative institutions such as a dairy or sugar co-operative. A customised savings account with Zero Account opening amount and no average quarterly balance maintenance charge. Payments for raw material supplied to cooperative institutions are routed through this into the individual accounts of the farmer or dairy owner. In order to fulfil the credit needs of the farmers, DCB Bank has several retail agri products such as crop loans (to purchase seeds, fertilizers, pesticides, ma-

**Customers appreciate hassle free service, clarity in communication, faster processing, transparency in pricing, and products which meet their expectations. DCB Bank takes the effort to understand customer needs**

nure), animal husbandry loan, small business loan, and Hi-tech agri finance (for example greenhouse projects). The Bank provides tractor loan and has steadily built up volumes across Tier 2 to Tier 6 towns. We also provide Commodity Based Finance. The Bank also provides loans to farmers and agri processors against their products stored in designated warehouses. The Bank has a list of approved commodities against which the funding is done.

#### **What kind of interest customers are showing in agri-business segment?**

Customers appreciate hassle free service, clarity in communication, faster processing, transparency in pricing, and products which meet their expectations. DCB Bank takes the effort to understand customer needs. Let me illustrate this; DCB Bank gives quarterly and half yearly options for cash loan and interest payment.

We provide adequate and timely credit support for farmers and provide the much needed relief to farmers from the informal banking channel such as money lenders. The Bank offers Kisan Credit Card (KCC) to farmers in the form of Cash Credit towards short term credit requirement for cost of cultivation or working capital needs, and Term Loan for long term requirement.

DCB Bank gives farmers the flexibility for payments and we address the crop cycle. We provide loans for land improvement activity, farm mechanisation and other agri allied activities such as dairy, fishery amongst other livelihood income generation activities of the borrower. DCB Agri Commodity Based Finance helps farmers, agri enterprise and processors realize better price and reduce instances of distress sale of farm produce. The loan is provided against approved agri commodities and against the pledge of agri produce stored in designated warehouses. A fixed rate of interest and no pre payment charge in agro commodity and quick loan approval process attracts customers.

#### **Any new products and services to be introduced by the Bank in agri segment?**

DCB Bank is taking the customised products to new branches and new locations. We prefer to

immerse in the local community and create solutions for customers. As new branches open, DCB Bank's distribution expands and more customers get to experience DCB Bank.

The all products all branches philosophy is wonderful for the customer. It turns into a one-stop shop for their banking needs from Loans, Deposits, Insurance, and Remittance requirements. The Bank's financial inclusion initiative focuses on micro-deposits and savings accounts for low-income groups who had no access to banking system previously. The Bank reaches out to new customers with customer friendly products such as Kisan Mitra, Value Saving Account and small value Recurring Deposit. DCB Tractor Finance Loan has added more States and districts. Repayment is aligned with the crop income of the borrower and special tatkal scheme has been introduced for farmers.

#### **How do you perceive the need of Agri-Inclusive banking in the country? What is DCB Bank's contribution to this?**

DCB Bank has expanded the branch network and made banking products available in underbanked and unbanked locations. The Bank intends to broaden reach to more underbanked and unbanked areas and contribute to financial inclusion. Availability of formal banking channels and bank loans and other products are still a challenge for plenty of farmers at many locations. Farmers practice traditional methods of cultivation due to lack of knowledge and inadequate funding. People not using their saving accounts; inactive accounts have to be addressed. DCB Bank products get good response from farmers and households for the zero balance account. DCB Bank loans are need based and we have established a strong agribusiness banking model with particular focus on modern farming to enhance farm productivity and increase income from agriculture and agri-business. The Bank is known to provide personalized and customer friendly banking services and products.

#### **What is your outlook on agri-business sector in 2015?**

Rather optimistic if favourable or benign weather conditions prevail hopefully the Kharif crop will be better this year.



# Synergizing Indian think tank process to push retransformation in agriculture sector



**H**on'ble Prime Minister, Shri Narendra Modi in his speech to the 193 Members United Nations on September 26, 2015, the opening day of the Sustainable Development Summit, categorically mentioned India's national priorities in agriculture sector. He told the world leaders that 'We are committed to making our farms more productive and better connected to markets; and, farmers less vulnerable to the whims of nature'. A similar emphasis on agri-business, farmers' incomes, and understanding and tackling the climate change scenarios was unanimously made at the recently concluded 8th Agriculture Leadership Summit, which also emphasized on the need to bring another revolution in agriculture sector.

Shri Modi reiterated the importance of sovereign principles in pursuing the global development agenda and sustainable goals. He said, 'Nations have a national responsibility for sustainable development,' and he

went on to add that 'They also need policy space'. Hon'ble Prime Minister called upon the developed nations to honour their financing commitments to the world; both for development and tackling climate change. He reaffirmed India's commitment to follow a sustainable path; through broad, universal brotherhood agenda; by delivering the basics of development leading to prosperity, equality and clean environment.

## **Commitment to fulfil new goals for sustainable development**

The Heads of UN Member States have ratified the adoption of a new Sustainable Development Agenda with 17 global goals at its core. It is pledged to end poverty in all its forms by 2030 and pursue a sustainable future with shared prosperity, peace and partnership in climate action, gender equality, and respect for the rights of all where no one is left behind. Agriculture sector is potentially equipped to unfold many

opportunities and some concerns among these new global goals. Poverty reduction could be possible, for example, by pushing the value-chain concept which could potentially integrate the producers with markets, ensuring returns to farmers, crop-by-crop, while protecting their resources and knowledge in use. To meet the goal of ending poverty in other forms everywhere, and hunger, government has already taken steps in a short span under the new regime by mobilizing the banking sector to empower the poor. More than 17.5 crore bank accounts have been already opened under the Prime Minister's Jan Dhan Yojna, the largest financial inclusion scheme in the world. Government is also similarly engaged in pursuing suitable insurance and pension schemes.

As a result of Prime Minister's call, there is already a nation-wide emphasis on addressing issues of soil health (soil health cards) and water-use efficiency in agriculture (more crop per drop of water). Such awareness creation and follow-up action would surely help in

achieving their pronounced global goal on food security, improved nutrition and thereby, promotion of sustainable agriculture.

Agriculture sector can also potentially contribute to the fulfilment of many other sustainable development goals (SDGs), including gender equality, sustainable management of water, access to affordable energy, address climate change and biodiversity loss, etc.

### India's Natural Leadership in Sustainable Agriculture

Despite huge success in commercial agriculture elsewhere, the agricultural transformation in the Indian sub-continent in the twentieth century, commonly termed as 'Green Revolution', was unprecedented in the historical era. India's indigenous strengths and global interdependence in genetic resources for food and agriculture are well balanced. Agriculture sector is resilient by nature and it provides many solutions to the society despite the fact that the farmers often face many social inconveniences and financial constraints.

Tremendous farmer driven diversity fostered by them generation-over-generation is capable of fitting in the extremely diverse farming situations across the world. It took centuries and decades to evolve suitable adaptabilities, resilience and human-liking preferences in the seed resources of various kinds and varieties in the conventional farming systems that they practised. However, unlike the past free-flow regimes, their relevance and use in context of the new sustainable development agenda is also likely to be determined as per the provisions of biodiversity, trade, intellectual property rights, biosafety, and access and benefit sharing regimes.

The Protection of Plant Varieties and Farmers' Rights Authority lately has enhanced its farmers' awareness activities in collaboration with ICAR, Krishi Vigyan Kendras and State Agricultural Universities to



motivate them for the registration and protection and/or conservation of their traditional varieties in gene banks. Such registration is open for 102 crops so far. The Geographical Indications (Registration and Protection) Act similarly provides lawful avenue to protect qualifying farmers' varieties along with their traditional use knowledge in perpetuity. Many of the agricultural goods registered under the Act are in fact varieties of food and agri-horticultural crops. Ethnic Indian varieties have high potential in export market. However, except for Basmati Rice which has a prominent place in food markets across the world, and few other food substances, for example Alphonso mango, other Indian ethnic food materials need attention of the Indian agro-business think tank for exploring their overseas trade promotion. In this regard, the Biological Diversity Act also has a provision to accord protection to knowledge of local people relating to biodiversity at the local, state or national levels, and other measures for protection, including sui generis system. Such protection can enhance the premium value of ethnic farmers' varieties in international market.

India, a major beneficiary of the dwarfing genes in wheat and rice in the green revolution era, has also broadly maintained a 'give and

take' equilibrium. Thus, to address the future sustainability and climate change concerns through agriculture, huge public investments would be necessary to characterize and index the available genetic resources using the molecular and computational tools for gene prospecting, allele mining, omics, bioinformatics, etc. It is high time that agriculture think tanks identify, assess and illustrate relevant agricultural research and development scenarios, which may potentially contribute to the realization of new sustainable goals.

Beyond varieties and germplasm, tremendous success was achieved in the country in precision farming for example by the customization and adaptation of laser leveller. Enhanced use of agricultural machinery through agro centres and custom hiring for increasing efficiency and productivity of smallholders' farms, as also the precision in application of nutrients, water and other inputs is something that needs to be gradually but increasingly adopted by farmers. Similarly, the information gap for the genetically modified food crops as well as need for a duly validated technology have to be narrowed in order to naturalize their adoption without undue delays.

Agriculture think tanks have a definite role to play to promote

sustainability and resilience in Indian agriculture in the present day context. A concise advocacy for agri-incubators, scaling up of validated input products, and precise interventions by the government and the farmers on their respective parts would be demanding. The Indian Agriculture think tank also must dwell on the Prime Minister's advice to focus on recurrent exposure of their Personnel in the international events, and also organize some on their own from time to time, so that worthy agrarian advice and advocacy become their natural outputs poised with sustainable leadership.

### Indian Think Tank for Agriculture Transformation

The National Institution for Transforming India (NITI) Aayog is a new Think Tank process initiated in the present regime to substitute the earlier Planning Commission. The previous regime had rather supplemented the ongoing planning process in 2009 with the priority setting and performance monitoring process through the application of Result Framework Document (RFD) tool. The present regime continues to apply this tool as it may express accountability and transparency of the government to public. The performance monitoring website of the Cabinet Secretariat is public, thus also open to international stakeholders. This evolving facet of Indian democracy is conspicuous in all contemporary scenarios where respective government think tanks have tended to duly project public accountability to people. In the open economy, a greater challenge is to avoid drifts during discussions, and to focus on comparison of the comparable.

According to a global think tank index report, India ranks 5th in terms of most number of think tanks in the world. The country is reported to have 192 think tanks, with six of them among the global top 150. These are; the Centre for Civil Society (CCS, rank 50), Institute for Defence Studies and Analyses (IDSA, 100), Indian

Council for Research on International Economic Relations (105), The Energy and Resources Institute (TERI, 107), Observer Research Foundation (ORF, 114) and Development Alternatives (129). The annual rankings are compiled under the auspices of the Think Tanks and Civil Societies Program (TTCSP) at the University of Pennsylvania.

The think tanks, according to the report, play valuable role in society. It opines that many politicians choose to focus on short-term issues and crises, rather than addressing the large looming crises that are just ahead, for example climate change, sovereign debt, etc. either due to their ignorance or for short term political benefits. The think tanks can potentially alter such tendencies. They can engage themselves in the larger interest for determining realistic and measurable targets for combating long-term translational problems. They can function as watchdogs, discuss the grave consequences of inaction or short-sighted actions by government and public sector, and thus apply reasonable and logical pressures on them to act in the long term societal, national, regional and global interests.

Some of the notable Indian think tanks listed in the GGTTI Report, 2014 and related directly or indirectly to agriculture sector are; National Knowledge Commission – New Delhi, National Academy of Agricultural Sciences – New Delhi, The Energy Research Institute – New Delhi and Institute of Food Security – Gurgaon, Haryana. Interestingly, organizations like ICAR, MSSRF, FICCI, CII, etc., which are otherwise esteemed high in the country with regard to agricultural research and extension or agrobusiness do not figure in the accessed partial list. This is unreasonable and hints at a probably biased sampling in the reported University of Pennsylvania study. Nevertheless, Wikipedia, while citing the entries listed in the report on its pages has duly observed that the list is incomplete, which may never

be able to satisfy particular standards for completeness, and has called for its expansion by readers with reliably sourced entries.

The National Academy of Agricultural Sciences (NAAS) is one such think tank from agriculture sector, dominated by scientists, which figures among the Global Tops. The Trust for Advancement of Agricultural Sciences (TAAS) established in 2001 and the recently (18 Sept. 2015) launched Indian Council of Food and Agriculture (ICFA) are the two other Think Tanks in Agriculture which emerged at the call of Former Prime Minister Shri Atal Bihari Vajpayee to fulfil the thinking processes towards achieving the Millennium /Sustainable Development Goals (SDGs) and to boost Indian Agro-Business globally.

NAAS Mission is to gain recognition as a credible think tank to provide views of the scientific community on all agriculture-related policy issues, encourage talent and promote excellence in science, making it a powerful instrument for the growth of national economy with a vibrant farm sector. One of the TAAS objectives is to act as think tank on key policy issues, also relating to agricultural research for development (ARD). Whereas ICFA will act as think tank, for policy advocacy, trade facilitation, development catalyst and monitoring centre for India's food and agriculture sector.

### New Agriculture Think Tanks and the Way Forward

The recently concluded 8th Agriculture Leadership Summit at New Delhi witnessed, in addition to the 8th Agriculture Leadership Awards in various categories, the launching of a new Think Tank, the Indian Council of Food and Agriculture (ICFA) by Hon'ble Home Minister of India, Shri Rajnath Singh who had himself held the Agriculture Portfolio earlier in the Union Cabinet led by Bharat Ratna Shri Atal Bihari Vajpayee. According to Dr. M.J.Khan, Convener of the Summit, a long drawn process of nearly 14 years



has undergone in firming up the idea and to make ICFA a reality.

At the turn of the millennium, the world leaders endorsed a set of Millennium Development Goals (MDGs) under the global sustainable development agenda. Whereas back home, on January 3, 2001, Shri Atal Bihari Vajpayee, Hon'ble Former Prime Minister, speaking at the inaugural of the 88th Indian Science Congress (ISC) at IARI, New Delhi had exclaimed that 'Our goal to make India a leading nation in the world in the new century hinges critically on how successfully we take science to the people and create a strong scientific temper in our society'. The congress was organised around the theme, 'Food, Nutrition and Environmental Security', an issue of not just national but also contemporary global concern. Shri Vajpayee had also observed that science and technology will perhaps be the most potent among the many forces that will shape human history in the new millennium. The country's target set at that time was a 'Food Secure India by 2015' and government had announced to double the food production in this period. Agri-business, particularly international trade, was highlighted as a new area requiring nation-wide attention and indulgence.

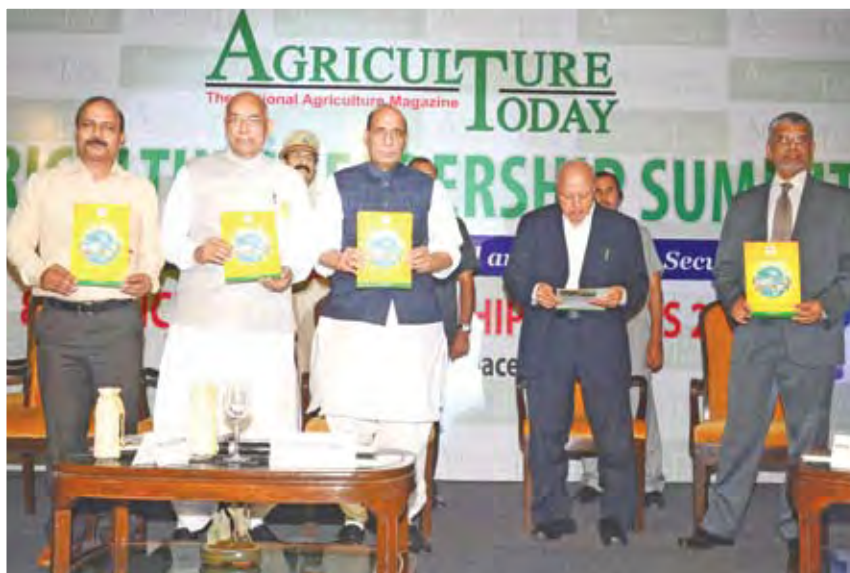
The 88th ISC had left a deep impression of the Indian leadership, Shri Atal Bihari Vajpayee on all overlapping generations of Indian scientists, agri-entrepreneurs, agri-journalists and the budding scholars pursuing various streams of science who heard the charismatic spokesman par excellence. His call to work for effective follow up of the congress recommendations led to the birth of two parallel think tanks, TAAS and ICFA.

The Trust for Advancement in Agricultural Sciences was conceptualized in 2001 by the 88th ISC President, Padma Bhushan Dr. R.S.Paroda, and officially established in 2002. Like the Agriculture Leadership Awards which are conferred on a large scale, on the sidelines of the eight Agriculture Summits organized by Agriculture Today so far, TAAS has also conferred eight Dr. M. S. Swaminathan Awards for Leadership in Agriculture to as many international personalities who have contributed to ARD. The 8th one was conferred recently by Prof. Swaminathan himself on September 28, 2015. Both the think tanks follow the legendry Food Prize Winner, Dr. Swaminathan for his ideology in pursuing the sustainability objectives.

The Indian Council of Food and

Agriculture (ICFA), the most recently established Agriculture Think Tank, was also conceptualized in 2001 at the call of Shri Vajpayee and in a meeting convened by Dr.M.J.Khan, Chief Editor, Agriculture Today Magazine under the Chairmanship of Hon'ble Union Cabinet Minister, Shri Suresh Prabhu. Dr. Khan followed a longer yet focussed and tight-rope path to this greatly desired achievement although he organized and convened several relevant activities, including international business tours and meets to set the ball rolling. All that succeeds is success ultimately. With the launching of ICFA, a world class body with resilient Indian face has been established. The 8th Agriculture Leadership Summit, particularly the launch of ICFA, in fact produced prismatic effect that created the rainbow of new hope in a fatigued policy scenario facing Indian agriculture. To capture the essence of what ICFA will be, Dr. Khan expressed that it is essentially the beginning of a potentially revolutionizing think tank process that would also act as an agribusiness facilitation body to cater to the long standing needs of promoting technology and trade cooperation with other countries. No other Indian body does it for agriculture sector; FICCI and CII are close to what ICFA will be doing, not ICAR, Dr. Khan said. Besides, ICFA would endeavour to undertake needed policy research.

Shri Rajnath Singh in his launching speech has endorsed the idea and also urged the convener to continue his efforts of rightly sensitizing all concerned, throughout the country. He has also suggested to take this nation-wide movement right up to the district levels, and share the experiences and suggestions with government from time to time so that it is ably supported in appropriate policy and priority determination at different levels, and at various given points of time, to help the farmers in fetching better returns from their agricultural livelihoods on



one hand and to contribute to the achievement of the new global sustainable development goals.

The new think tanks appear to have little overlap and thus are mainly supplementary in nature. Whereas a key goal of ICFA is to provide the country a viable alternative of the conventional industrial lobby, which would be particularly attentive to the agri-business and farmers' concerns, the TAAS think tank process revolves more around the research and innovation development for suggesting policy interventions which could ultimately help the cause of sustainable development, agri-input industry and farmers for the overall growth of agriculture sector. ICFA has inducted many senior (retired) bureaucrats and technocrats in its organization who can potentially deliver well in international arena for the Indian cause. While TAAS has networked with many globally reputed scientists, humanists and organizations to evolve and deliver its messages from time to time. Both think tanks have Dr. Swaminathan as their inspirational force in common, and were conceptualized with the blessings of the National Democratic Alliance progenitor, Shri Atal Bihari Vajpayee, to steer India to another revolutionary phase in agriculture and sustainable development. Therefore, it may also be prudent for ICFA and TAAS to explore and harness the synergies of each other in the true spirit of democratic alliance and give the national leadership the best of recommendations and action from their recurrent, thoughtful brainstormings.

The Indian leadership at the United Nations Conference on Human Environment at Stockholm in 1972 had called for addressing the curse of poverty, malnutrition, disease, war, and pollution brought about by man's own prosperity. In the recent sustainable development summit the leadership has informed concrete actions taken to address poverty and related issues, and also reminded the developed nations to honour their financing commitments to the world; both for development and tackling climate change. It is an uncompromising commitment and the global super powers are watching the aggressive Indian leadership. The intergovernmental forum for negotiating the global response to climate change is yet to further sit down and take decision on the financial commitments by governments. Thus, synergy and swift actions by Indian think tank process would be needed to push country's viewpoint in the upcoming Climate Change Conference in Paris (November 30 - December 11, 2015) besides their sustained contribution towards retransformation and sustainability in agriculture sector.

*Sudhir Kochhar, ARS (Retd.), Ex-ICAR, Free Lance; IPR and Agrobiodiversity Expert*



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VDMA India Services Pvt. Ltd. • Sumit Sharma  
Tel.: 093 5051 9034 • E-Mail: [sumit.sharma@vdmaindia.org](mailto:sumit.sharma@vdmaindia.org)

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# BARLEY CULTIVATION

## Brewing Prosperity

The All India Brewers' Association is a prime body representing the interests of brewing industry of India. Its members account for more than 90% of production and sales of Beer in India. AIBA was formed in the year 1977 and was registered under the Karnataka Societies Registration Act 1960. From membership strength of mere 15, it has now swelled close to 50 and is India's leading business support organization. The membership includes leading brewers, malt companies, manufacturers of brewing equipment and engineering & technological service providers. United breweries, SABMiller India, Bar Malt India, Alfa Laval, Praj Industries, Briggs of Burton are some of its members. AIBA has been at the fore-front of working with the Government in carrying out pioneering work in addressing the interests of the beer industry. Besides providing policy support, it also represents the commercial and other interests of the industry with the various State Governments. The association has also been actively engaging both national and regional media to highlight the immense agricultural and social benefits of encouraging beer in a country weaned on hard spirits. In an interview with Agriculture Today, Mr. Shobhan Roy, Director General, All India Brewers Association, discusses the relationship between India Beer industry and agriculture.



### What is the market value of Indian Beer Industry?

Beer market in India is valued at \$ 4.13 billion (Rs.24000 crore) in 2014 and is expected to reach Rs.32000 crore by 2020. Currently, there are 89 breweries and beer contributes more than Rs.15,000 Crore to the states exchequer. Moreover, the production and sale of beer creates nearly 1 million jobs in agriculture, breweries, pubs, bars, restaurants and the wider supply chain. The Indian market is predominantly a hard spirits market. Beer comprises just 35 per cent of the total alcohol consumed in India in terms of volume. In terms of absolute alcohol, it is just 7% of all types of alcohols consumed in India. The reason for this is lower taxes per ml of alcohol on hard

spirits, making it more attractive for the Indian consumers. In beer, the alcohol content is 5%-8% which is even lower than wine (12%) and IMFL (42.5%). And yet in India, Beer is taxed indiscriminately as there is a basic flaw in taxation by states. It is taxed on volume basis or price basis and the fact that it has got only 5% alcohol is ignored. The whole purpose of Excise is to tax the intoxicating content and not the water in the beer.

### How are the interests of Indian Brewing industry tied to that of the agriculture sector?

Beer is an all-natural, simple low alcohol beverage made from Barley Malt and hops, both of which are natural

agricultural sources and needs no preservatives. Beer is mainly made from four main ingredients - malted barley, hops, water and yeast and is a product of brewing and fermentation of starch that is commonly derived from Barley. Barley is grown on dry lands, which are not suited for cultivation of any other type of crop. From barley, which grows in water deficient areas and hops in the field, to the glass of beer in a pub, the beer industry has a major impact on state economics and is a source of revenue for many Indian farmers. Out of total barley produced in India, 30% (5-6 lakh tonnes) is being used by beer manufacturers and approximately one lakh farmers are being benefited. The barley required by breweries normally sells at a premi-



um. Therefore the revenue to farmer is better. Rest of the barley is used between distillation units, malted mil food units and balance as cattle feed .The industry is generating revenue of approximately INR 840 crores for the farmers, annually. Furthermore, entry of several international manufactures into the Indian Beer market has presented a big opportunity for farmers. Given the size of the industry, there are several initiatives being taken by beer manufactures in India to educate farmers regarding barley production and train them to implement best practices. Additionally, several research and development initiatives are being undertaken by the Indian Agricultural Research Institute as well as leading beer manufacturers in India.

### **What is the status of barley cultivation in India?**

Currently, India is producing approximately 18 lakh tonnes of barley, annually. 30% (approximately 6 lakh tonnes) of the entire barley crop produced in India is used by the beer industry. The major producers of Barley in the country are Rajasthan, Uttar Pradesh, Madhya Pradesh, Haryana and Punjab. Some cultivation is also undertaken in Bihar, Himachal Pradesh, and Uttaranchal.

### **Which are the geographical regions that are suitable for barley cultivation in India?**

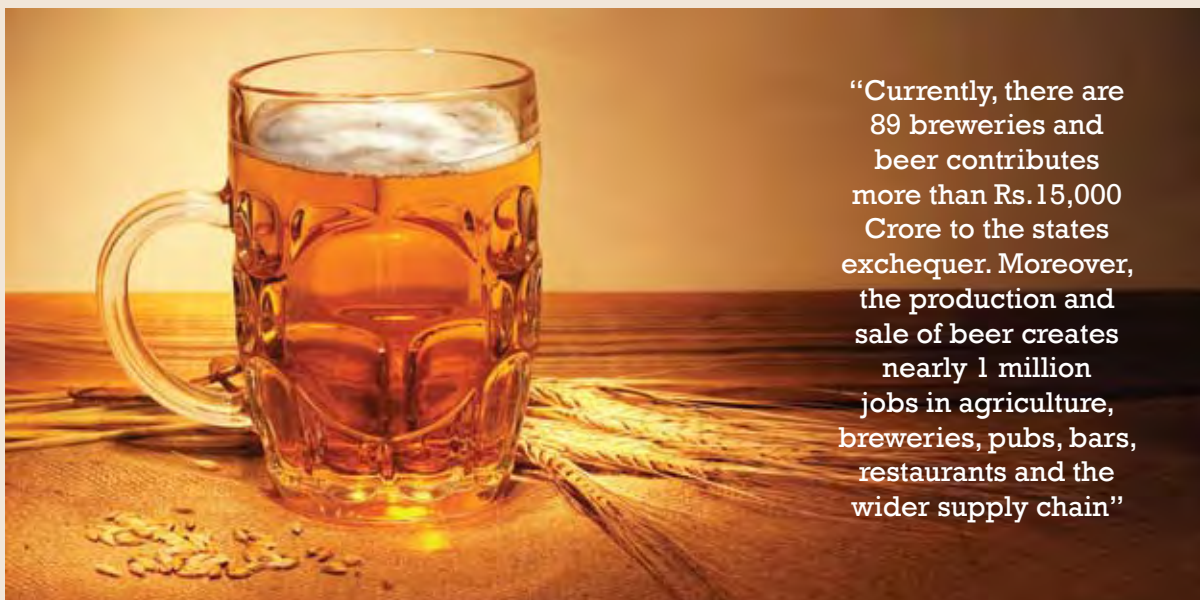
Barley is generally a winter crop for which sowing starts from October onwards. It grows on dry land - where nothing else can grow and irrigation facilities are poor. Rajasthan, Haryana and some interior parts of Punjab are best suited for barley production.

### **What is the mandate of All India Brewers Association (AIBA)?**

The All India Brewers` Association is a prime body representing the interests of brewing industry in India. Our members account for more than 90% of production and sales of Beer in India. AIBA has been at the forefront of working with the Government and relevant stakeholders to bring about a change in the way beer is perceived and sold in the country. In India, Beer is clubbed with all other hard liquor categories in terms of perception, legislation and rules & regulations. Though beer tax contribution is just 15% of the Alcoholic Beverage industry contribution, the duty structure makes beer a luxury product. The association is actively engaging with stakeholders at state level to bring about a change in the policy framework.

### **What are the challenges faced by breweries for sourcing its raw materials?**

Like any agricultural product, production of beer also requires specific ingredients with quality benchmarks. There are 2 kinds of barley that is suited for the brewing process; six-row barley and the two-row barley. Additionally, Barley required by breweries need to have high carbohydrate (65-75 per cent) and low protein (9-11 per cent) content, as against 60-65 per cent and 12-14 per cent respectively in normal feed-grade grains. There are several initiatives being taken by leading beer manufactures in India to educate farmers about barley production and train them to implement best practices in order to obtain high quality produce. Additionally, several research and development initiatives are being undertaken by the Indian Agricultural Research Institute as well as beer manufacturers in In-



“Currently, there are 89 breweries and beer contributes more than Rs.15,000 Crore to the states exchequer. Moreover, the production and sale of beer creates nearly 1 million jobs in agriculture, breweries, pubs, bars, restaurants and the wider supply chain”

dia. In addition, the international beer companies now operating in India have brought in better inputs on improving yields, better extracts etc.

**In comparison to other cereals like rice and wheat, how economical is barley cultivation?**

Barley cultivation dates back to old world agriculture. Barley is referred to as 'the poor man's crop' and is known to grow on problematic soils and dry lands- where nothing else can grow and irrigation facilities are poor. Consequently, barley is not a high maintenance crop and is economical from production point of view.

**In the current situation, government is laying considerable emphasis on crop diversification. Do you think this will be a suitable time for your body to lobby for barley cultivation in government programmes?**

This works on the concept of supply and demand. Coarse grains like Maize, Barley does not come into the category of staple food. The food processing industry where starch is essential needs to create demand by usage of coarse grains. By encouraging low alcohol products like beer, one can increase demand of Barley which requires less water for cultivation. World over, fermentable products like beer and wine are given preference and accounts for 90% of the industry. In India, if states correct their approach and balance their views, consumption of beer and wine could be encouraged and this would also have a positive impact on agricultural front.

**Is there any contractual agreement existing between the beer manufacturers in India and farmers? Please cite some examples if any?**

As mentioned above, there are several initiatives being taken by some of the leading beer manufacturers in India to educate farmers about barley production and to train them in order to implement best practices and obtain high quality yield. With the entry of multinational brewers in India, a lot of work has started as backward integration with farmers in Rajasthan. The Barley procurement team are working with farmers at developing malt barley varieties suitable for India; providing improved varieties to farmers; disseminate information on practices to improve the productivity of the crop and finally buy back the barley thus produced directly from the farmers, eliminating middlemen and hence shrinking the market spread. The programme is proposed to be later extended to other States of Haryana, Uttar Pradesh, Uttarakhand, Madhya Pradesh and Punjab.



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# Sir Fazle Hasan Abed awarded World Food Prize 2015



**B**rac Founder and Chairperson, Sir Fazle Hasan Abed has been honoured with this year's World Food Prize for his outstanding contributions to enhancing the world's production and distribution of food to those most in need. The prestigious prize, known as Nobel Prize for food and agriculture, was conferred on him on October 15, 2015 at an event of a three-day international symposium at the Iowa State Capitol Building in Iowa, USA. John Ruan III, chairman of the World Food Prize, handed over the award to Abed.

The World Food Prize was conceived by Dr. Norman E. Borlaug, recipient of the 1970 Nobel Peace Prize. Since 1986, The World Food Prize has honored outstanding individuals who have made vital contributions to improving the quality, quantity or availability of food throughout the world.

Sir Fazle, who was knighted by the British Crown in 2009, has grown BRAC (formerly known as Bangladesh Rural Advancement Committee) into the world's largest non-governmental organization. BRAC has provided the opportunity for nearly 150 million people worldwide to improve their lives, have enhanced food security and follow a pathway out of poverty.

He pioneered a new approach to development that has effectively

and sustainably addressed the interconnectedness between hunger and poverty. In this regard, Sir Fazle has broken new ground by melding scalable development models, scientific innovation, and local participation to confront the complex causes of poverty, hunger, and powerlessness among the poor. Soon after founding BRAC in 1972, Sir Fazle began focusing on the social and economic empowerment of women, which was a new, breakthrough approach to lifting the poor out of poverty. He was determined to find ways to provide rural village and farm women with the tools they needed to take control of their lives and become change agents in their communities. In addition to microcredit programs that provided small loans to women, BRAC launched a sustainable agriculture project in Bangladesh based on poultry farming. Two decades later, the poultry project involved 1.9 million women, and had managed to establish commercial and social linkages that connected local activities to the wider national economy, and introduced women to the experience of making real profits.

Under Sir Fazle's leadership of more than 40 years, BRAC's agricultural and development innovations have improved food security for millions and contributed to a significant decline in poverty levels through direct impacts to farmers and small communities across the globe. The agriculture and

food security programs developed by Sir Fazle and BRAC have helped more than 500,000 farmers gain access to efficient farming techniques, proven technologies and financial support services. Through farmers' participation in field demonstrations and training, these programs have helped increase yields through crop intensification, research and development on new seed varieties and provision of quality seeds at fair prices.

BRAC's multi-dimensional and dynamic methods of reducing hunger and poverty include the creation and support of a range of integrated enterprises, such as: seed production and dissemination; feed mills, poultry and fish hatcheries; milk collection centers and milk processing factories; tea plantations; and packaging factories. The income generated from these social enterprises is used to subsidize primary schools and essential health care.

Through his visionary work, Sir Fazle has demonstrated a profound understanding of the role that agriculture plays in development as well as the complexities that perpetuate poverty. Over the decades, he has worked tirelessly to confront poverty by creating an enabling environment to achieve food security at the family and the community levels, and to help generate productive employment and income for poor households to enable them to access nutritious food.





# BRINGING THE AGRICULTURAL CHANGE

**Tom Vilsack, the Secretary of the U.S. Department of Agriculture, in more than six years at the Department, has worked to implement President Obama's agenda to put Americans back to work and create an economy built to last. As chair of the first-ever White House Rural Council, Secretary Vilsack and USDA are taking steps to strengthen services for rural businesses and entrepreneurs by finding new ways to make the connection between the demand for investment in rural areas and the financial community. He has led a comprehensive effort to improve the safety of the American food supply, implementing changes to food safety standards to prevent illnesses.**

**T**om Vilsack, the 30th Secretary of the U.S. Department of Agriculture (USDA) has been managing this responsible position since 2009. Appointed by President Barack Obama, Vilsack was a unanimous choice by the U.S. Senate.

Born on December 13, 1950 in Pittsburgh, Pennsylvania, Tom Vilsack was placed in a Roman Catholic orphanage from where he was adopted in 1951 by Bud and Dolly Vilsack. He attended Shady Side Academy, a preparatory high school in Pittsburgh. After receiving his bachelor's degree in 1972 from Hamilton College in New York, he joined the Delta Upsilon Fraternity. He received a Juris Doctor (J.D.) in 1975 from Albany Law School after which he moved to Mt. Pleasant where he practiced law.

His political career kick started when he was elected as the mayor of Mount Pleasant in 1987 and later on as state senator in 1992. In 1998, he was the first Democrat elected Governor of Iowa in more than 30 years, an office he held for two terms. In his current capacity as the Secretary of USDA, he is entrusted with the responsibility of strengthening the American agricultural economy, build vibrant rural communities and secure a stronger future for the American middle class.

As Secretary of Agriculture, Vilsack has been candid and direct about the challenges and opportunities facing USDA, and the importance of fulfilling the vast missions of the Department as a champion of rural America, a steward of the environment and a protector of food supply. Already as Agriculture Secretary, he has helped to implement the Recovery Act to create thousands of jobs, instituted reforms at USDA that will save taxpayers tens of millions of dollars

and met with foreign governments to begin to establish food security across the globe. Vilsack has also made civil rights a top priority, taking definitive action to improve the Department's record and to move USDA into a new era as a model employer and premier service provider. At USDA, Secretary Vilsack is working to ensure that America's forests and private working lands are conserved and restored to enhance water resources and help lead in the battle against climate change. USDA has implemented programs that create private sector jobs protecting and rehabilitating forests and wetlands.

Under Vilsack's leadership, USDA is working to promote a safe and nutritious food supply for all Americans and to end child hunger by 2015. Already, the Department has implemented an increase in SNAP, its main food assistance program, to benefit families in need with an additional \$80 per month. And for the first time ever, USDA is providing healthy fruits and vegetables to women and their infant children to encourage nutritious eating, combat the obesity epidemic, and prevent health problems down the road.

USDA is working to revitalize and create wealth in rural communities by expanding economic opportunities for farmers and ranchers and investing in infrastructure like houses, fire departments and health clinics that will stimulate local economies and create jobs. USDA has been ensuring that America is the world leader in sustainable crop production, by conducting cutting edge agricultural research by maintaining an appropriate safety net for America's small and mid-sized farmers.

Vilsack's deep interest in food economy and his resolve to build food security was ingrained in him even while he served

as the Governor of Iowa, when he expressed his vision for making Iowa the Food Capital of the World and he was focused on creating economic opportunity in rural communities and small towns through value-added agriculture. As Governor, he created the Iowa Food Policy Council to advance local food systems, enhance family farm profitability, and combat hunger and malnutrition. He led trade missions to foreign countries to market agricultural products and attended the Seattle meeting of the World Trade Organization (WTO) to push for expanded agricultural trade negotiations. In addition, he worked to support independent farmers and ranchers by enacting livestock market reform and mandatory price reporting legislation in 1999.

Throughout his public service, Tom Vilsack has pursued an agenda dedicated to the principles of opportunity, responsibility, and security.

**In his current capacity as the Secretary of USDA, he is entrusted with the responsibility of strengthening the American agricultural economy, build vibrant rural communities and secure a stronger future for the American middle class.**





“We are committed to making our farms more productive and better connected to markets; and, farmers less vulnerable to the whims of nature”

**NARENDRA MODI**  
Prime Minister



“Working towards nutritional security, we target to increase area under pulses — pigeon pea, gram, pea and lentils during this rabi season”

**RADHA MOHAN SINGH**  
Union Agriculture Minister



“More attention must be paid to agriculture and more autonomy must be given to science”

**DR. M.S. SWAMINATHAN**  
Renowned Agriculture Scientist and  
Chairperson, MSSRF, Chennai



“Taking people out of extreme poverty can be done but you need the commitment to do it in every country throughout the world”

**SIR FAZLE HASAN ABED**  
Founder of Brac and World  
Food Prize Winner 2015.



“There is a huge potential for growth and development of organic farming in India owing to factors such as soil health deterioration, change in climate and decline in per-capita land availability and others,”

**MOHANBHAI KUNDARIYA**  
Minister of State for Agriculture, Government of India