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THE HINDU

Entrepreneurial skills key to agriculture growth

For a second agricultural revolution to take off, merely improving the production of crops is not enough. What is needed is intervention through education and extension that caters to the needs of the real-life situation. Agriculture students with hands-on experience and entrepreneurial skills are the need of the hour, say agriculture scientists. Training youngsters in specific areas scientifically would not only keep them motivated but would also help in alleviating poverty and unemployment, they say.

The problem of insufficient personnel could be addressed by giving exclusive vocational training to develop entrepreneurial skills in students, say professors of agriculture, who were part of a conference hosted by the Tamil Nadu Animal and Veterinary Sciences University (TANUVAS) last month.

As many as 22 vice-chancellors from agriculture universities across the country participated in the two-day national symposium in Chennai and deliberated on how best to address the steady fall in agricultural production. The theme of the conference was 'Positioning national agriculture research and education system for vocational education'.

There is a shortage of manpower in 125 sub-sectors in agriculture and allied sectors which could be compensated by training youth, according to N.S. Rathore, deputy director general (education) of the Indian Council of Agricultural Research. Despite the huge demand for trained personnel, only 3.3 per cent are taking up vocational training in agriculture, prof. Rathore says. The ICAR is keen on introducing Rural Entrepreneurship Awareness Development Yojana, a programme to provide opportunities to acquire knowledge through experiential learning and skill development. For this to happen, universities should put in place a Model Act for better governance, quality assurance through accreditation and develop competent faculty.

Training women

A way forward is to train women in larger numbers, says M.C. Varshneya, president of Indian Agricultural Universities Association (IAUA), which organised the symposium. In the last four decades, the share of agricultural GDP has fallen from 51 to just 14 per cent of the total GDP. As much as 49 per cent of manpower is employed in the agricultural sector but hardly five per cent of this manpower is skilled, he rues. With as many as 73 State agriculture universities being part of the IAUA, training programmes for women could be launched, he says.

Agricultural polytechnics

Gujarat had launched a polytechnic programme in agriculture and allied sector, says N.C. Patel, IAUA secretary and vice-chancellor of Anand Agricultural University. The programme could be strengthened either in the 10+3 pattern or by introducing certificate programmes, similar to those offered by Industrial Training Institutes.

TANUVAS vice-chancellor S. Thilagar says the recommendations made in each of the six panel discussions at the symposium have been sent to the association for approval.

Brazil keen on saving the Ongole bull

The species is a favourite of farmers in the South American country

Better days are ahead for the indigenous breed of the Ongole bull, which is on the verge of extinction in the land of its origin with Brazil evincing keen interest in transferring technology for improving the productivity of the majestic cattle.

The pure breed of Ongole cattle (*Bos indicus*) is fast becoming extinct in the land of its origin, even as some of the finest Ongole cattle are reared in Brazil for dairy products.

Assembly Speaker Kodela Sivaprasada Rao, who himself led an Indian delegation to a cattle expo at Uberaba in Brazil, revealed this to *The Hindu* here on Sunday.

‘Sister city’

The Mayor of Uberaba city in Brazil, Paulo Piau, had offered to develop Ongole as a “sister city,” Dr. Rao said, adding: “the Mayor had promised to come with a Memorandum of Understanding to further cooperation in cattle breeding between the two prominent members of the BRICS.”

The number of the Ongole breed of cattle had dwindled to fewer than 2 lakh over a period as against 16 crore heads of Ongole cattle in that South American nation now, he said. Brazilians have a great affinity for the Ongole cattle and wanted to do their part in rearing the docile animal in the original tract between the Gundlakamma and Musi rivers, he explained, adding “one will be astonished to note that the milk yield of the Ongole cow is between 20 and 30 litres in Brazil where the farmers milk the animals thrice a day.”

“Though we are sentimentally attached to the Ongole bull, not enough has been done to exploit it economically,” he observed and exhorted the farmers to go for scientific farming for better results.

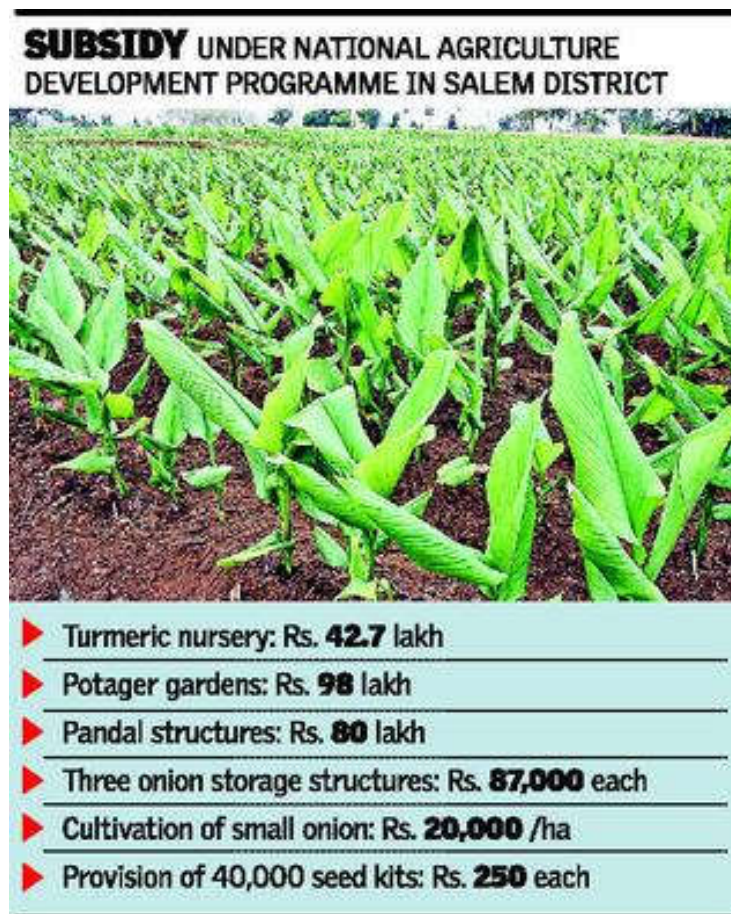
Collaborative project

with U.S. varsity

Meanwhile, YSR Congress Whip in Parliament Y.V. Subba Reddy, who was also part of the delegation which visited Uberaba for the ExpoZebu recently, told *The Hindu* that Brazil had also nurtured the Gir cow of Gujarat and some of its features could be cross-bred for better results. The government had also embarked on the collaborative “Milk Mission Project” with the University of Pennsylvania to make dairy farming sustainable and realise the goal of stepping up growth in the agriculture sector.

The species is a favourite of farmers in the South American country, says Kodela

Horticulture farmers to get Rs. 3.48 crore as subsidy



The government has sanctioned Rs. 3.48 crore to Salem district to be disbursed as subsidy to horticulture farmers under National Agriculture Development Programme (NADP) during the current year.

Under NADP, the government has sanctioned subsidy of Rs. 80,000 per acre for the establishment of pandal structures for raising cucurbitalious vegetables such as thuvarai, peerkan, avarai etc on nearly 100 acres. This subsidy is only for establishment of pandal structures and not for raising vegetables.

A sum of Rs. 60 lakh has been sanctioned for the provision of subsidy at the rate of Rs. 20,000 per hectare for raising small onion in about 300 hectares. Under the same scheme, the government has sanctioned three low-cost onion storage structures (godowns) for the benefit of the onion farmers. A subsidy of Rs. 87,500 will be provided for each of the three onion godowns, M. Prabhu, Deputy Director of Horticulture, told *The Hindu* .

The potager gardens (kitchen garden), of late, have become popular across the State. Under NADP, subsidy was provided till now for establishing potager gardens in Chennai and Coimbatore cities. Now, this scheme has been extended to Salem district and has earmarked a subsidy of Rs. 98 lakh for the same.

Another major subsidy allotment of Rs. 42.7 lakh has been earmarked for raising turmeric nurseries in protray under shade net concept.

The nurseries will come up in an area of 30 hectares, Mr. Prabhu said.

Panamarthupatti and Ayothiapattanam are two major flower producing centres in the districts. The flower plucking during the harvest season is done mainly in the night hours. The flower farmers have been demanding subsidy for the purchase of midnight headlights. The government has sanctioned headlights to 20 farmers. Besides, a subsidy of Rs. 3,750 has been provided for the purchase of plastic crates to one hundred farmers.

Under the NADP, the department has proposed to distribute kits with seeds of horticulture crops such as beans, bhendi, green chilli, etc, each costing Rs. 500, including 50 per cent subsidy component. A total of 40,000 kits have been sanctioned to the district, A maximum of five kits will be provided to each farmer.

Arecanut is yet another horticulture crop in areas such as Vazhappadi, Attur, Gangavalli. It has been planned to increase the area under arecanut cultivation under NADP. Additional 25 hectares will be brought under arecanut cultivation this year.

The Salem district has received another Rs. 2.01 crore for implementing different schemes for the benefit of horticulture farmers this year.


Project to promote paddy farming, aquaculture

Paddy and fish will be raised in brackish water using saline-resistant crop varieties

The Agency for Development of Aquaculture, Kerala (ADAK), an autonomous body under the State government with a mandate for supporting aquaculture, will launch a programme for promoting Pokkali and Kaipad farming. The project is being taken up with the help of the National Adaptation Fund on

Climate Change (NAFCC), a funding scheme initiated by the Union government.

| ENVIRONMENT-FRIENDLY FARMING | |
|---|--|
| Agency for Development of Aquaculture, Kerala, to launch programme | Aid from National Adaptation Fund on Climate Change |
| ALLOCATION Rs.350 crore for 2015-17 | Integrated paddy farming, aquaculture |
| Rs.25 crore for Kerala | POKKALI 100 ha each in Alappuzha, Ernakulam, Thrissur |
| Kaipad 300 ha in northern Kerala | |



Rs.25 crore allotted

A sum of Rs.25 crore has been allocated for integrated paddy farming and aquaculture under the Pokkali and Kaipad systems. Accordingly, 100 hectares each in the districts of Alappuzha, Ernakulam, and Thrissur will come under Pokkali farming and 300 hectares in northern Kerala will be brought under Kaipad farming, a senior official told *The Hindu* .

The scheme envisages cultivation of saline-resistant varieties of crops under integrated farming practices for raising paddy and fish in brackish water. The funds will be utilised mainly for boosting infrastructure for farming.

Taking up mangrove cultivation at appropriate locations and strengthening of bunds of fields will also form part of the project.

GI-tagged practices

Francis Kalathungal, a leader of Pokkali farmers’ organisation and an academician, while welcoming the project, underlined the need for extending support to farmers. The extent of Pokkali farms has been declining owing to lack of sustained support system, he said recalling that a Rs.2-crore project

taken up in Vypeen in 2013 to boost Pokkali farming had focused mostly on development of farm tourism and failed to look into the needs of farmers.

Promotion of the GI-tagged Pokkali and Kaipad farming practices is in tune with a U.N. initiative to chalk out plans for tackling climate change. Sustained, environment-friendly farming is a component of the project. The Union government has set up a National Adaptation Fund on Climate Change and an amount of Rs.350 crore has been set apart for 2015-17.

The constitution of the fund is aimed at assisting States that are particularly vulnerable to the adverse effects of climate change in meeting the cost of adaptation. The National Bank for Agriculture and Rural Development (NABARD) has been appointed as National Implementing Entity (NIE) responsible for the implementation of adaptation projects under the (NAFCC).

Government plans upland rice farming in 100 hectares

The Agriculture Department has said that as much as 100 hectares will be brought under upland rice farming in Ernakulam district in the coming season, and that a technical team will be formed to support paddy cultivation.

The department in a statement said that the members of the team would visit all cultivated areas and make suggestions from time to time.

Besides technical support, the government will offer farmers a subsidy of Rs.10,000 per hectare for seed procurement.

Weeds being a major problem in upland rice farming, technical suggestions and practices recommended by Agriculture University will be popularised. The department will seek the assistance of local self-government bodies, besides utilising the National Rural Employment Generation scheme for the proposed upland rice farming campaign.

Soil test will be conducted, while fertilizers will be used under the direct supervision of officials from the department. Paddy cultivated through upland farming will be procured by designated government agencies.

The rice farming campaign will encourage the use of rice varieties like Swarna Prabha, Mattatriveni, Varsha, Harsha, Aishwarya, Vaishak, Prathyasa, Uma, Sharada, and Jyothi, the department said.

The concerted effort to encourage upland farming is expected to put an end to the practice of leaving cultivable land fallow or using paddy fields for other purposes.

Cashew growers told to adopt latest technologies

Former Deputy Director General (Horticulture), Indian Council of Agricultural Research, K.L. Chadha on Saturday encouraged farmers to adopt the latest technologies to overcome low cashew productivity.

Addressing cashew growers, scientists and nursery persons at the Directorate of Cashew Research (DCR), Puttur, he highlighted the major technology contributions of DCR as softwood grafting technique, improved varieties and high-density planting method.

DCR had organised a meet of cashew growers on the occasion of its 30th foundation day on Saturday.

More than 150 progressive cashew growers attended it, a release said.

Progressive farmers L.C. Soans from Moodbidri, Somappa Rai of Darbethadka, and Sashi Kumar Rai from Karnoor were felicitated on the occasion.

M.G. Bhat, former director, DCR, Puttur, who was the chief guest, said that scientist and farmers should focus on increasing productivity to generate good income from cashew farming. He appreciated the adoption of latest technologies by innovative farmers.

Field work for agricultural census to begin next month

District-level coordination committee chaired by Collector formed.

KOZHIKODE: The Economics and Statistics Wing will launch its field-level activities for the 10th agricultural census in the district from the first week of July with a mission to prepare a comprehensive and updated record of the total area under cultivation, types of crops cultivated, details of farmers, and the concerns they encounter.

A district-level coordination committee chaired by District Collector N. Prasanth has been formed to supervise the three-phase survey, which will be

conducted with the direct support of the Agriculture Department and the Panchayat Directorate.

In the first phase, the enumerators will gather the details of farmers and the landholders for the preparation of an updated registry. The second phase will focus on collecting details of the crops cultivated in each area and the facilities provided for irrigation. The final phase will seek to identify the additional needs of farmers to sustain and prosper in the sector.

Social strata of farmers

According to census coordinators, identifying the social strata of the farmers and finding their response to various farm mechanisation drives too are part of the project.

Similarly, the project will record the details of agricultural holdings of various institutions. Agriculture Department officials said the survey procedures were finalised as per the directions of the Food and Agriculture Organisation (FAO) of the United Nations.

“The data collected will be helpful for the formation of a favourable agriculture policy for the nation,” they added.

To ensure cent per cent accuracy in the details gathered, the Economics and Statistics Wing will take help from the Departments of Forest and Land Records.

The coordination committee includes the Principal Agriculture Officer, Divisional Forest Officer and the secretaries of various local self-government institutions in the district.

District-level coordination committee chaired by Collector formed Field work for agricultural census to begin next month

Training on bonsai making



Tamil Nadu Agricultural University Information and Training Centre is conducting a workshop on bonsai making on June 23. For details, call 2626 3484.

Rains forecast in next 48 hours



Awaiting a prize catch:With monsoon setting in gradually with overcast conditions, it is time for the fishermen to try their luck to earn livelihood at Udamsagar lake in Jalpally near Hyderabad on Sunday.- Photo: G. Ramakrishna

After a two-week delay, rains have been forecasted in the State over the next 48 hours.

India Meteorological Department said the State would witness scattered light to moderate rainfall on Monday. Until early Saturday, nearly all districts received rain in the preceding 24 hours.

This year monsoon's arrival to the State was delayed due to changes in wind patterns after monsoon's arrival in Andhra Pradesh. Monsoon this season is expected to exceed normal.

The onset of the monsoon is expected to be slow before the State begins to receive bountiful rain.

“The first spell is expected to bring only light rainfall over the next two days. Then there will be a period of dryness before the next system brings rain after a few days lull,” said Skymet Chief Meteorologist Mahesh Palawat.

Temperature

Telangana received more than normal rainfall in May, which is now being blamed for destruction of crop, mainly vegetable, leading to spike in prices. Pre-monsoon rains however helped check high summer temperatures, mainly in Hyderabad, where May temperatures did not exceed those of April. In Hyderabad, day temperature dropped to around 31 degree Celsius with sky being overcast on Sunday. No rainfall was recorded but IMD has predicted rain over the next 48 hours. Nizamabad, which received around 5 cm of rain on Friday, received around 15 cm of rain since the start of this month, while many parts of the State received less than normal rainfall for this period.

Govt's plan to restrict cotton cultivation may fall through

Farmers are in favour of cotton as it can withstand dry spell better than other kharif crops, says official

No stopping this: Farmers sowing cotton seeds at Charla Gavaram village in Nalgonda district on Sunday.— Photo: Singam Venkataramana

Delay in monsoon and issuance/renewal of crop loans by banks are likely to impact the State government's plans of restricting cotton cultivation in the ongoing kharif to about 23 per cent, of the total extent of projected area of cultivation, against the total cropped area of over 47 per cent in the last kharif.

The State government had decided to discourage cotton cultivation from this year onwards, keeping in view the Centre's decision to increase tax on cotton exports following signing of the WTO document recently. Chief Minister K. Chandrasekhar Rao had suggested farmers to focus on cultivating alternative cash crops since cotton cultivation was likely to face crisis.



In tune with that decision, the projected area of cotton cultivation was brought down to 10.64 lakh hectares this kharif from 16.97 lakh hectares last year. Introduction of Bt cotton seed that has reduced expenditure on crop management and increased production in the recent years made the farming community go for cotton cultivation in spite of drought conditions.

On the other hand, losses in cotton cultivation have resulted in most of the farmers' suicides in the recent years. "Yet, farmers are weighing in favour of cotton as it can withstand dry spells better than other kharif crops and it gives a couple of pickings with regeneration after rains. There's no such guarantee in case of other crops," a senior Agriculture Department official reasoned while talking to *The Hindu*. "Several farmers in our village have sown cotton with the help of pre-monsoon rains already. Its cultivation has proved more economical than any other kharif crop as it has no expenditure till picking (harvesting) on crop management," S. Manik Rao, a farmer of Vankdal village in Kangti mandal of Medak district said.

The delay in renewal/issuance of crop loans as banks are waiting for payment of the third instalment of the crop loan waiver by the State government is also likely to push up cotton cultivation. "In such circumstances, the farmers will

approach private lenders,” the official said, admitting that most of the cotton seed sellers have understanding with the private lenders to finance cotton cultivation.

Another factor that is likely to increase cotton cultivation beyond the government’s plans is its advantage in late sowing, till the end of July third-week.

A fruit tree in each homestead

In line with its support activities for promotion of safe-to-eat vegetable production, the Krishi Vigyan Kendra (KVK), Ernakulam, of the Central Marine Fisheries Research Institute has initiated activities to ensure self-reliance in the production of fruits in homesteads.

Self-farming

The self-farming for safe food campaign intends to make available good quality planting materials of various fruit crops suitable for the agro-ecological zone, says a statement issued by the KVK here. Keeping this in view, the KVK is preparing a district-level inventory of those who own excellent bearing trees of various fruit crops.

The planting materials will then be effectively used for further propagation and distribution.

Formation of a district-level forum of fruit growers and subsequent group activities are also being planned.

Those who own bearing trees with good fruit quality and are willing to share the propagation material may contact the KVK over phone (8281757450).

With the Kerala climate and soil well suited to grow a wide variety of fruits, the KVK says at least one fruit tree can be grown in each homestead.

Organic growers to conduct marketing study

The newly formed Federation of Organic Growers in Dakshina Kannada, Udupi and Chikkamagaluru will conduct a survey on the demand for specific organic products in the three districts and the scope for production.

Prabhakara Mayya of Dakshina Kannada and Anilraj D.M. of Chikkamagaluru had been elected president and vice-president of the federation, respectively. The federation is among 14 such federations formed in the State recently on the lines of milk unions under the Karnataka Milk Federation. The government organised an orientation workshop for the presidents and vice-presidents all 14 federations in Bengaluru on Friday last.

Mr. Mayya, who attended the workshop, told *The Hindu* that the government had asked the federations to prepare a detailed project report within a month on the crops that could be grown in jurisdictions keeping the demand from consumers in mind. It would serve as a road map to take up future activities.

Mr. Mayya said that there was enough demand for organically grown boiled rice, wheat and ragi in cities and towns. Organically grown vegetables and fruits were also in great demand. The federation would identify such products before chalking out a road map.

He said that the federation could sell boiled rice or ragi under its own brand name to capture the market. It could market organic products in demand in the three districts by procuring them from other organic federations in the State. The “give and take” of products within federations are permitted.

Mr. Mayya said that the Karnataka State Organic Certification Agency was in the process of inspecting and certifying 6,240 hectares of farm land owned by 4,512 farmers, under the federation, in the three districts. The inspection process for use of chemicals and chemical fertilizer involved three years. Currently the second year’s inspection was under progress.

The inspection would be over by March 2017. The federation could take up its brand building and marketing of the products only after a year.

Government tells federation to

prepare detailed

project report

within a month

Fresh initiatives to revive desi cotton



COOL WEAR:Farmers switch to other crops as desi cotton fails to fetch them good price.

Ask any cotton farmer and he will tell you that there is no market for desi cotton that comes in many varieties, including Kurunganni from Tamil Nadu, Pondru from Andhra Pradesh, Magad and Kaala from Gujarat, Jayadhar and Pandharapur from Karnataka.

L. Malathi, wife of a farmer from Nagapattinam district, recalls how they switched to other crops after desi cotton failed to fetch them good price.

“It took a lot of time to pluck the cotton. Sometimes, if it looked like it would rain and the promised farm hands did not turn up, my husband and I had to pluck the cotton ourselves. And we didn’t get a good price for the work we put in,” she said.

This is the voice of most of the desi cotton farmers. But organisations such as Tula, Sahaja Samrudha and Simcodess have come together to revive desi cotton varieties.

“The plants withstand all kinds of weather and can even give two harvests. They are pest resistant when compared to the variety being used now. The biggest advantage is that a farmer can pick seeds off the cotton and keep them for the next year,” said G.F. Visuvasam, a farmer from Dindigul.

Ananthoo of Tula, which makes kurthas and shirts from desi cotton, has invested Rs. 15 lakh collected from 15 persons to support farmers. He said the idea was to invest in small groups of farmers so that local economy is revived.

“By investing in farmers, we want local weavers, dyers and tailors too to get jobs. If we find buyers for our clothes and people don’t grudge paying little extra, the farmers can be supported,” he said.

Recently, a small meeting of desi cotton farmers and buyers, including those who run knitting units and bag makers at Gandhigram University, was held. As a result, farmers have found buyers.

Krishnan Subramanian of Manjapai, a Madurai-based unit that makes cotton bags as an alternative to plastic bags, said he was interested in encouraging desi cotton farmers. “Two years down the line, we want to manufacture using only desi cotton. Right now we have only made a few samples as we are waiting for the cloth from a knitting unit. If we manufacture one lakh bags a month, we can support more farmers,” he said.

Support from the government is almost nil for these farmers. “The desi seed has been denotified, making things more difficult for the farmers. They don’t get loans. There is also very minimal support from the government,” said Mr. Visuvasam.

Organisation has invested Rs. 15 lakh collected from 15 persons to support farmers

Output hit a record in FY’16: Tea Board

India’s tea output rose three per cent to 1,233.1 million kgs in the last fiscal year — a record for the commodity, according to the Tea Board of India.

Tea exports gained 17 per cent by volume and value during this period, according to official statistics. Exports, breached the 230-million-kg mark for the first time since 1980-81, touching 232.9 million kgs in 2015-16 and valued at Rs.4,493.1 crore.

Auction prices of tea rose as did the volume sold through auctions. Bought Leaf Factory sector (which buys teas produced by the small tea growers) increased its share by 5.8 per cent. About 33.9 per cent of total tea production is now coming

from small growers. In a statement, the industry regulator said that north Indian tea estates led by Assam (which increased production by 7.6 per cent) were able to increase their output, offsetting the reverses suffered by South India which accounts for a quarter of India's tea crop.

Rainfall

“Weather conditions played a major role in this pattern and Assam received very good rainfall in the first part of this year,” an industry source said.

Labour problems in Kerala, compounded the woes of growers in the state. Tea estates, representing the interests of corporations, were able to increase output by a mere 1.6 per cent in 2015-16. Although production of aromatic orthodox teas increased by over 10 per cent, it had a mere 7.5 per cent share in India's overall output.

The Tea Board statement said that Russia, Iran, Germany and Pakistan accounted for most of the increase. Russia, India's single largest market, and one which is showing increased preference for high value teas, bought 22.4 per cent more teas.

Exports breached the 230-million-kg mark, for the first time since 1980-81, valued at Rs.4,493 crore



From Plate to Plough: With humility, on farmer income

NDA's existing agricultural policies are ill-equipped to achieve the stated goal of doubling them in five years.



The National Sample Survey Organisation, in its situation assessment survey of farmers (SAS), conducted once every 10 years, assesses the major sources of income of an average Indian farmer.

As the Narendra Modi government completed two years in office, almost each arm of government issued hordes of advertisements celebrating achievements and delineating policies and programmes that were transforming India. The ministry of agriculture and farmers' welfare came out with a big picture of PM Modi, spelling out 10 points reflecting the government's agri-vision and strategic interventions to transform Indian agriculture. Topping this list were: "Farmers' income to be doubled in five years", followed by the Pradhan Mantri Fasal Bima Yojana, Pradhan Mantri Krishi Sinchayee Yojana, soil health cards, organic farming, self-sufficiency in pulses and oilseeds, neem-coated urea, national agriculture market (eNAM), mobile app, and disaster relief.

A reality check would necessitate a rigorous scrutiny of each one of these 10 points. But here we take up the issue of doubling farmers' incomes in five years, which tops the Modi government's agri-agenda.

Let us first map the existing landscape of the Indian farmer's income and later identify the associated challenges of doubling it. It is common knowledge that Indian farmer households do not depend solely on the cultivation of crops because they also earn incomes from farming animals, undertaking businesses in the non-farm sector and/or even from working as wage/salary earners within

or outside agriculture. The National Sample Survey Organisation, in its situation assessment survey of farmers (SAS), conducted once every 10 years, assesses the major sources of income of an average Indian farmer. The latest required information is available for agri-year 2012-13. The SAS 2002-03 results are also available, which we use for comparison purposes. The income of farming households is shown under four heads: Cultivation of crops, farming animals, rural non-farm activities (RNF) and wages/salaries (WS).

The SAS 2012-13 counts 9 crore agricultural households in India, with each earning on an average Rs 77,112 per annum. This was more than three times of what it earned in 2002-03, that is Rs 25,380. In real terms (using the consumer price index of agri-labourer or the CPI-AL as the deflator with base 2004-05), however, the average agri-household's income increased from Rs 26,901 pa in 2002-03 to Rs 38,096 pa in 2012-13. The 10 year compounded annual growth rate (CAGR) of the respective incomes was 11.8 per cent in nominal terms and 3.5 per cent in real terms. This means that it took about six years for nominal incomes to double and it would take about 20 years for real incomes to double! Now, the question really is: Is the Modi government targeting doubling farmers incomes in real terms or in nominal terms? If it is in real terms, as some enthusiasts within the government claim, it would be a daunting task to double farmers' incomes in five years as it would require an average annual growth rate of 14.4 per cent. If the government can achieve that it would be the best performance of any government, a game-changer benefiting millions of households in the country. But if it is in nominal terms, the job is relatively easy and closer to what India has already experienced during 2002-03 to 2012-13.

In terms of income sources, cultivation remains the main source for an average Indian agri-household and in the last 10 years, its contribution increased from 46 to 48 per cent. The contribution of income from the farming of animals showed the most change: From a 4 per cent share in 2002-03, it increased to 12 per cent in 2012-13, perhaps on account of rising livestock demand. The share of income coming from RNF and WS fell from 11 per cent and 39 per cent in 2002-03 to 8 per cent and 32 per cent in 2012-13, respectively.

As far as dependence on farming animals and wages and salaries is concerned, it reduced with the rising size of landholding. About 67 per cent of India's operational landholdings are smaller than 1 hectare and for them, the major

source of income (about 70 per cent) is from farming of animals and daily wage employment.

A state-wise analysis reveals that growth in nominal incomes varied between 17.5 per cent (Haryana) and 6.7 per cent (West Bengal) and that of real incomes varied between 8.3 per cent (Odisha) and minus 1.1 per cent (West Bengal).

What lessons can the Modi government learn from this decadal change for his vision of doubling farmers' incomes in the next five years? The biggest learning is clear:

Within a horizon of five years, the government can possibly aim to double only nominal incomes and not real ones, unless there is something dramatic in the package of reforms, which we don't see in the list of 10. This should bring some humility in the announcements.

Further, with two-thirds of the country's landholdings being marginal, the relevance of farming animals, rural non-farm activities, and wages and salary employment cannot be overstated. This means the future strategy for doubling incomes has to be bolder towards the livestock sector and towards RNF employment. Skilling farmers and agri-labour on a large scale will support this.

As cultivation of crops still continues to contribute most to an agri-household's income, combining a productivity-augmenting drive with diversification into high-value agriculture is more necessary than optional.

Building value chains for fruits and vegetables, somewhat akin to what India did for milk — aggregation of the produce at the village-level, grading and packaging it, and using the modern logistic network to distribute it — can augment incomes in a sustainable manner. Mother Dairy's "Safal" is another good model to keep in mind in this regard.

In sum, unless the whole agri-system rises to the occasion, the dream of doubling farmers' income in five years may remain a dream. And a farmer may still have to look up to the sky for any hope of revival, or even survival.

Aam Khas Bagh: Mango harvest begins at Mughal Gardens

Spread across 11 acres of land, the orchard has 3.5 acres of mango plantation apart from peach, pear and guava orchards.



According to the horticulture department the mango season has not been as good as was expected.

The mango harvesting season has begun at the historic Mughal Gardens of Aam Khas Bagh in Sirhind in Fatehgarh Sahib.

Spread across 11 acres of land, the orchard has 3.5 acres of mango plantation apart from peach, pear and guava orchards. However, according to the horticulture department the mango season has not been as good as was expected.

Speaking to The Indian Express, Swarn Singh Mann, Assistant Director Horticulture , Fatehgarh Sahib, informed that this year 20-25 per cent mango trees were affected due to thunderstorms and strong winds, even though the department had given these orchards on contract for Rs 6.77 lakh.

“The mango orchards here are historic. Most of our trees are more than 60-70 years old. Last year, mango trees did not bear much fruits, so peach, guava and

pear orchards were given on contract for Rs 3 lakh. However, this year we were expecting a good mango season. But 20-25% crop has been lost due to inclement weather,” said Mann.

hindustantimes

Sugarcane farmers in MP demand PM crop insurance cover



In 2016, sugarcane has been sown on 63,000 hectares of land by around 50,000 farmers in the Narsinghpur district. (HT file photo)

Sugarcane growers in MP’s Narsinghpur district have demanded that their crop be included under the new Pradhan Mantri Fasal Bima Yojana (Prime Minister Crop Insurance Scheme, PMFBY). Sugarcane crop was kept out of the Prime Minister Crop Insurance Scheme purview which was introduced by the Centre in January

The scheme, introduced by the Centre in January this year, has various new features on crop losses including post-harvest losses.

Under the scheme, premium rates to be paid by the farmers have been brought down substantially so that more farmers avail insurance cover against crop loss on account of natural calamities. The scheme will come into effect from the upcoming kharif season.

The farmers in the state were perplexed to find that the sugarcane crop was kept out of the scheme's purview at a time when the Centre has been showing concern over the farmer's plight on crop losses.

Babulal Patel, a farmer from Samnapur village in Narsinghpur, said, "The sugarcane crop is also affected by insects and other diseases and since it is of one year duration, the farmers had to face great financial hardships if there is crop loss. Therefore, the cover is necessary."

In 2016, sugarcane has been sown on 63,000 hectares of land by around 50,000 farmers in the district.

In 2014, the area under sugarcane cultivation was 59,900 hectares while in 2015, it was 65,000 hectares.

Sugarcane is sown between October and November and is a one year duration crop. The sugarcane cultivation in Narsinghpur is over 50% of what is grown in Madhya Pradesh.

In Narsinghpur district, the total cultivated land is 3 lakh hectares of which sugarcane is grown on 20-22% of the area.

With the passage of time, farmers in the state who were growing soyabean shifted towards sugarcane cultivation after they sustained losses after poor or excessive rains and suffered from diseases like yellow mosaic.

The area under sugarcane cultivation doubled in the district from 29,041 hectares in 2013 to 59,900 in 2014.

The Bharatiya Kisan Sangh, one of the wings of Rashtriya Swayamsewak Sangh (RSS), has come in support of the farmers' demand.

Sangh state executive body member Mahendra Goswami said, “Shortly we will be taking up the issue at the national level through the state bodies including Uttar Pradesh, Maharashtra and Punjab where sugarcane is grown on a large scale.”

Narsinghpur deputy director agriculture department Jitendra Singh said, “As per guidelines of the Yojana received from the government, there is no mention of sugarcane crop. Hence, the farmers growing sugarcane will not get insurance cover”.

Satya Prakash Parihar, a farmer in Jhuba village, said the new insurance scheme had excellent features as it covered post-harvest losses, failure to sow crop due to nature’s vagaries and losses due to localized calamities and in this backdrop, the sugarcane crop must also be included.



Good monsoon to push GDP growth to 8% in FY 17: Das

Shaktikanta Das hopes hope that the likely passage of GST bill in Parliament would add to the business sentiment.

The Finance Ministry expects the country’s growth rate to climb to 8 per cent in the current financial year on the back of above normal monsoon.

Economic Affairs Secretary Shaktikanta Das expressed hope that the likely passage of Goods and Services Tax (GST) bill in Parliament would further add to the business sentiment, fuelling growth.

“We will certainly exceed 7.6 per cent growth. If the monsoon is good which we expect it will be because of the forecast and once the GST is passed, we can expect our GDP to touch 8 per cent in the current fiscal,” he told PTI in an interview.

In 2015-16, the country's economy grew 7.6 per cent and the Economic Survey in February had projected a growth rate of 7-7.75 per cent for the current fiscal while RBI had forecast 7.6 per cent for the current fiscal.



He further said although the GST is likely to be rolled out from April 2017, its passage would significantly help in boosting sentiment and generating economic activity.

“The moment GST is passed, the business environment will improve. This will give a huge boost to business sentiment and economy is all about real factors and sentiments. So, the sentiment will turn strongly positive and then industry and business will also start the process of re-orienting their business for GST purpose. You will suddenly see a lot of spurt in activity,” he added.

Earlier this month, the India Meteorological Department (IMD) had stated that there is no possibility of a “deficient” monsoon this year and 96 per cent chances are that the rainfall would be “normal to excess”.

But later, the IMD said the slow progress of the south-west monsoon has led to overall deficiency of rains by 22 per cent from June 1-15.

The government is hoping to get the Constitution Amendment Bill passed by Parliament in the upcoming Monsoon Session. It plans to roll-out GST from April 1, that will subsume excise, service tax and all local levies.

Monsoon likely to gain momentum, advance further

After making a slow progress, the southwest monsoon is expected to gain momentum and advance further into several parts of drought-hit Maharashtra and central India.

“The southwest monsoon has further advanced into remaining parts of coastal Andhra Pradesh, Odisha, Gangetic West Bengal, more parts of north interior Karnataka, Vidarbha, Chhattisgarh, Telangana, Jharkhand and Bihar,” the India Meteorological Department said.

Secretary in the Ministry of Earth Sciences, M Rajeevan, said the last week of June is expected to witness some good rainfall.

IMD said the conditions are favourable for the monsoon to advance into entire Konkan and Goa, drought-hit central Maharashtra, Marathwada, remaining parts of north interior Karnataka, Jharkhand, Chhattisgarh and parts of Madhya Pradesh and Bihar.

The weatherman has forecast an “above normal” monsoon this year. However, its onset over Kerala, which marks the commencement of the rainy season in the country, was on June 8, seven days later than predicted.

Also, it made a slow progress due to lack of a favourable system that could have given it a boost to move forward. The slow pace had increased the rain deficiency to 25 per cent.

It is expected to make its way to Delhi in the first week of July. Normally, it reaches the national capital by July 1.

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



The exports crossed 230 million kilos during the period.

India achieved record production and exports of tea in the last fiscal year, according to the Tea Board.

In a press release issued on Friday, the Board said production grew by three per cent (36 million kg) during the last fiscal to 1,233 m kg, riding on 7 per cent production growth in Assam, which contributes half of the country's total tea output.

Production increased by a marginal 1.68 per cent in Bengal, and declined by 6.95 per cent in South India, both of which account for one-fourth of the total.

Production declined by a sharp 15.73 per cent in Kerala due to labour unrest.

Nearly one-third of total production was contributed by small growers through bought-leaf factory (BLF) routes. Small growers contributed 53 per cent of production in Tamil Nadu, 40 per cent in Bengal and 27 per cent in Assam.

CTC teas dominate production, contributing 91 per cent of the total. However, production of Orthodox and green teas is rising at a faster rate.

Exports

On the export front, the country breached the 230 m kg mark after 35 years by exporting 232.92 m kg of tea worth 4,493 crore in 2015-16. When compared to 2014-15, export volume and value were both up by 17 per cent.

India exported 231.74 m kg of tea in 1980-81, riding on Russian buying. The previous highs were 242 m kg in 1976-77 and 233.09 m kg in 1956-57.

Russia (48.23 m kg) is still the largest buyer, followed by Iran (22.13 m kg), Pakistan (19.37 m kg), the UAE (16.15 m kg), Germany (10.53 m kg), Bangladesh (9.49 m kg) and Poland (6.14 m kg).

Interestingly, the higher export earnings, notwithstanding the realisation per kg of tea, remained stagnant at 193 compared to the previous fiscal year.

According to the Tea Board, auction price realisation increased 8 per cent over the previous year. This, however, is not indicative of the industry realisation as majority of teas were sold through private contracts until last year.

Last October, the Board made it mandatory for planters and bought-leaf factories to sell 50 per cent of the production through auctions.

During the first two months (April-May) of this fiscal, price realisation of South Indian teas increased to 104 a kg from 81 a kg last year.

Price realisation of North Indian teas has increased marginally from 143 a kg to 148 a kg.

Scientists urged to take up farmer-oriented research

Union Minister of State for Agriculture and Farmers Welfare, Sanjeev Kumar Balyan, has urged the scientists to focus on farmer-oriented research activities to improve the agriculture sector of the country.

He was speaking at an interface meeting with the directors and scientists of the institutes in Kochi under the Ministry of Agriculture and Farmers Welfare at the Central Marine Fisheries Research Institute (CMFRI) here.

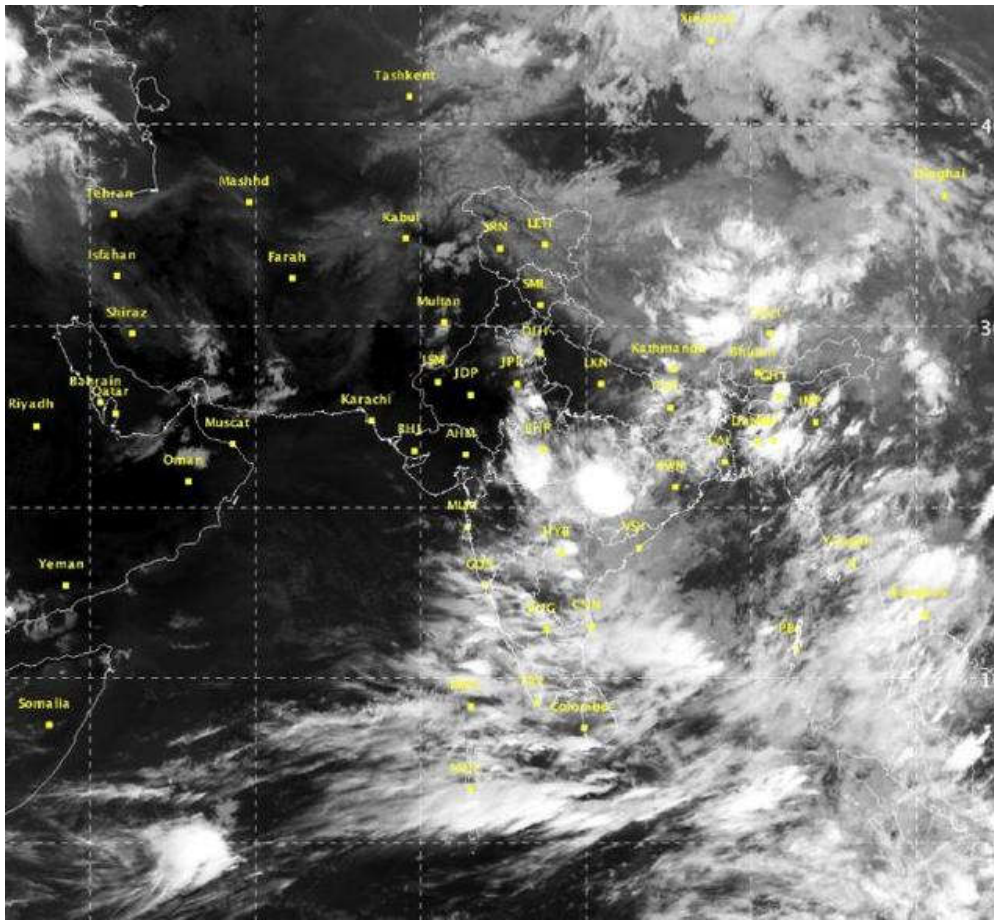
“Scientists should always think for the farmer who is the cornerstone of agriculture sector,” he said, adding that long-term planning is required to formulate developmental projects aimed at boosting the production in the country.

The minister lauded the efforts of CMFRI scientists for their contributions in sea cage farming, technology development of the species such as cobia, silver pompano, and orange spotted groupers. The National Brood Bank set up by CMFRI is an important step in increasing the fish production in the country, he added.

A Gopalakrishnan, Director, CMFRI, said that a Mariculture Policy should be formulated to regulate sea cage farming. CMFRI has already transferred the technology of sea cage farming into farmers. Adequate hatcheries and nurseries should also be set up in order to extend the cage farming method into more areas.

Directors and scientists from CIFT, NIPHATT, CIFNET, Fishery Survey of India, Coconut Development Board, Plant Quarantine Information System, Spices Board, Directorate of Cashew Nut and Cocoa Development, NBFGR and CMFRI attended the meeting.

Monsoon revives, but still feeble over Kerala, Karnataka



Over the next two weeks, ending June 30, rainfall is expected to be close to normal on an all-India scale with no large departure

The monsoon has started showing signs of a revival with the offshore trough along the west coast, which sets the thumb rule for intensity and spread of rainfall, showing some life.

It has reappeared as a feeble feature along the Karnataka-Kerala coast, just enough to nudge the rain belt largely over eastern India.

Perfect foil

The persisting cyclonic circulation off North Coastal Andhra Pradesh and Southern Odisha acted as a perfect foil as it re-oriented incoming flows from the Arabian Sea back towards the mainland. The offshore trough and the cyclonic

circulation will continue to act in tandem to push the monsoon farther into the farming heartland over central and north-west India, forecasts have suggested.

Over the next two weeks, ending June 30, rainfall is expected to be close to normal on an all-India scale with no large departure, according to an extended forecast put out by the India Met Department, Indian Council of Agricultural Research, and Central Institute for Dryland Agriculture.

However, there will be improvement of rainfall over central India and north-west India during the second week (June 24-30) compared to the first week (June 17-23).

Rainfall over the South Peninsula is expected to be normal to slightly above normal during the next two weeks.

The forecast

According to this forecast, normal or above-normal rainfall is forecast during the next fortnight over Uttarakhand, Haryana, Delhi, Uttar Pradesh, Rajasthan, West Bengal, Sikkim, Bihar, Jharkhand, Arunachal Pradesh, Gujarat, western Madhya Pradesh, Madhya Maharashtra, Marathwada, Telangana, coastal Andhra Pradesh, Rayalaseema, interior Karnataka, Tamil Nadu, and Kerala. Normal or above normal rainfall is likely to occur in either of the next two weeks in Jammu & Kashmir, Punjab, Assam, Meghalaya, Odisha, Chhattisgarh, Saurashtra, Kutch, Konkan, Goa, Vidarbha, and coastal Karnataka.

The European Centre for Medium-Range Weather Forecasts maintains that monsoon flows will strengthen from Monday (June 20) onwards.

Import duty on wheat will continue beyond June 30, says Food Minister

The Centre has decided to continue with the 25 per cent duty on import of wheat, to curb the inflow of cheaper cereal from countries like Australia and France.

“The 25 per cent import duty on wheat will be continued further,” Food Minister Ram Vilas Paswan said in a tweet on Friday.

In March, the Centre had extended the 25 per cent import duty till June 30 to curb the cheaper imports mainly during the procurement season, and on expectations of a higher domestic crop size. According to the Agriculture Ministry's third advance estimate, wheat production during 2015-16 has risen to 94.05 million tonnes from 86.53 million tonnes in the previous year.



However, the trade is sceptical about the Centre's estimates and has pegged the output between 81-84 million tonnes, as the acreage was lower and the weather was also not favourable for higher production. In an apparent indication of a lower crop, the procurement of wheat by government agencies has also been lower at 23 million tonnes, as compared to 28 million tones in the year-ago period.

Wheat futures on NCDEX firmed up and gained by over 2 per cent. Wheat prices have risen by about a tenth over the past two months on lower than expected production.

Millers have so far contracted about 5 lakh tonnes of wheat from countries like Australia and France.



THE TIMES OF INDIA

WEATHER FARMER

Pune, Jun 19 () Farmer weather bulletin for

Pune, Jun 19 () Farmer weather bulletin for Maharashtra and Goa state.

Forecast valid until the morning of Jun 24:

For 19th June : Rain/thundershowers are very likely at most places over Konkan and Goa, Marathwada and Vidarbha and at many places over Madhya Maharashtra.

For 20th June: Rain/thundershowers are very likely at most places over Konkan and Goa, at many places over Vidarbha and at a few places over Madhya Maharashtra and over Marathwada.

For 21st June: Rain/thundershowers are very likely at most places over Konkan and Goa and at a few places over Madhya Maharashtra, Marathwada and Vidarbha.

For 22nd June: Rain/thundershowers are very likely over at most places over Konkan and Goa, at many places over Madhya Maharashtra and Marathwada and at a few places over Vidarbha.

For 23rd June: Rain/thundershowers are very likely over at most places over Konkan and Goa and at many places over Madhya Maharashtra, Marathwada and over Vidarbha.

Heavy rainfall warning: For 19 June : Heavy to very heavy rain is very likely at isolated places over Konkan and Goa and Vidarbha. Heavy rain is very likely at

isolated places over north Madhya Maharashtra and Marathwada. For 20 June : Heavy to very heavy rain at isolated places is likely over Konkan and Goa. Heavy rain is very likely at isolated places over Vidarbha. For 21st - 23rd June: Heavy rain at isolated places is likely over Konkan and Goa.

Outlook: No large change. Kolhapur

31.6 24.6 Panjim

30.4 23.5 Ratnagiri

33.0 25.1 Sholapur

33.8 22.6 Satara

32.1 24.9 Sangli

33.2 23.5 BAS NP

Farmers to benefit from IFFCO's neem scheme



Good news for farmers. The country's largest fertilizer co-operative Indian Farmers Fertiliser Cooperative Limited (IFFCO) has come up with a scheme that will help farmers supplement their income.

The company will purchase fruit of neem, usually discarded as waste, at the rate of Rs 15 a kilo. Popularly known as nimori, farmers can visit any IFFCO office to sell neem fruits.

"This scheme will not only enhance farmers' income but also help in increasing awareness about organic fertilizers," an official said.

As the government has made it mandatory for fertiliser firms to produce neem-coated urea, the demand for neem extracts is expected to rise. The IFFCO has already planted over 1.5 lakh neem saplings.

Neem coated urea is eco-friendly, cost effective and has efficiency advantages. IFFCO also plans to process the fruit of neem to make agro-based products like oil and fertilizers.

IFFCO last year signed a memorandum of understanding with the Forest Research of India to conduct research and development of good neem species in the next three years.

THE ECONOMIC TIMES

Agriculture under stress: Radha Mohan Singh



Union Minister for Agriculture and Farmers Welfare Radha Mohan Singh on Saturday said that agriculture sector is passing through difficult times and there is need for more efforts from officials to overcome it.

GUWAHATI: Union Minister for Agriculture and Farmers Welfare Radha Mohan Singh on Saturday said that agriculture sector is passing through difficult times and there is need for more efforts from officials to overcome it.

Singh reviewed different schemes and programmes of Agriculture and allied departments in presence of assam Chief Minister Sarbananda Sonowal, Minister for Agriculture Atul Bora and Minister for Fisheries, Parimal Suklabaidya and senior officials of Government of India and Government of Assam.

According to official statement from state government Union Agriculture Minister urged the officials to put in more efforts for the welfare of farmers and to work with a mission mode to step up agriculture produce with a view to double the income of the farmers. "The agriculture scenario is going through difficult times and to overcome it more efforts have to be put in by the officials so that the benefits of the different schemes percolate to the agriculture fields vis-a-vis the farmers."

Singh said, "The agriculture officials have to go to the districts to prepare the Action Plans. If we can come all the way from Delhi to Guwahati, then the officials in Dispur have to go to the districts to assess the ground reality and to prepare the Annual Action Plan by meeting the requirements."

The Minister pointed out that there could no excuses for officials for delay in getting funds from the Ministry as 'per the direction of our Prime Minister, funds go straight to the coffers of the State exchequers after vote on account within 24 hours."

Singh urged the officials to adopt latest technologies vis-a-vis mobile app, smart phones and video conferencing instead of doing work manually to update data from the fields on a regular basis. He called for application of bio-metrics to induce proper 'work culture' to 'bring in desired changes in our work approach'.

Singh urged the officials to make utilisation of the unspent funds earmarked under different schemes as 'non-utilisation of funds before a financial year comes to an end has a cascading effect as the State has to suffer on account of less funding the next year'.

The Union Agriculture Minister said the atmosphere in Assam is 'very congenial' with the coming to power of the new dispensation and the officials must take advantage of the situation by working with a missionary zeal to fulfil the high hopes and expectations of the people of the State. "We must work with a missionary zeal to fulfil the high hopes and expectations the people have reposed on this new Government.

Sonowal urged the officials to work with dedication, devotion and determination to fulfil the high hopes and expectations of the people. "The people of Assam have high hopes and expectations on the new Government and have blessed us profusely. We have got the golden opportunity to serve the people in the days ahead."

Sonowal said Prime Minister Narendra Modi has set the agenda for development of Assam and the North East by focusing it as an organic hub of Asia. "Assam is a land of potentialities and possibilities in agriculture and allied sectors. We have to go in for developing the State without affecting our ecology and to conserve our bio-diversity," he said. Expressing his gratitude to the Union Agriculture Minister for visiting the State with senior officials to take stock of the agriculture scenario in the State,

Assam Minister for Agriculture, Atul Bora said he had a series of meetings with his officials to chart out a roadmap and to find out the areas in which the agriculture sector is lagging behind. "I am trying to understand the issues involved and to find out in which areas we are doing well and the ones we are lagging behind. I have also reviewed some Central schemes that have not taken off. We are for realising fully the dreams of the Prime Minister insofar as agriculture, horticulture and animal husbandry & veterinary are concerned."

Bora said that the State has set a goal of bringing 14 lakh hectare presently under mono-cropping to double-triple cropping by 2022.

Singh said despite back-to-back monsoon failures impacting farm output and incomes in the last two years, the agriculture sector, which registered a negative growth of 0.2 per cent in 2014-15, had grown at 1.2 per cent in 2015-16.

Monsoon enters Maharashtra from Vidarbha: Met Department



IMD has forecast that the conditions are favourable for further advance of monsoon into entire Konkan, Goa and Marathwada, remaining parts of north.

PUNE: Finally, monsoon has entered the parched state of Maharashtra, but from Vidarbha in the East instead of its normal entry from the western side.

There has been a hiatus in the progress of the western branch of the monsoon from last 8 days. The western branch has not moved northward since June 8, the Konkan and Goa on the western coasts have been getting good pre-monsoon showers. The normal date for the monsoon to cover most of Maharashtra is June 10.

However, the met department has forecast that the conditions are favourable for further advance of monsoon into entire Konkan, Goa and Marathwada, remaining parts of north interior Karnataka, Telangana, Vidarbha, Jharkand, Chhattisgarh, some parts of East Madhya Pradesh and some more parts of Bihar in next 48 hours, stated an IMD update on monsoon.

Most parts of Madhya Pradesh too are likely to get rainfall during next 4 days. However, the met officials say that there is no certainty about the spacial continuity of rainfall in Madhya Pradesh, which will decide the official announcement of onset of monsoon in the state.

This year, the progress of the eastern branch of monsoon has been better than the western branch. Factors in the Pacific ocean have proved favourable for the eastern branch. However, the subsidence of dry continental air, which normally retreats by May, has been giving resistance to the progress of the western branch.

Meteorologists are confident of monsoon getting back to its normal rhythm by July, which may give rainfall at normal regular intervals.

With organic cotton and online ads, Boll & Branch helps Indian farmers



In building Boll & Branch, the Tannens have tried to create a supply chain that improves the livelihoods of farmers and factory workers in India.

When Scott and Missy Tannen were putting the final touches on their home renovation in Summit, New Jersey, a few years ago, they embarked on a seemingly pedestrian chore: choosing sheets for their new king bed.

Missy Tannen set off to the mall in search of quality bedding but quickly fell down a rabbit hole. Where were the sheets made? Were the cotton farmers well-compensated? Were the factory workers well-treated?

With consumers increasingly concerned about such matters, Missy Tannen expected sales associates at stores like Bloomingdale's and Bed Bath & Beyond to be fluent in answering such queries. Instead, she said, "When we started looking for information at the retail level, we realized that no one knew what they were talking about."

Nearly five years later, the Tannens' quest for answers has made them unlikely entrepreneurs in the luxury bedding industry. They are partners in a 3-year-old company, Boll & Branch, that they say is on track to sell \$40 million worth of sheets and towels this year and is profitable.

In building Boll & Branch, the Tannens have tried to create a supply chain that improves the livelihoods of farmers and factory workers in India. They also have followed the lead of recent consumer goods companies like the eyeglasses maker Warby Parker and the mattress maker Casper by going all in on e-commerce.

Scott Tannen, 38, previously founded a video game company and worked in the marketing departments of Wrigley and Kraft. Missy Tannen, 39, was a third-grade teacher who had become a full-time mother. But once they began thinking about where their sheets came from, the problem nagged at them, provoking radical career changes.

In 2013, they decided to take a gamble and use the profits Scott Tannen had made from the sale of his video game company to start Boll & Branch. Their goal was to make high-end sheets while using good farming and labor practices.

Doing so would put them on the moral high ground. Just as important, it would make Boll & Branch stand out in a crowded marketplace. (Other companies, including Parachute, also sell bedding directly to consumers, and some boast that they follow socially responsible practices.)

The Tannens began buying thousands of dollars' worth of sheets to examine different weaves, and spent their spare time researching the cotton industry. The more they learned, the less they liked what they found.

In India, one of the largest cotton and garment producers, many farmers are dependent on genetically modified crops. Those seeds and the necessary pesticides may increase yields, but they also cost the farmers money, further eroding their slim profits.

It does not get much better further along the supply chain. According to a recent report by the Center for Research on Multinational Corporations, a Dutch nonprofit organization, and the India Committee of the Netherlands, forced labor, child labor and poor working conditions are common in Indian garment factories.

If the Tannens were going to create a high-minded bedding company, they would have to do better than the status quo.

The first step was to find a reliable source of organic cotton. Besides being more expensive for farmers, conventional cotton farming methods — particularly the use of pesticides — may be taking a toll on the health of field workers.

After some searching, the Tannens found Chetna Organic, a nonprofit organization that works with cotton farmers in central and southern India. The Chetna members grow their crops without genetically modified seeds or pesticides, and they use significantly less water than conventional farmers.

Chetna is certified by Fair Trade USA, the Global Organic Textile Standard and Fairtrade International, and it maintains stringent internal controls.

The Tannens had already settled on using organic cotton when a tragedy prompted them to raise their sights still higher. In April 2013, the Rana Plaza garment factory in Bangladesh collapsed, killing more than 1,100 people.

That disaster, and others in recent years, prompted many big retailers to pay closer attention to conditions in garment factories. The Tannens hopped on that bandwagon, resolving to carefully scrutinize their factories, too.

They opted for Rajlakshmi Cotton Mills, an organic and Fair Trade certified textile factory in Kolkata, India, with which Chetna has a partnership.

The Tannens' approach has its costs. Scott Tannen estimates that using organic cotton and Fair Trade labor doubles those expenses, and so far the demand for organic sheets is not great in the United States. But they have resolved to press on.

Nicole Bassett, former director of sustainability at Prana and former manager of social responsibility at another apparel company, Patagonia, said Boll & Branch had a leg up on many other retailers.

"People are creating brands all the time these days," she said. "But they asked if there was a better way to do this. At Prana, we were taking years to convert these supply chains. They got to start from the beginning."

In May 2013, the Tannens placed their first order, for 1,500 sets of ivory and white sheets. The ivory sheets arrived with a green hue. But after eliminating such kinks, Boll & Branch sold its first sheets in January 2014, and it has been growing fast since. Sales were about \$1.7 million that year and jumped to \$13.5 million last year, the Tannens said. This year, they predicted, sales should roughly triple.

For Chetna, Boll & Branch was a godsend. Previously, demand for organic cotton was spotty at best. "Cotton is a commodity at the end of the day," said Arun Chandra Ambatipudi, one of the founders of Chetna. "If you don't show access to markets, interest will wane."

But now, Boll & Branch is buying more than half the organic cotton Chetna's 15,000 farmers produce, about 1,200 metric tons this year. And because Boll & Branch will need the cotton to keep coming, it has begun giving Chetna farmers

cash advances, injecting a welcome degree of financial stability into an often volatile occupation.

Although it has accepted higher costs for materials and labor, the company has found ways to increase margins. Instead of selling at wholesale prices to retailers, Boll & Branch primarily advertises online and sells directly through its own website.

On its own, Boll & Branch will not solve the plight of Indian farmers. Compared with the sales of the big wholesalers of sheets, the company's sales remain a rounding error. Even so, Scott Tannen contends it is only a matter of time before many more consumers start expecting the cotton in their sheets, towels and even clothes to be organic and ethically sourced.

"There's a change in consciousness among some consumer segments," Scott Tannen said. "They're thinking about the people on the other side of the product."