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Seed vending machine, an instant hit



The TNAU seed vending machine at the Collectorate in Tiruvannamalai will dispense 40 varieties of seeds at a time.— Photo: C. Venkatachalapathy

Over 5,000 sachets sold since its installation at Tiruvannamalai Collectorate

A seed vending machine installed at the Tiruvannamalai District Collectorate to sell seeds of varieties of vegetables and flowers is well received by the people.

The Tamil Nadu Agricultural University (TNAU) has installed the machine in the Collectorate here a few months ago, with an aim of promoting urban gardening.

All that one needs to do is to insert Rs. 10 note in the machine and select the seed. Soon the machine will emit a pouch of desired seed.

TNAU's The Centre of Excellence in Millets situated in Athiyanthal village near here refills and maintains the machine on behalf of the university.

M. Jayachandran, professor and head of the centre told *The Hindu* that though similar machines have been placed in several places of the State, Tiruvannamalai is the only place where it is located in the Collectorate, a place where people of different walks visit.

“Rs.10 is a fixed denomination to buy seeds from the machine. Since costs of the different seeds vary, varying quantities of the seeds according to their price are filled in the sachets. The university sends us ready to load sachets and we fill them as and when the variety empties in the machine,” he said.

“Nearly 40 varieties of the seeds could be loaded in the machine. We used to change the varieties according to the suitability of any given season. Most varieties of vegetables normally sowed in a season would be made available in the machine. The size of the seed sachet is suitable for kitchen gardens. As we got the cooperation from Collector A. Gnanasekaran, the idea has gone down well with the people. The machine placed in the Collectorate turned out to be a success. More than 5,000 sachets of seeds were sold ever since the machine was installed a few months ago,” he added.

*Rs.10 is a fixed denomination
to buy seeds*

from the machine set up by TNAU

Alathur to become first organic block panchayat



Organic vegetable seedlings being arranged at a unit in Alathur, Palakkad.—
Photo: K. K. Mustafah

Alathur will soon become the first block panchayat in Kerala to achieve self-sufficiency in production and consumption of organically grown vegetables.

The block panchayat has begun a novel initiative in this regard with the cooperation of eight grama panchayats under it.

Farmers' market soon

By the end of the next economic year, the block will produce all fruits and vegetables for its residents based on the requirement. A farmers' market without the involvement of middlemen will be set up at Vadakkanchery.

After achieving self-sufficiency, retail outlets will be started in other parts of the State to sell the excess quantity of fruits and vegetables.

The project is being implemented with the help of Hill Area Development Authority, Integrated Watershed Development Programme and Swachh Bharat Mission.

The Agriculture Department will coordinate the farming activities with the help of local bodies. Efforts are already on to ensure the active involvement of the masses in the project.

Loans with subsidies will be made available to interested farmers, besides supply of seeds and organic fertilizers.

JHARKHAND

Jharkhand government last week said that a committee would be set up to look into the discharge of effluents by industries into various water bodies. The State Agriculture Minister Randhir Singh said this in reply to a question in the Assembly on the last day of the Winter Session.

RAJASTHAN

A total of 40,506 farmers in 40,500 villages were provided agricultural power connection in nine months in 2015-16, Rajasthan Minister of State for Power Pushendra Singh said last week.

Banana, casuarina farms too wiped out

While paddy as the principal crop has been the focus in the aftermath of the floods that ravaged the northern districts, farmers who had taken to horticulture also report heavy losses.

Across Cuddalore and Kancheepuram, fields of banana, papaya and watermelon have been inundated following rains earlier this month.

In Melakandai in Kancheepuram, agricultural labourers said they haven't had any work in three weeks since the rains battered and destroyed the banana plantations. In the farm of V. Veeraraghavan, not a single red plantain tree survived the rains.

“Banana is very sensitive to excess rainfall. None of us expected this amount of rain. By this time of the year, I would be sending fruits in trucks to the various buyers. Now I have nothing,” he says. The farmer claims to have spent Rs. 1 lakh per acre for the plantation.

Officials said an estimated 1.4 lakh hectares of horticulture crops have been hit across the State. Cuddalore is unique since fruit plantations here, such as the Panruti jackfruit, are highly acclaimed for their quality.

In Puduchattiram and Sethuthopu in Chidambaram, casuarina farms have been wrecked beyond redemption. “Casuarina is a long-duration crop and is harvested only after three years. My farm which had six acres of 2-year-old casuarina is now wiped out,” says farmer Ashok Kumar.

Last week, he sold off the damaged trunks for whatever they fetched.

“I was in no position to bargain,” he says as he buys a new stock of saplings from the nursery in Killai.

Like paddy farmers, these farmers too expect the compensation amount to be hiked substantially if the government wants them to bounce back from the losses.

“Otherwise, some of us will have no option but to give up farming. We cannot survive another flood like this one,” Mr. Kumar says.

Floods take toll on farm output this year

The unprecedented floods that have ravaged farmlands in several districts may bring the total food production of the State down marginally, endangering a trend of record output over the last two years.

‘In August, Agriculture Minister R. Vaithilingam told the Tamil Nadu Assembly that the government was confident of an output of 147 lakh tonnes of foodgrains in 2015-2016. But officials in the Agriculture Department apprehend that this target could not be achieved as the damage has been extensive.

A senior official said on condition of anonymity that crops on around 2.7 lakh hectares across State were damaged in the two spells of heavy rain, with the three northern districts of Cuddalore, Tiruvallur and Kancheepuram facing the worst flooding. In horticulture, production on around 1.4 lakh hectares has been affected.

The net area sown in Tamil Nadu on an average is about 47 lakh hectares. What has been the saving grace is the “rosy picture” emerging from the southern districts.

“The inputs we are getting from these districts are that they will comfortably surpass last year’s output. This will in a small way help compensate the loss from Cuddalore, Kancheepuram and a few parts of the Cauvery delta where agricultural fields were flooded,” the official said.

Coconut farmers worried over Red Palm Weevil attack



Tirupur district stands second in the acreage under coconut in Tamil Nadu. However, farmers need to thwart many a problems like insect attacks in their attempts to retain that position.

Though Tirupur district still holds the second largest acreage under coconut among all districts in the State, the coconut farmers here are facing many a hurdles to maintain that position.

One among the main predicaments that hangs like a Damocles sword over their farming profession is the attack of Red Palm Weevils, an insect which poses a threat to the life of the trees.

The Weevils lay eggs into the coconut trees where larvae grow and fully destroy the structure of the palms, tell the farmers.

Presently, coconut is cultivated on 56,823 hectares in the district.

To help the agrarian community combat the Weevils attack, the Department of Agriculture is all set to start distribution of insect traps at subsidised rates.

“We will be utilising Rs. 20 lakh from the corpus created under Rashtriya Krishi Vikas Yojana to subsidise the cost of the traps that are going to be distributed to the farmers in the insect prone area,” Joint Director of Agriculture A. Mahendran told *The Hindu* .

The traps, along with the baits to lure the insects to the gadgets, will be given away at the rate of five units per hectare to farmers in select blocks namely Pongalur, Dharapuram, Udumalpet, Kundadam, Kangayam, Madathukulam, Palladam and Gudimangalam, where the presence of Red Palm Weevils have been noticed.

“Peculiarity of the Weevil attack is that the farmers mostly will come to know of the infestation only after the tree dies. So, putting pest traps in advance in the Weevils prone area can prevent the mortality of trees,” pointed out Mr. Mahendran.

The agriculture officials also recommend the application of 10 ml of monocrotophos diluted in equal quantity of water to the roots of the trees if already insect had taken position at the top.

Root feeding

“This ‘root feeding’ will kill any larvae present which can later suck out the tissues in the tree trunk,” said the official.

Agriculture Department to distribute insect traps at subsidised rates

Solar dryer comes in handy for copra producers



A view of solar dryer set up at Tirumaraikadu in Nagapattinam district.

- Under the conventional method, it took about ten days for drying the coconuts. But, the solar dryer not only expedited it in two days but also ensured hygienic handling of the produce
- A view of solar dryer set up at Tirumaraikadu in Nagapattinam district.

The Tirumaraikadu Iyarkai Vivasayigal Sangam Kootamaippu (Tirumaraikadu Bio-farmers Federation) comprising 21 farmers clubs involved in producing copra in a cluster of villages near Vedaranyam has been registering expeditious production of copra, using solar dryer.

Till a few months ago, the farmers had to rely on sunlight for drying the coconuts for producing the copra.

But, following the initiative by the Agricultural Engineering Department, the Federation has gone in for the subsidy-based dryer installed at an expenditure of Rs.3.86 lakh including a subsidy of Rs.1.84 lakh.

The dryer has been set up at Chettipulam near Vedaranyam and has been catering to the needs of copra producers in the neighbouring clusters including Kariapattinam, Katharipulam and Karuvapulam.

“The dryer has come as a gift to us during the recent months, particularly after the onset of the North-East monsoon,” says G. Balasubramanian, member of the Federation, also president of the Farmers Club in Chettipulam, who has been maintaining the dryer.

Under the conventional method, it took about ten days for drying the coconuts. But, the solar dryer not only expedited it in two days but also ensured hygienic handling of the produce, he explains.

The dryer, with a plinth area of 400 square feet, can handle 1,500 coconuts which are broken before being arranged in trays at the dryer. “The dryer maintains a temperature anywhere between 60 and 70 degree Celsius and it is monitored using a sensor,” he says.

On the advantages of the dryer during the monsoon period, he said that under the conventional method, the copra was damaged due to sudden downpour. But, the dryer has relieved them of the additional efforts of protecting the crop from rain.

According to Agriculture Engineering department sources, it has been planned to motivate the farmers to utilise the dryer for value-addition in other crops particularly for preparing the banana. Being a coastal area, Vedaranyam and surrounding villages were more prone to sharp showers and strong winds both of which would damage copra.

Under the conventional method, it took about ten days for drying the coconuts. But, the solar dryer not only expedited it in two days but also ensured hygienic handling of the produce

Plant protection team visits blast-affected paddy fields

Step taken on Collector's order following representations from farmers

The team of scientists of Rice Research Station, Ambasamudram, and Agriculture Department officials in a paddy field near Vasudevanallur in Tirunelveli district recently.



The newly formed district-level plant protection team, comprising scientists of Rice Research Station, Ambasamudram, and officials of Agricultural Department, has started inspecting blast-affected paddy fields in the district.

After receiving representations from agriculturists during the recent farmers' grievances day meeting, Collector M. Karunakaran ordered the officials to inspect the affected fields in Vasudevanallur block and prescribe suitable remedial measures.

Subsequently, a district-level 'Plant Protection Team', headed by Joint Director of Agriculture L. Perumal, was constituted. The team includes Professor and Head, Rice Research Station, Ambasamudram, Arumugachamy, Professor of Entomology M.A.K. Pillai, Assistant Professor of Plant Pathology Rajini Mala and block-level officials of Agricultural Department.

The team visited Viswanathaperi village in Vasudevanallur block recently and inspected the blast-affected paddy fields.

"We found that the paddy fields have been affected by Neck Blast Disease, which will manifest in grey colour dots in the neck of the panicle. It will affect the 'grain filling' in the panicle to hit the yield," Mr. Perumal said. The blast disease first affected the weeds in the bunds and spread into paddy fields. Hence farmers should keep the bunds clean, he added.

"Nitrogenous fertilizer should be applied in the affected field in split doses. Fungicides can also be mixed and applied in affected field," Mr. Perumal said.

The spraying of fungicide can be repeated for 15 days after the first spray. Besides giving these plant protection recommendations to the farmers, the team members also explained them agronomic practices and plant protection measures to be adopted.

"The joint field visits by scientists and the officials will also be done in other blocks if the situation demands," Mr. Perumal added.

ICAR for agriculture in school syllabus



Catch them young appears to be the new mantra of the Indian Council of Agricultural Research (ICAR). For, the council is thinking of recommending to the authorities to introduce agriculture in the school syllabus in a bid to attract students towards agricultural education and research right from the tender age.

Speaking at the inauguration of the global alumni meet organised by the University of Agricultural Sciences-Bengaluru Alumni Association here, ICAR Director-General S. Ayyappan said presently most of the talented youth were choosing medical and engineering courses, especially IT.

“There is a dire need to attract talent to agricultural education to help the country’s farm sector. To ensure this, we must start creating awareness among them about agriculture and agri-education right from school,” he said.

Stressing the need to create public awareness that agriculture is actually a “harvest of hope” and “not despair”, he made an appeal to the retired agricultural scientists to join hands with ICAR in mentoring farmers and taking forward the mission of knowledge-based farming.

“Farmers have often expressed a view that there is no substitute to a scientist of standing visiting them to provide first-hand assistance,” he said, requesting retired scientists to visit fields and district-level Krishi Vigyan Kendras as and when they get time to share their experience and expertise.

Pointing out that UAS-B Alumni Association with 9,600 members was one of the unique ones in the country that had statutory status and was known for the high reputation of its members, he called upon the association to mentor the agricultural sector of not just the State, but also the country.

Expressing concern that the latest survey by ICAR had put the average post-harvest losses of various crops at Rs. 95,000 crore a year, he called for giving impetus to food processing and value addition to prevent such losses.

* The two-day global alumni meet of the UAS-B Alumni Association begins

* Home Minister G. Parameshwara, ICAR Director-general S. Ayyappan and several bureaucrats are among UAS-B alumnus

Turning waste into wealth

UAS-B Alumni Association to develop a model to help residents put garbage to best use

Promising to develop a replicable model for the civic authorities to help residents put their garbage to best use with the help of farm scientists, the University of Agricultural Sciences-Bengaluru Alumni Association has mooted the idea of providing 10 per cent rebate in property tax to residents who turn their kitchen waste into compost to grow their own vegetables.



“On the lines of measures taken to provide rebate in electricity bill to those who have installed solar water heaters, the authorities must encourage citizens to put their garbage to best use through some incentives,” UAS-B Alumni Association Chairman K. Narayana Gowda suggested.

Speaking to media persons on the sidelines of the inaugural session of the global alumni meet of the association here on Sunday, Dr. Gowda said the association would take up a pilot work to prepare a model, which can be adopted by any city in the country.

“We want this model to be a comprehensive one that can provide end-to-end solutions,” he said.

“Apart from educating on the methods of turning garbage into compost and growing own vegetables with efficient use of water, we must also ensure availability of seeds and seedlings at affordable prices. These things should also be available to residents at places near to their houses,” he said. The association wants Bruhat Bengaluru Mahangara Palike (BBMP) to hold consultations with various public institutions that have large spaces for setting up facilities to sell seedlings, seeds, bio-fertilizers and other required material to set a kitchen garden.

He said there were various scientific methods to handle non-decomposable waste such as using them in construction of bricks and building of roads.

‘Take measures’

Hailing the recent order of the High Court of Karnataka that prescribed two-bins-one-bag system for garbage segregation at houses, he said a pro-active measures by the BBMP to encourage residents to turn the garbage into wealth by themselves will help resolve the crisis over garbage disposal.

Pro-active measure by the BBMP to encourage residents to turn waste into compost will help resolve garbage disposal crisis**K. Narayana Gowda, UAS-B Alumni Association Chairman**

Helping farmers' families

The Alumni Association of the University of Agricultural Sciences-Bengaluru will hold a convention in April or May, 2016 to prepare an action plan on how its members can help bring the families of farmers, who have committed suicide, into the mainstream.

Association president K. Narayana Gowda told reporters that the convention will work out means of involving reputed service organisations for hand-holding the families of deceased farmers and engaging them in income-generating activities.

“It is a twin-issue of preventing farmers from resorting to suicide by creating awareness about sustainable farming methods and also helping the families of farmers who have committed suicide,” he said.

A handy guide to organic farming

As Kerala sets out on the path to total organic agriculture, easy-to-understand and easy-to-access literature on the subject in Malayalam is a must.

And, ‘Sampoorna Jaivakrishi Reethikal’ (Total Organic Agriculture) is the book of the moment and a hands-on manual for those who to take organic agriculture seriously.

Written by former assistant director in the Department of Agriculture P. J. Joseph, the 185-page book packs the life-long experience of the author as it explains why earth-friendly agriculture is not just for survival but is a way of life and a philosophy.

The author, hailing from a farming family near Kottayam, has been an agricultural researcher, a trainer in zero-budget farming and a resource

person in the indigenous Vechoor cow conservation council. The book is published by DC Books.

NABARD to promote new farmer producer companies

The National Bank for Agriculture and Rural Development (NABARD) is gearing up to set up six farmer producer companies in the district in the wake of the success of three similar companies launched in the district recently.

A farmer producer company is expected to improve the bargaining power, net income and quality of life of small and marginal farmers.

The objective of the producer company includes production, harvesting, procurement, grading, pooling, handling marketing, selling and export of primary produce of members, said N. S. Sajikumar, District Development Manager, NABARD, Wayanad.

It also aimed at ensuring a sustainable income to farmers by increasing the production and productivity by adopting appropriate technology, good agricultural practices, proper use of credit and marketing skills, Mr. Sajikumar added.

The NABARD will also provide a grant of Rs.5 lakh to each farmer producer company as grant from the 'produce fund' of the Central government.

Three farmer producer companies launched in the district were on the path of steady growth and the NABARD was planning to set up six such companies in the district in the next fiscal, Mr. Sajikumar added.

Workshop on making chocolates

Tamil Nadu Agricultural University Information and Training Centre is conducting a workshop on making chocolates on December 30 at No: U-30, 10th Street, Anna Nagar. Time: From 9.30 a.m. to 4.30 p.m.

For details, call 044 - 2626 3484.

Conducted by T`NAU

Agri expo concludes

Thousands visited Agrex 2015, the 10-day agri-industrial exhibition, which concluded at the SDV grounds here on Sunday.

The annual exhibition was organised by the Alappuzha Zilla Agri-Horticultural Society, Kerala State Agriculture Department, and Nabard, in association with various public and private organisations.

A wide variety of agricultural produce, farm implements, rare breeds of birds, fishes and animals were on show. Seminars on various topics were hosted as part of the exhibition. Experts spoke on subjects such as bio-diversity, challenges posed by climate change, food safety, hi-tech farming, dairying, palliative care, e-governance and cyber security. Agrex 2015 had a specific mission of strengthening rural-urban linkages so as to develop and sustain agro-ecological farming in the district, according to the organisers. The show could provide an avenue to enable the ever-increasing urban consumer population to access safe agricultural produce on a regular basis, thus developing a healthy food culture. The exhibition also coincided with the culmination of the year-long silver jubilee celebrations of the Alappuzha Zilla Agri-Horticultural Society. The society had adopted organic farming for sustainable food production as the theme of the event.

Meghnath Gupta, a resident of Muthukulam, was selected for the 'Karshaka Sreshta' prize for the best farmer. The prize, instituted by the district Agri-Horticultural Society, was awarded as part of the exhibition. The prize consists of Rs.15,551 and a citation. The 65-year-old former school teacher, Mr. Meghnath, has been adopting farming methods aimed at protection of bio-diversity. The winner was selected by an expert panel.

Farmers' meet

Krishi Vigyan Kendra (KVK), Virinjipuram, celebrated “Jai Kisan Jai Vigyan Day” on December 23.

Farmers, KVK scientists and officials of Agriculture Department participated in a meeting organised on the occasion.

An interactive session for farmers and scientists was held.

Demonstrations were conducted for farmers on various aspects.

A total of 90 farmers took part in the meeting, a press release said.

Culinary workshop

Tamil Nadu Agricultural University Information and Training Centre is conducting a workshop on making chocolates on December 30

For details, call 044 - 2626 3484.

Farmers given high zinc rice seeds to fight malnutrition

In a bid to mitigate malnutrition in tribal-dominated Chhattisgarh, the seeds of high zinc enriched variety of rice were distributed to farmers here on Saturday for commercial production.

Chief Minister Raman Singh launched the seeds of new species of paddy, ‘Chhattisgarh Zinc Rice-1’ to farmers at the “National Farmers Fair” which began in Jora village on the outskirts of the capital.

“Farmers of our State are actually the greatest agriculture scientists. They have combined traditional methods and experience with modern technology, and have thereby made great achievements,” the Mr Singh said while addressing the opening ceremony of the three-day event.

“It is because of their (farmers’) hard work that we have taken a leap from only rice export to export of fruits and vegetables along with rice,” he said.

On the occasion, 1,500 mini kits of these seeds which are high-yielding in nature, were distributed to farmers. The Chief Minister further said the fair is a great opportunity to learn about the progress of Chhattisgarh in agro-sector in the last 15 years. “With their perseverance and dedication, State’s farmers have brought a revolution in the field of agriculture.

Various schemes run by agriculture department in coordination with Indira Gandhi Agriculture University have also accelerated growth of agro-sector,” he said. — PTI

No irrigation water for paddy after Dec. 31

East Godavari Collector at a meeting with people's representatives, irrigation officials and members of water users' associations at Kakinada on Saturday.-
Photo: By Arrangement

The Collector of East Godavari district H. Arun Kumar has directed the irrigation superintendent engineer S. Sugunakar Rao and other officials of the department to stop releasing water through canals from December 31 for the second crop, citing that there was no sufficient water in the Godavari river. He suggested that all farmers in the upland areas should go for pulses as these crops needed comparatively less water but had a high demand in the market.



The Collector convened a high-level meeting on Saturday with MLAs SVSN Varma (Pithapuram), Vegulla Jogeswara Rao (Mandapeta) and irrigation officials in Kakinada. Quoting the statistics, Mr. Arun Kumar explained that as many as 60,000 acres had been identified as high-level patches including the 17,000 acres in the central delta , 27,000 acres in eastern delta which comes under the Pithapuram Branch Canal (PBC) DC-1 and 2 and another 16,000 acres where farmers were going to carry out sowing operations.

Citing the shortage of water in the Godavari for the second crop, the Collector advised the farmers to go for only pulses and in stead of paddy, adding that the government was ready to provide seed to farmers on 33 per cent subsidy. The presidents of water users associations, who took part in the meeting, assured that wherever farmers had gone for the second crop would finish sowing operations before December 31 and they would not pressurise irrigation authorities for release of water from canals thereafter.

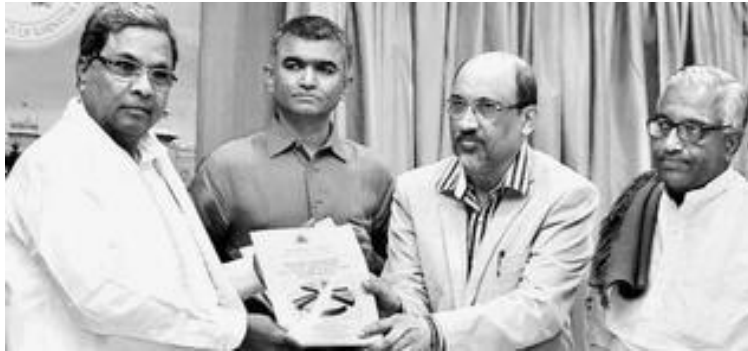
However, the Collector made it clear that the special teams comprising revenue, irrigation and agriculture officials would ensure water supply to the second crop on a sharing basis and the government would bear the expenses of oil used for engines to lift water from different sources.

Superintendent Engineer S. Sugunakar Rao said that during the Irrigation Advisory Board (IAB) meeting, the members were apprised that given the present situation, water could be provided to only 3.49 lakh acres out of the total 4.9 lakh acres of cultivable land in the district, adding that farmers had completed sowings in 1.3 lakh acres. Both MLAs faulted irrigation officials for not preparing contingency plan.

Citing low water level in the Godavari, Collector urges ryots to go for pulses

The govt. will provide seed material to farmers on 33 per cent subsidy

Commission prescribes scientific cost of cultivation for 17 major crops



T.N. Prakash Kammardi, chairman, Karnataka Agriculture Prices Commission, submitting thereport to Chief Minister Siddaramaiah in Bengaluru.

The ball is now in the government's court with respect to ensuring that farmers get remunerative prices for their crops as the Karnataka Agriculture Prices Commission (KAPC) on Saturday submitted its much awaited report, prescribing scientifically calculated "cost of cultivation" for 17 major crops.

In the report submitted to Chief Minister Siddaramaiah by KAPC, headed by agricultural economist T.N. Prakash Kammardi, the commission indicated that the present level of minimum support prices (MSP) prescribed by the Centre are inadequate as they would not meet the actual expenses of farmers.

The scientific cost of cultivation has been worked out by studying the cultivation pattern of about 650 farmers and by also taking up consultations with farmers in 60 taluks in the last six months. It is learnt that the commission has taken into consideration various factors such as rental value of land, farmers' contribution in terms of labour, in addition to regular expenses. It is also learnt to have recommended to the government to take up the matter with the Centre to get MSPs for even horticultural crops.

Pointing out that only 41 per cent of the major crops are presently sold through Agricultural Produce Marketing Committees (APMCs), the report suggested the government take measures to encourage farmers to sell their produce through APMCs to get remunerative prices. To compliment such plans, the commission is said to have urged the government to take stringent

measures to prevent sale of crops below MSP in APMCs by giving statutory status to MSPs.

Another farmers' producer company to be floated at Lalgudi

Based on the success of the farmers' producer company – first in the district started in July at Thuraiyur, the National Bank for Agriculture and Rural Development has taken steps to float another company, this time in Lalgudi. While the company at Thuraiyur focuses on milk production as major economic activity, the Lalgudi firm will focus on marketing paddy and pulses with value-addition, wherever possible. To start with, the company will have 150 members and will be increased to 500 in course of time, S. Suresh Kumar, Assistant General Manager, NABARD, told *The Hindu* on Friday. He said that Lalgudi and surrounding villages were noted for paddy and pulses cultivation and the company would witness expansion, he added. He said that steps had been taken to register the company so that it would be eligible for certain concessions and subsidy from the Union Ministry of Agriculture, routed through the Small Farmers Agri-Business Consortium, he added.

JLG

He said the NABARD would sensitise the bank officials to the importance of sanctioning loans to men self-help-groups taking due advantage of the joint liability group.

He said that bank officials would be persuaded to understand the success of the JLG where men members turned more productive.

Helping plants grow sans sunlight

You might not notice it, but plants actually wage war with each other to outgrow and absorb sunlight. Their weapons? Special sensors that can detect depletion of red and blue light — wavelengths absorbed by vegetation.

If a plant is shaded by another, it becomes cut off from essential sunlight it needs to survive. To escape this deadly shade, plants have light sensors that can set off an internal alarm when threatened by the shade of other plants. Their sensors can distinguish between an aggressive nearby plant from a passing cloud.

Scientists at the Salk Institute in the US have discovered a way by which plants assess the quality of shade to outgrow menacing neighbours — a finding that could be used to improve the productivity of crops.

The new work shows how the depletion of blue light detected by molecular sensors in plants triggers accelerated growth to overcome a competing plant. “With this knowledge and discoveries like it, maybe you could eventually teach a plant to ignore the fact that it’s in the shade and put out a lot of biomass anyway,” said study’s senior author Joanne Chory.

It was known that plants respond to diminished red light by activating a growth hormone called auxin to outpace its neighbours.

However, this is the first time researchers have shown that shade avoidance can happen through an entirely different mechanism — instead of changing the levels of auxin, a cellular sensor called cryptochrome responds to diminished blue light by turning on genes that promote cell growth.

This revelation could help researchers learn how to modify plant genes to optimise growth to grow more aggressively and give a greater yield even in a crowded, shady field.

The findings appeared in the journal *Cell* . —IANS

Swaraj Abhiyan to approach SC over compensation to farmers

Swaraj Abhiyan on Sunday organised a public hearing-cum-legal camp at Bathinda for cotton farmers of Punjab who are “suffering losses” and said that they will approach the Supreme Court to demand an independent committee for compensation to the affected peasants.

The Swaraj Abhiyan is a group formed by ousted AAP leaders Prashant Bhushan and Yogendra Yadav.

Mr. Bhushan, a noted Supreme Court lawyer, while addressing the concerns of farmers, said that the current model of farming has become unsustainable. He said that the Swaraj Abhiyan will approach the Supreme Court to demand an “Independent committee or commission for compensation to the affected farmers, criminal proceedings against responsible bureaucrats, ministers, drug companies, dealers and the need for compensation to affected labourers too”.

United fight

Addressing the gathering of farmers, Mr. Bhushan, according to a release issued by the Abhiyan, stated that “economic divide, communalism and environment are the issues which are of serious concern in today’s times. We need to fight unitedly in an organised manner”.

Today’s programme at Bathinda saw participation of Dr Dharamvira Gandhi (MP, Patiala), Prof. Manjeet Singh (convenor, Swaraj Abhiyan Punjab), Tarsem Jodhan (ex-MLA & working committee member, Swaraj Abhiyan), Ruldu Singh (president, Punjab Kisan Union), Baldev Singh (BKU, Sidhupur), Babu Singh (president, BKU Ugrahan), among others, the release said.

Swaraj Abhiyan leader Yogendra Yadav had on December 20 said in Chandigarh that they have decided to fight in courts the case of Punjab’s farmers whose crops were destroyed in white fly attack, and claimed the government cannot shirk its responsibility in the supply of “spurious” pesticides to the cotton growers.

He had held that anti-farmer policies and widespread corruption in the government machinery was responsible for the white fly-induced destruction of cotton crop in the State this year. - PTI

Showing the way in organic farming



An outlet of the Way Farm, a farmer producer company, at Mananthavadi in Wayanad.

Way Farm, a farmer producer company sponsored by NABARD in Wayanad district, has set a model in producing pesticide-free vegetables and providing it to the public at an affordable price.

Way Farm was envisaged to produce pesticide-free vegetables, promote organic farming among farmers in the district, ensure better prices for the produce by avoiding exploitation of middlemen, exploring the marketing potential of value-added farmer produce, and attract more youths to the farming sector by promoting modern technologies such as precision farming and poly-house farming, said P. Hariharan, chairman of the organisation and vice president of Moopainad grama panchayat.

When the company was launched in June 2014, the organisers tied up with as many as 52 farmers' clubs functioning under various public sector banks and NGOs in the district and 40 farmers who were being engaged in poly-house farming to ensure uninterrupted supply of vegetables and other farm produces.

The company started vegetable cultivation in September 2014 with its 100 members on nearly 45 hectares of land. Now, there are 450 farmers producing different crops on 150 hectares of land.

“There is good demand for our produce as we provide pesticide-free vegetables at an affordable price. The farmers are also happy as we procure their produce at a marginal price. We were able avoid the exploitation of middlemen and provide the profit directly to them,” said P.A. Sabu, a farmer and the managing director of Way Farm.

The organisation is selling the produce through its two outlets in the district and supplying it to consumers in Kozhikode, Ernakulam and Kannur districts as per their demands.

Each outlet has an average business of Rs.6,000 a day, he said.

“Way Farm is planning to open 10 new outlets in major towns of the district in January and nearly 100 outlets in neighbouring districts in the coming months,” Mr. Hariharan said.

The organisation also provides training to its members with financial assistance from NABARD.

It also provides good quality seedlings, organic fertilizers and pesticides and monitors farming activities of its members.

Tapioca crop damaged



Pest attack and rain caused extensive damage to the crop on Pachamalai Hills of Tiruchi district. —Photo: B. Velankanni Raj

Pest attack and heavy rain have resulted in a serious damage to the tapioca crop in the district.

It all started with pest attack by “sapaathi” when the growth of the leaves was affected curtailing the growth of the plants. Even while farmers were attempting to apply pesticide to control the disease, stagnation of water in the fields following the heavy rain during the northeast monsoon had resulted in extensive damage to the crop.

The area of the crop was about 2,000 hectares and it was raised in Thenpuranadu in Pachamalai, Shobanapuram and surrounding villages in Uppliyapuram block, Vannadu, and Kombai in Thuraiyur block. Pachamalai has a large area of 723 hectares. Farmers say that they had invested a huge sum on the crop, pinning hopes on adequate returns. But, the pest attack and the heavy rain had caused extensive damage to the crop.

Officials of Horticulture Department say the department has sent a proposal to the State government seeking adequate relief to the rain-hit farmers. “The yield will be far below usual, as the roots had decayed,” the official says and added that the crop will not survive. Tapioca is a crop which can withstand drought-prone condition but it cannot withstand stagnation of water for a prolonged period, the official says.

Farmers say that the normal harvest per acre will be 60 bags each of 75 kg.

Paddy ryots try their luck again



The paddy field at Killai village of Cuddalore district ruined by the recent floods. (Right) The banana crop destroyed at Melakandai village, Jameenendathur post, Kancheepuram district.- Photos: B.Jothi Ramalingam

Begin second round of planting borrowing money from local lenders at high interest rates.

Hardly 10 days after Dharmar planted the paddy saplings in his leased land calamity struck.

As the Palayam lake near Cheyyur in Kancheepuram breached and flooded his farm on December 2, his entire family could do little but turn helpless spectators.

“We lost every thing. I waited for two weeks to see if the rains would return. They have not so I am now risking everything to cultivate again,” the farmer says as he carefully fertilizes his field for the second time in two months.

Though the State has announced a compensation of Rs. 13,500 per hectare for short-duration crops and Rs. 18,000 for long-duration ones (as per norms set by Centre), many farmers, in the three heavily-affected northern districts of Kancheepuram, Cuddalore and Tiruvallur, say they remain empty handed.

With no other source of income, they have now begun the second round of planting with money borrowed from local lenders at high interest rates.

Dharman says the compensation amount fixed does not take into consideration the reality on the field. “For a single acre of paddy cultivation, the production cost adds up to at least Rs. 20,000. The government is giving us about Rs. 5,500 per acre. Is this acceptable? Labour alone will cost that much,” he rues.

The farmer pays Rs. 10,000 per crop as lease amount to the land owner and has pledged his wife’s jewels to raise funds for the second crop. Jeyaraman of Akinapet states that farmers invariably end up succumbing to real estate

sharks due to mounting loses. “I haven’t repaid the loan I borrowed last time. Now I have borrowed again for cultivating paddy the second time. If this continues, I will have no option but to sell a part of my holding,” he said.

Dilli in Tattapanchu in Minjur recollects how he had left the paddy saplings on the field on December 1 only to find them completely destroyed in the rains a few days later. Showing the dried out bundles, he said the water also washed away the top soil on his field. “I had to plough multiple times and add more urea. I have no idea how the yield would be,” he said.

Unable to raise money, some have also moved away from paddy for the second turn. In many places in Cuddalore and Kancheepuram, farmers are opting for groundnuts which, they said, are marginally less costly than cultivating rice.

Apart from the damage to crops, many farmers report widespread loss of cattle in the floods. Compensation for the animals too has not reached them.

Farmers say the compensation fixed by the government does not cover the losses

Water released from three dams in Tirunelveli district



Collector M. Karunakaran (second from left) releasing water from Vadakku Pachchayaru dam in Tirunelveli District on Saturday.

Discharge of water will be sustained for 97 days, says Tirunelveli Collector

Water was released from three reservoirs to benefit 17,118 acres in the southern part of the district on Saturday.

District Collector M. Karunakaran released the water from Vadakku Pachchaiyar, Kodumudiyar and Nambiyar dams in the presence of Rajya Sabha MP Vijila Sathyananth and Tirunelveli MP K.R.P. Prabhakaran.

Releasing 100 cusecs of water from the Vadakku Pachchaiyar dam, Dr. Karunakaran said the water being discharged from the dam would benefit crops raised on 9,593 acres of land in Paththai, Manjuvilai, Kalakkad, Marukaalkurichi, Pattarpuram, Iraippuvaari, Padmaneri, Vadamalaisamudhram, Soorankudi, Kadamboduvaazhvu, Nanguneri, Karanthaneri, Parappaadi and Vijayanarayanam.

The water released from Kodumudiyar dam would benefit 5,781 acres of land in Thirukkurunkudi, Ervadi, North Valliyoor, South Valliyoor, Thalapathisamudram, Aanaikulam, Achchampaadu, South Kallikulam, Samooharengapuram, Mahiladi, Nambithalaiivanpattayam, Rajakkalmangalam, Peraikulam, Kumbikulam, Alankinaru, Thirumalapuram, Soundarapandiapuram and Radhapuram.

Over 1,744 acres of land in Kottaikarungulam, Urumankulam, Ramadhapuram, Karaisuttrupudhur, Kasthuriengapuram, Kumarapuram, Muthumoththanmozhi and Thisaiyanvilai would be benefited from the water released from Nambiyar dam.

“Discharge of water will be sustained for 97 days and the farmers should use the water judiciously,” Dr. Karunakaran said.

Agricultural varsity to open Horticulture College in Wayanad

Self-financing four-year degree course in horticulture planned



The Regional Agriculture Research Station (RARS) at Ambalavayal in Wayanad district. The new college will come up at the station.

The Kerala Agricultural University (KAU) is gearing up to open a Horticulture College at its Regional Agriculture Research Station (RARS) at Ambalavayal in Wayanad.

The proposed college would be set up by utilising the existing infrastructure facilities of the RARS and the varsity Senate had sanctioned its final approval for the college recently, KAU sources said.

The varsity is planning to launch a self-financing four-year B.Sc. Hon. Degree course in horticulture at the proposed college from the next academic year. Apart from the degree course, postgraduate programmes in horticulture and allied subjects and advanced training programmes in horticulture crops and hi-tech farming for farmers were also on the anvil, sources said.

“The mild sub-tropical climate in the district is quite suitable for horticulture and floriculture crops but the farming community is yet to tap the vast potential, thanks to the dearth of technologies. So, technological interventions have been planned by the varsity,” P. Rajendran, Associate Director of Research, RARS, told *The Hindu* .

“The Research Station, established in 1946 and taken over by the KAU in 1972, is spread over 87.03 hectares of fertile land with facilities such as

office buildings, farm office, store rooms, tissue culture lab, fruits and vegetables processing unit, nursery and gardens, and model gardens of all horticulture crops,” Dr. Rajendran said.

“The station’s activities not only benefit the farming community in Wayanad, but also the farmers of adjoining districts – Malappuram, Kozhikode, Kannur and Kasaragod - and the neighbouring States like Karnataka and Tamil Nadu,” Dr. Smitha Revi, Assistant Professor, Agriculture Entomology, RARS, said.

Model pond preservation project to be launched

Ernakulam District Collector M.G. Rajamanickam has said that a model project for the upkeep of at least one pond in each of the panchayats in the district will be launched soon. He was speaking at the District Development Committee meeting here on Saturday.

A meeting to discuss the implementation of the project would be held here on December 31, said a press release from the Public Relations Department.

District panchayat president and members of different panchayats will take part in the meeting. Money for the programme would come from the Collector’s Rs.1-crore development fund, the press release added.

The selected pond will be cleaned and bio-fenced and made useful to the local people. Each of the panchayats will be allotted Rs.1 lakh for the project.

Municipalities may also join the programme and works are scheduled to begin before January 13.

Members of the Legislative Assembly discussed the various issues in their constituencies.

Jose Thettayil, MLA, said wild elephants had caused havoc to standing crops in the Malayattoor area. Officials from the Department of Forests informed

the meeting that though solar electric fencing was a solution, funds to implement the project were inadequate.

Instructions have been issued to make solar lights available in areas where wild elephants are a problem. A meeting of officials has been convened on December 30 to discuss the building of the Naduvattam-Neeleeswaram Road.

Dominic Presentation, MLA, said steps should be taken immediately to appoint a doctor at the Kandakkadavu primary health centre.

He also wanted to speed up the procedures for buying an ambulance for Chellanam panchayat using the MLA fund.

Fishermen reap rich dividends in lobster farming

Sea-cage farming of lobsters is done in floating galvanised iron net-cage



bumper harvest: Lobsters harvested by fisherman at Sippikulam.— Photo: N. Rajesh

A small group of fishermen from Sippikulam in the district, who had adopted sea-cage technique for lobster farming with the technical guidance of Tuticorin Research Centre of Central Marine Fisheries Research Institute (ICAR-CMFRI), have harvested Rs. 1.80 lakh-worth lobsters in just 90 days.

The ICAR-CMFRI introduced sea-net cage farming of lobsters and cobia through participatory mode with Sippikulam fishermen in September 2015.

The sea-cage farming of lobsters was done in floating galvanised iron (GI) net-cage (seven metres in diameter and three metres in depth).

A total of 550 underweight baby lobsters that were procured from nearby fish landing centres with an average size of 60 gram, were stocked in one cage. The sea net cage was maintained by the fisherfolk with CMFRI's technical guidance. The lobsters were fed once a day with clams and chopped low-value fishes adlibitum.

“After a farming period of 90 days, each lobster attained the average weight of 225 gram and approximately 100 kg of lobsters, worth about Rs. 1.80 lakh, were harvested recently,” said I. Jagadis, Principal Scientist, TRC of CMFRI.

M. Kumeresan, lobster farming entrepreneur, Gnanaraj, lobster sea-cage farmer and Rexon, cobia sea-cage farmer, shared their sea-cage farming experiences at Sippikulam.

Joint Director of Fisheries (Regional), Tuticorin, Amal Xavier, who participated in the harvest programme, explained in detail various State and Central government schemes available for sea-cage farming.

Issac Jayakumar, Assistant Director of Fisheries (Marine), urged the fishermen to go for sea-cage farming activities for ensuring good revenue.

Deputy Director, MPEDA, C.S. Shine Kumar, explained the subsidies available for construction of facilities for live and chilled export of marine fishes at the village.

Scientist TRC of CMFRI C. Kalidas briefed about the technical details of sea cage farming and appreciated the interest and involvement of the fisherfolk in the new technology.

A positive change towards achieving self-sufficiency

Farmers taking to vegetable farming in idle lands of Munnar plantation



Vegetable cultivation in the idle land of tea plantations at Ellapetty, Munnar, in Idukki district.

The idle land in the tea plantation areas of Munnar is increasingly being used for a productive purpose — a positive change towards achieving self-sufficiency in quality vegetable production.

It not only provides additional income to the plantation workers living in the estate lanes, but also gives safe vegetables to consumers. With permission from the estate management, the workers at Ellapetty, Gundumala and Thenmala started vegetable cultivation in the idle land close to their living quarters.

Mostly they grow cool season vegetables, including carrot, beans, cabbage, potato, and garlic. The climate and soil conditions are congenial for vegetable cultivation and they adopt the vegetables mostly grown at Vattavada, providing them a success in farming.

Lakshmi, a tea plucker at Ellapetty, said she spend the time for farming prior to going to work and after reaching from work place. Sometimes they fetched good price when tourists visiting Mattupetty and Eco Point came to their vegetable farms. They strictly follow organic cultivation methods and the visitors also purchase vegetables from them.

“This is an additional income,” she said adding that she could manage to use the money for the education of their two children studying in Tamil Nadu. The estate management allowed the workers to generate additional income through farming.

The view of green vegetable fields spreading in the tea plantation area is also an attraction and tourists turn up to the farm land.

Murugan of Ellapetty said that in almost all estate divisions there were vegetable cultivation. It was started mainly for their own use. But when large areas were brought under vegetable cultivation, it gave them additional income. He said that tourists from Tamil Nadu purchase vegetables, especially carrot from them.

However, marketing is a problem at times as they have to compete with the produce arriving from other areas. If sold in the general market, prices are less and if there was a separate market for their quality produce, they would get a better price, he said.

“We grow vegetables without the use of chemical fertilisers or pesticides and it is safer than those vegetables available in the market,” he said.

For the estate managements that face crisis from reprisals in the international market, diversification of the idle land has helped to support the permanent labour force.

‘Protect birds from direct exposure to cold weather’

With foggy weather likely to increase the feed intake in poultry, farmers were asked to raise the curtains in the elevated poultry houses to about three feet height to protect birds from direct exposure to cold weather and to control feed intake.

A bulletin issued by Agromet Field Unit of Veterinary College and Research Institute and Regional Meteorological Centre, Chennai, said that the sky would be slightly cloudy with less chance of rainfall. The prevailing

minimum temperature of around 18 degree Celsius was likely to increase the feed intake in poultry. Increasing energy content of feed alone was not sufficient, but also to control the excess feed intake.

Advance price fixed for sugarcane in Mandya



Deputy Commissioner M.N. Ajay Nagabhushan at a meeting with sugarcane growers and representatives of sugar units in Mandya on Saturday.

Deputy Commissioner M.N. Ajay Nagabhushan on Saturday fixed Rs. 2,000 a tonne as advance price for sugarcane supplied to sugar units across in the district.

Mr. Nagabhushan held a meeting with cane-growers and representatives of various sugar units here to discuss the issues pertaining to sugarcane growers. Later, he directed the sugar units to pay the statutory, fair and remunerative price of Rs. 2,334 a tonne to suppliers, a communiqué from the Department of Information and Public Relations said.

The officer has warned of seizing and selling sugar stocks through e-auctions if the sugar mills failed to pay the advance amount to farmers. He directed the managements of mills to pay the advance amount immediately and clear the remaining amount before March 2016, the release said.

Officials of the State-run Mysore Sugar Company Ltd. (Mysugar) said that sugar unit would commence crushing activities after completing the ongoing repair work.

Kumuda Sharath, Deputy Director of the Department of Food and Civil Supplies and Karnataka Rajya Raitha Sangha leader Sunanda Jayaram were present.

Scheme for solar pump sets on subsidy for farmers

The government of Kerala in collaboration with the government of India is offering solar pump sets on subsidy basis for farmers in the State.

A press note issued here said 1,380 pumps of 3HP capacity would be on offer on subsidy basis.

The Central and State subsidies would amount to 30 to 35 per cent of the total cost of a pump. As the pump operates directly from the solar panel, there is no need to install a battery. A farmer who installs the pump would be able to make good his investment in three to four years, the press note said.

Farmers who have at least 50 cents of farmland can apply for the pumps under this scheme.

Existing facility

There should be an existing facility to pump water from a well, a pond or a lake. The solar pumps can be used to pump water from a maximum depth of 50 metres.

Existing pumps that run on electricity cannot be converted to solar pumps, the press note said.

The price of a 3HP DC submersible pump is Rs. 4.5 lakh. The price of a 3HP AC submersible pump is Rs. 4.3 lakh. While the former can be had for a post-subsidy price of Rs.2,98,500, the latter can be purchased for Rs. 3,02,800. Farmers who require pump sets should download the application form from the website www.anert.gov.in and submit the completed

application form, along with a demand draft of Rs. 500, to the ANERT office at PMG Junction.

On receipt of an application form, a registration number would be assigned to it. Following this, the applicant can select one of the two companies empanelled by ANERT and conduct a pre-feasibility study.

Then, the applicant can select the pump model and give the work order to the agency concerned.

Following this, the applicant should remit the cost of the pump — minus the subsidy amount — drawn as a DD or cheque in the company's name and remit it at the district office of ANERT. Once the work order is given the company should install the solar pump within 45 days.

For receiving the subsidy, the completion certificate along with relevant documents should be submitted to the district office of ANERT.

Warranty

The solar pumps come with a warranty of five years. Any complaints within this period can be settled by contacting the regional service centre of the agency concerned.

As per the scheme, complaints should be attended to within 48 hours and rectifications done within four days. Further instructions can be had from the ANERT office on phone 0471-2338077, 2333124, the press note added.

Subsidies will amount to 30 to 35 per cent of the total cost of a pump.

EAC concerns may delay launch of NTPC project

Doubts expressed by the Expert Appraisal Committee of the Ministry of Environment and Forests over coal linkage and evacuation of raw material for the NTPC Pudimadaka Ultra Mega Power Plant is likely to hit the

launching of work on the project envisaged at a cost of Rs.26,828 crore for some more time.

The EAC, at its recent meeting, stated that the environment impact assessment study conducted by a Hyderabad-based lab did not contain any satisfactory information on coal supply and the transportation of raw material from abroad.

NTPC, which has 2,000 MW power plant at Parawada, was keen on launching work at Pudimadaka after obtaining environment clearance from the MoEF based on the public hearing held on August 12.

Before clearing the terms of reference for the public hearing, the EAC had also raised objections over layout plan, saying that some wetlands existed in the 1,200 acres allotted to the project proponent by the APIIC.

A senior official of the NTPC said though the EAC sought some clarifications on coal supply for the project, they would furnish the required information next month and get its nod shortly.

The NTPC has decided to source coal from abroad for the Pudimadaka project. According to an estimation, it needs 13.7 million tonne coal. The plant's seawater requirement is 6.7 lakh cubic metres per hour. It will have four units of 1,000 MW.

The company says it will have gas insulated switch yard (GIS) to occupy 50 per cent space compared to conventional switch yards.

Officials say ash generation will be cut by 81 per cent. A slurry pipeline is mooted for ash disposal.

NTPC is the largest power producer in India.

The company, set up in 1975, generates 45,548 MW, accounting for 17.73 per cent of energy capacity.

Stating that the project would affect the livelihood of fishermen living in the vicinity and cause groundwater contamination due to generation of huge quantity of ash, CPI (M) district secretary K. Loknatham urged the management to reconsider the establishment of the power plant.

Saplings planted

Men from the Rapid Action Force 105 Battalion and Armed Reserve wing of the Coimbatore City Police on Sunday planted around 500 saplings at the Coimbatore Corporation's Vellalore dump yard. According to sources, 100 men each from the two forces led by Deputy Commandant, RAF, Jafrul Isalm and Inspector, Armed Reserve, S. Ayyarsamy, planted the saplings from 9 a.m. to noon. They had got the saplings from the Tamil Nadu Forest Department.

The saplings included banyan, neem and peepal varieties.

Floods take a toll on farm output in northern districts



The paddy field at Killai village of Cuddalore district ruined by the recent floods. Photo: B. Jothi Ramalingam

The good news is that southern districts will surpass last year's output.

The unprecedented floods that have ravaged farmlands in several districts may bring down the total food production of the State marginally, ending a trend of record output over the last two years.

In August, Agriculture Minister R. Vaithilingam told the Tamil Nadu Assembly that the government was confident of an output of 147 lakh tonnes of foodgrains in 2015-2016. But officials in the Agriculture Department apprehend that this target could not be achieved as the damage has been extensive.

A senior official said on condition of anonymity that crops on around 2.7 lakh hectares across State were damaged in the two spells of heavy rain, with the three northern districts of Cuddalore, Tiruvallur and Kancheepuram facing the worst flooding. In horticulture, production on around 1.4 lakh hectares has been affected.

The net area sown in Tamil Nadu on an average is about 47 lakh hectares. What has been the saving grace is the “rosy picture” emerging from the southern districts, including Madurai and Virudhunagar.

“The inputs we are getting from these districts are that they will comfortably surpass last year’s output. This will in a small way help compensate the loss from Cuddalore, Kancheepuram and a few parts of the Cauvery delta, where agricultural fields were flooded,” the official said.

In its attempts to control the damage, Agriculture department officials in the three northern districts are providing specific advice to farmers to resurrect partially damaged crops.

Many farmers have gone ahead with the second round of planting.

In 2014-15, the State produced 128 lakh tonnes of foodgrains, the highest in its history. This was a substantial jump from the estimated 110.65 lakh tonnes of production in 2013-14.

Indian scientists discover three bacterial clusters



According to Dr. Shivaji of CCMB, upon addition of iron, phytoplankton increased by two-fold.

science and technology

Biotic and abiotic factors decrease the levels of CO sequestered

Three clusters of bacteria which have no phylogenetic relationship to any other bacteria have been discovered serendipitously by Indian scientists.

The discovery happened during LOHAFEX (Loha means iron in Hindi while Fex is an acronym for fertilisation) experiment in the Southern Ocean, Antarctica, which was aimed at increasing CO sequestration through ocean iron fertilisation as part of studies on global warming mitigation. Though a group of German scientists were also part of the experiment, the discovery was made by Indian scientists, according to one of the investigators and former Scientist of Centre for Cellular and Molecular Biology (CCMB), Dr. S. Shivaji.

Director of National Institute of Oceanography, S.W.A. Naqvi was the principal investigator of the experiment, the results of which were published a few months ago in an open access journal, *Frontiers in Microbiology*.

In the article, the authors pointed out that oceans are a major source and sink for carbon with the marine phytoplankton fixing up to 40 per cent CO. “Thus factors that hinder CO fixation by marine phytoplankton would impact global climate due to increase in the levels of CO in the atmosphere.

Both biotic (grazing of phytoplankton by microzooplankton) and abiotic factors (deficiency in the micronutrient iron) could decrease the levels of CO₂ sequestered. Therefore, the assumption is that if iron deficiency is overcome by exogenous addition of iron, it would facilitate a phytoplankton bloom and thus lead to CO₂ sequestration”, it was noted.

In order to get a better insight into bacteria-phytoplankton relationship in the context of iron fertilisation, the experiment looked at the effect of iron addition on bacterial community structure in the Southern Ocean, Antarctica.

Dr. Shivaji said that upon addition of iron, phytoplankton increased by two-fold and concomitantly a change in the biomass of bacterial community was also noticed.

Among the three new LOHAFEX clusters that were discovered, the first was related to class of Bacteroidetes while the second and third belonged to Firmicutes. A unique and distinct feature of the three clusters was their differentiated response to the presence of iron in the ocean.

While organisms in cluster-1 did not respond to increase or decrease in iron levels, bacterial community in cluster-2 increased with addition of iron and those in cluster-3 disappeared on addition of iron. Thus, organisms in cluster-2 and cluster-3 could be indicators of iron in the ocean.

Western Indian Ocean phytoplankton hit by warming



Earlier studies had described the western Indian Ocean as a region with the largest increase in phytoplankton during the recent decades.

Phytoplankton (microscopic marine plants) populations in the Western Indian Ocean have declined by 20 per cent over the last six decades according to a recent study published in *Geophysical Review Letters*. This decline has strong implications for the ecology of the region as it seriously affects the ocean food web and has already been reflected in a decline in fish catch in the region and poses a threat to food security in the Indian Ocean rim countries and also the global fisheries market.

The study says that the main reason for the decline in the phytoplankton is increased sea surface temperatures which suppress the mixing of surface and subsurface waters. The increased sea surface temperatures result in less dense water in the surface, a process known as stratification. Though the surface waters are exposed to sufficient sunlight required for photosynthesis of these plants, the nutrients (nitrates, phosphates and silicates) from the lower depths do not reach the surface due to stratification. Meanwhile, the subsurface phytoplankton do not have access to sunlight for photosynthesis and growth even though they have access to nutrients at the lower depths. This leads to less phytoplankton as these marine plants are asexual and multiply by cell division as they grow and reproduce in the presence of sunlight and nutrients.

Earlier studies had described the western Indian Ocean as a region with the largest increase in phytoplankton during the recent decades. Future climate projections, however, suggest that the Indian Ocean will continue to warm, driving this productive region into an ecological desert. It is imperative to have a firm understanding of the trends in productivity in this highly productive ocean basin, especially since it has been experiencing one of the largest warming trends over the tropical oceans. Short-term studies in the past have indicated that the Western Indian Ocean underwent the second largest increase in chlorophyll concentrations (indicator of phytoplankton biomass) among the open ocean regions.

One study reported an increase of up to 350 per cent in marine phytoplankton in the Western Indian Ocean and pointed to strengthening of summer monsoon winds in the Western Indian Ocean as a factor that led to

upwelling and mixing of subsurface phytoplankton and nutrients. However, long-term studies such as this one led by Dr. Roxy Mathew Koll, scientist, Indian Institute of Tropical Meteorology, Pune are needed for attribution of changes in phytoplankton to ocean warming.

Changes in plankton production can have immense impact on marine species as well as humans who rely on them as a source of food. Downward trends in primary production over these areas can be detrimental to the marine food webs and the fishing industry. Data from the Food and Agriculture Organization of the United Nations (FAO) show that the Indian Ocean accounts for 20 per cent of the total tuna catch, especially the most economically valuable bigeye tuna, making it the second largest supplier to world markets. Large-scale distribution of these dominant species of tuna are associated with the phytoplankton availability and abundance.

Along with short-term satellite data, the study used historical simulations to track the long-term trends in the warming of the western Indian Ocean. These simulations are prepared from pre-industrial times to the present using a yearly rate of increase in CO₂. However, the yearly changes in ocean and atmospheric conditions are not given to the model. So the model output would be a response to the increasing CO₂ and consequent greenhouse warming. “The other factors are driven by natural variability, for example the El Nino Southern Oscillation (ENSO). The ENSO cycle in these model simulations and observations are not in sync i.e. they don't occur at the same time. So year to year comparison is not possible,” writes Dr. Roxy Mathew Koll in an email to this correspondent.

During the 1998 El Nino, the winds over the Western Indian Ocean were weakened. Weakened winds mean less evaporation, i.e. more warming. In the next year, 1999, a La Nina occurred. During La Nina, these winds got stronger, leading to more evaporation and cooling. The cooling led to a temporary spurt in phytoplankton populations during 1999-2000, but over the long term the populations declined as the ocean got steadily warmer.

Six farmers in Gujarat village join to trap sun — and power the grid

Switch to solar panels to irrigate fields, sell excess power to state discom



Farmers in Dhundi village of Kheda district, Gujarat, have formed a ‘solar cooperative’. (Source: Express photo by Javed Raja)

Pravin Parmar, 29, has always used a diesel pump to irrigate his five-bigha patch of land in Dhundi village in Kheda district, Gujarat. The Rs 750 he would pay for using 15 litres of diesel a day to irrigate his farm ensured that he never earned much — just about Rs 10,000 a month — from his crop of tomato and brinjal.

Next year, as early as January or February, however, Parmar is hopeful of supplementing his monthly income by at least Rs 3,000-Rs 4,500, not through agriculture but through power generation.

Parmar has dumped his diesel pump and installed a solar-powered pump to irrigate his fields. Despite his meagre income, he spent Rs 54,000 last month to get the 7.7 horsepower solar panel, which cost Rs 6.5 lakh, fitted in his field. The rest of the cost was borne by Colombo-based non-profit scientific research organisation, International Water Management Institute (IWMI).

In a month's time, his solar pump is slated to get connected to the power grid of the state discom, Madhya Gujarat Vij Company Ltd (MGVCL). When his solar pump is not irrigating the fields, it will supply power to the discom, helping him earn Rs 150-Rs 100 a day.

It's a power generation model Parmar and five other small vegetable farmers — all holding between one to five bighas of land — in Dhundi have adopted to supplement their incomes. The six have come together to form a solar power cooperative, the Dhundi Solar Ujra Udpadak Sahkari Mandali. Each has made a one-time investment — Rs 40,000 to Rs 54,000 — to purchase either a 5 horsepower pump (Rs 4 lakh) or a 7.7 horsepower pump (Rs 6.5 lakh),

the rest of the amount being paid by IWMI.

“At present, we are using the solar pumps only for a few hours to irrigate our fields. But after a month, we will sell power generated by the pumps to the state grid,” says Parmar.

Laxman Parmar, 52, who grows wheat and a local vegetable called mogri, is the cooperative chairman. “We are small farmers and do not know if the project will succeed. But we took the risk as we believe in the cooperative model,” he says.

Still, it took five months for IWMI to convince the farmers to form a solar power cooperative. At a presentation held in June, over 40 farmers from Dhundi were told the story of Raman Parmar, a banana-growing farmer in neighbouring Anand district, who was roped in by IWMI to experiment the income generation model. In the four months since Raman Parmar's solar-powered irrigation pump was connected to the MGVCL, he has earned Rs 7,500 for supplying 1,500 units of surplus power.

While a rise in income was offered as the main incentive for farmers to invest in the pumps, the IWMI was also interested in the environmental factors. Says Tushaar Shah, an Anand-based economist, water management expert and a senior fellow from IWMI who has been spearheading the project, “As solar power is free, the farmers may not switch off the pump, and thus draw excess groundwater. This, in turn, can deplete the aquifers.

But if you pay them for surplus power generated by the pumps, this can be avoided.”

Explaining the choice of Dhundi for the experiment, Shah says a large number of farmers in the village do not use electricity on their farms as diesel pumps are too costly. “There was a greater readiness among farmers to participate. They were also willing to contribute their hard-earned money for this project,” he says.

In the next week, adds Shah, a power purchase agreement (PPA) is expected to be signed between the Dhundi Solar Ujra Udpadak Sahkari Mandali and the MGVCL, under which the farmers will sell power generated by the solar panels — when they are not being used for irrigation — to MGVCL at the rate of Rs 4.90 per unit.

It is a win-win for both — while farmers are expected to earn Rs 100-150 a day, MGVCL will also save, as it buys power from solar power generating companies at Rs 13 per unit. “MGVCL has fixed a conservative rate because it is a new model. We hope a better price will be offered to the farmers once the project stabilises,” says Shah.

The solar pumps can generate about 40-45 units of power every day and can help reduce the burden on state discoms that sell subsidised power to farmers in Gujarat at an average of 56 paise per unit while paying Rs 5 per unit to private power suppliers.

The PPA with MGVCL will be for an installed power generation capacity of 100 kilowatts though the combined installed capacity of the six pumps is 54 kilowatts at present. “We plan to rope in six more farmers, and install as many solar pumps, to meet the requirements of the PPA,” says Shah.

Mohali: All villages in the district to get solar lights

Suresh Goel, the agency’s Mohali manager, said that to promote non-conventional energy sources, an exhibition has been organised at the Gurudwara Amb Sahib.

THE PUNJAB Energy Development Agency (PEDA) is installing solar lights at villages in the district. The agency claimed that it has installed 1,400 solar powered lights in various villages, while a proposal for 1,500 more such lights has been sent to higher authorities for approval. Suresh Goel, the agency's Mohali manager, said that to promote non-conventional energy sources, an exhibition has been organised at the Gurudwara Amb Sahib.

Goel said that under the Solar Farm Scheme, farmers can install solar plants with capacities of 1 MW to 2.5 MW, at their farms. The power thus generated will be bought by Punjab State Power Corporation.

A minimum of 4.5 acres of land is required for installation of 1MW solar plant. He further that five farmers have applied under this scheme.

Goel further said that this year, 16 home-based bio-gas plants have been installed by PEDA, for which a subsidy of Rs 9,000 has been provided to general category households and Rs 11,000 to SC category households.

Besides, those who connect these plants to toilets are provided an extra subsidy of Rs 1,200.

According to Punjab Energy Development Agency district chief, the case for installation of 1,500 solar lights has been forwarded for approval, for which work will be started very soon. He said that at Sukhgarh and Dharamgarh villages, 38 solar lights will be installed very soon.

He said beneficiaries could install Solar Plant at their roofs having capacity equals to 80 percent of the connected load as shown in the monthly power consumption bill.

China can make or break it



Calling it a bottom now is risky, but gold and agri-commodities may do better

Commodity prices fell like ninepins in 2015 on an economic slowdown in China, and the resultant glut in the market.

China, which was consuming about half of the global output in metals for many years, saw growth falter. From an average of 9.5 per cent in 2012 and 7.4 per cent in 2014, the country's GDP growth dropped to 6.9 per cent in the July-September period of 2015. Both imports and exports dropped and the dragon economy's appetite for industrial inputs fell, resulting in ample supply of commodities in the global market. This set off a sharp correction in commodity prices.

However, the output of a host of commodities, including oil, coal, iron ore and copper continued to grow as producer countries benefited from a weak domestic currency. Emerging market currencies saw a steep correction against the dollar, as the latter gained muscle from a stronger US economy and expectations of a rate hike. The US dollar index cut the 100-mark in the year. The last straw was China's market-linking of yuan in August. A 2 per

cent correction in the currency as a reaction to the move brought forth another bout of decline in commodities on fears of a further drop in Chinese imports.

Will the rout in commodities stop in 2016 and offer a breather to prices?
Only China can answer.

The superlative growth in China in the last decade was funded by debt. Now that the country is mending its ways and bringing in fiscal reforms to shift from a manufacturing-led to a consumer-led economy, it is unable to continue growing at double-digit rates. With excess capacity of 30 per cent plus in many commodities, including steel, aluminium, iron and power equipment, the only way out for China now is to push its industries to export more. Given a weaker yuan, Chinese exporters will also now have a competitive edge. But again, this is not good for commodity prices, as this will only worsen the glut in the global market. Industrial commodity prices can recover in the New Year only if Beijing chalks out focussed measures to revive its economy.

Oil, precious metals

Another commodity where outlook is clouded by expectations of a supply glut is oil.

Despite prices plummeting to \$37 now from \$128/barrel in 2012, OPEC is refusing to cut production. If sanctions on Iran are also removed in 2016, analysts expect the additional supply to well exceed the decline in production from the US shale oil industry.

The fate of precious metals will be decided by the dollar. In the past, when the US hiked rates, the dollar has moved lower. If this happens again, it will bring back the safe-haven demand for the yellow metal. This can help gold get back its mojo and target \$1,200-1,250/ounce levels.

Agri-commodities may actually be a winner in 2016. If El Nino intensifies, it may hit agriculture yields in East Asia and parts of America and South Africa which export rice, palm oil, sugar and cocoa.

There is ample supply of grains, wheat and oil seeds in the global market, but still, local markets in developing countries of Asia may see supply disruptions and price inflation, given their isolation from global markets.

(This article was published in the Business Line print edition dated December 28, 2015)

Agri commodities go through the wringer



Both gainers and losers, be it pulses or spices, saw wild price swings

The year 2015 was hard to forget for commodities. While major metals suffered their worst falls since 2008, agri commodities witnessed mixed fortunes.

It was a good year for some agri-commodities, not so for others. But one thing in common for both the gainers and losers was they witnessed similar volatility.

Most agri commodities futures contracts on the National Commodity and Derivatives Exchange (NCDEX) witnessed wild swings. Either they moved up sharply initially in the first half of the year and then fell back strongly thereafter or vice-versa.

Here, we take stock of the performance of the most actively traded agri commodities in the domestic exchange.

Pulses race

Pulses price skyrocketed in 2015 and became the major cause for the high food inflation. A sharp fall in overall pulses production and increase in imports took the prices higher.

This resulted in speculative stock positions, thereby reducing the supply in the market which, in turn, pushed prices higher. The Chana futures contract on the domestic exchange has risen about 40 per cent and has outperformed all the other commodities. Steps taken by the government, such as inspecting warehouses to deter hoarding and imposing stock limits for pulses did not actually ease prices to a great extent.

Oils and oilseeds mixed

Even within the oil and oilseed pack, 2015 saw plenty of divergence. Soyabean tops the gainers in this category with a 13 per cent rise followed by mustardseed, which has risen 6.6 per cent on the NCDEX.

Short supplies due to lower volumes of crushing and the expectations of lower output following a forecast for a below-normal monsoon helped soyabean futures surge about 31 per cent to a high of Rs.4,412 per quintal by May. The US recorded a bumper crop of soyabean this year. Therefore, higher global output and the fall in export demand prompted global buyers to seek out cheaper sources. As a result, soyabean plummeted to a low of Rs. 3,062 in August. China signing an agreement to buy more US soyabean came as a safety net and triggered a reversal to a high of Rs. 4,121 by October. On the domestic front, the monsoon ending with a 14 per cent deficit increased supply concerns and aided the price reversal.

Mustard seed rose on short supply due to lower production. Increase in demand for the seed to produce mustard oil is another factor that took prices higher.

But for these two oilseeds, others had a bearish year. The futures contracts of crude palm oil and castorseed are down 12.2 and 23.6 per cent, respectively, for the year.

A fall in bio-diesel demand following the sharp fall in global crude oil prices, a demand shift to cheaper soyaoil and Indonesia delaying its plan to

increase the palm oil blending rate with diesel are the factors that drove crude palm oil prices to a five-year low of Rs. 351.8 per 10 kg in August. However, expectation of lower output due to warm weather and crop damage due to the haze in Malaysia and Indonesia (which account for about 85 per cent of the global palm oil production), helped prices recover some of these losses thereafter.

For castorseed, a strong ending in 2014 resulted in a weak beginning this year. There was a sudden and surprise surge in supply as the carry-over stocks started to hit the market. A sharp fall in demand from China also put pressure on the prices.

Not so spicy

The prices of spices were badly hit this year. Barring turmeric, which is the sole winner in this category, others like cardamom and coriander fell over 20 per cent while jeera is down by 6 per cent. Cardamom, the queen of spices, which gave the highest return last year, turned out to be the worst performer in 2015.

The futures contract on the MCX is down about 30 per cent this year. Bumper crops following good summer rains this year have dragged prices lower. Cheaper imported varieties from Guatemala, the world's largest producer, also impacted domestic prices.

In coriander, the major trigger for a sharp fall came in October on the back of panic selling after reports that the Securities and Exchange Board of India (SEBI) had sought coriander price information from NCDEX.

The turmeric futures contract on the NCDEX is up about 10 per cent. A fall in output following reduced acreage on the back of poor monsoons propped up prices.

REALLY?

Cardamom, the queen of spices, which gave the highest return last year, turned out to be the worst performer in 2015

(This article was published in the Business Line print edition dated December 28, 2015)

India may be third largest economy after 2030: Study



LONDON, DEC 27:

India could become the world's third largest economy after 2030 and its ascension could see France and Italy kicked out of the exclusive G8 group or its membership increased to 10 to accommodate India and Brazil, according to a new study.

According to a report by the UK think tank Centre for Economics Business and Research (CEBR), China will overtake the US as the largest economy in the world in 2029 with the US slipping to second place and India close behind at third.

India's projected GDP in 2030 was USD 10,133 billion, behind America's USD 32,996 billion and China at the top with a projected GDP of USD 34,338 billion.

However, India will become the largest economy in the Commonwealth in 2019 when its economy overtakes the British economy.

The study also says that India is finally starting to catch up with China and will eventually overtake the Communist-giant in the second half of the century.

Britain will move up to take fourth spot and Brazil will complete the top five.

Europe's third and fourth largest economies will be replaced by India and Brazil in the G8 over the next 15 years, the report says.

As Brazil and India meet the political criteria for membership of the exclusive G8 club of developed democracies, their ascension could see France and Italy kicked out of the group, or the club expanded to a G10 as more economies join, the report says.

The UK meanwhile is set to become the best performing economy in the western world over the next 15 years, boosted by its leading position in global software and IT sectors.

The CEBR said France's "dire" economic prospects will see it fall from the world's 5th to 9th largest economy by 2030.

Italy — currently 8th in the global league table — is also going through tough times.

Since joining the euro in 2000, GDP growth has remained flat, making it the slowest growing economy of any major developed nation.

Europe's largest economy, Germany, will maintain its position in the world's leading economies as its declining population receives a welcome boost of a 1.5 million refugees and migrants, according to the analysis.

(This article was published on December 27, 2015)

Business Standard

Direct cash transfers in agriculture gain ground

In November, the government decides to transfer Rs 4.5 a quintal production incentive to bank accounts of sugarcane farmers



Two months ago, the Centre after much deliberation decided to transfer Rs 4.50 a quintal directly into the bank accounts of sugarcane growers. The government called this a production incentive, but it is seen by many as an attempt to kill several birds with one stone.

An incentive directly transferred into the bank accounts of growers to boost production will not attract the strictures from the World Trade Organisation for distorting the market. It also pleases the sugar mills which must pay that much less to growers in the 2015-16 season.

Weeks after this reports started coming in from the cotton growing belt of Maharashtra that the Centre was working on a scheme to compensate farmers directly for losses incurred in selling cotton. The Centre plans to pay the difference between the minimum support price (MSP) of cotton and the prevailing average market rate, and call it differential price payment.

There are also reports that the Uttar Pradesh government has transferred Rs 28.60 per quintal into the bank accounts of sugarcane growers for the 2014-15 crushing season, totalling Rs 2,127.25 crore. And it plans to directly

transfer a subsidy of Rs 1,400 per quintal for certified wheat seeds in the 2015-16 rabi season. The condition is the seeds have to be bought from designated agencies at market prices.

All these point towards the growing realisation among the political class on the need for direct transfer of subsidies, incentives and other support to farmers, instead of routing them through companies or state agencies. Subsidy leakage is turning the argument in favour of targeted transfer from the government to beneficiaries, which in this case are farmers.

The success of cash transfers for cooking gas, food and the rural jobs scheme also seem to have convinced the government on adopting the mechanism for agriculture.

"Direct transfer is the most efficient way of distributing subsidies and should be tried as and when it can be done, but it should be linked to the volume of inputs," Ramesh Chand, member of NITI Aayog, told Business Standard.

Sources said a big thrust of the new National Policy for Farmers could be on how to boost incomes through direct transfer of subsidies and incentives.

The 2014-15 Economic Survey showed Rs 378,000 crore, or 4.24 per cent of the GDP, is spent on subsidies. Much of this is actually not reaching the poor. Rice, wheat, pulses, sugar, kerosene, cooking gas, naphtha, water, electricity, diesel, fertilisers and iron ore are subsidised under various schemes.

In agriculture, apart from fertilisers, other inputs like seeds, machinery, equipment, irrigation systems and horticulture equipment are subsidised by the government.

States subsidise electricity and water for agriculture. The Economic Survey reckoned power subsidies actually only benefited 67.2 per cent of households that had electrical connections. The top fifth of the population consumes 37 per cent of total electricity subsidies, while the poor consume 10 per cent.

In agriculture, too, subsidies announced from time to time do not reach the beneficiary. Studies show agriculture's share in total direct credit of loans less than Rs 200,000 fell from 92.2 per cent in 1990 to 78.5 per cent in 2000 and 48 per cent in 2011. The bulk of loans advanced for agriculture moved away from small, marginal, or medium farmers, and towards large business interests.

Almost 46 per cent of farm credit is availed between January and March, a period of minimal farming activity across the country, while the total quantum of credit keeps on rising, which points towards misdirected credit.

However, unlike cooking gas or food, where beneficiaries are clearly identified, cash transfers in farming will need more groundwork. Former Union Minister Yogendra Alagh said the only thing that went against cash transfers in agriculture was the difficulty in identification of beneficiaries.

"In sugarcane and cotton, much of the ground-level work is organised and in

the hands of cooperatives, where the person who has the operational holding of land is well identified. But in crops where the ownership holding is different from the operational holding, it might be difficult," Alagh said.

Sudhir Panwar, member of the Uttar Pradesh Planning Commission and president of the Kisan Jagriti Manch, said cash transfers were good overall, but in fertilisers these should be done cautiously because they limited the total quantum of subsidies.

GOVERNMENT IN ACTION

- In November, the government decides to transfer Rs 4.5 a quintal production incentive to bank accounts of sugarcane farmers
- Centre, Maharashtra start working on scheme to pay difference between minimum support price and prevailing average market price of cotton to farmers directly
- UP govt transfers Rs 28.60 a quintal into the bank accounts of sugarcane farmers in 2014-15
- Rice, wheat, pulses, sugar, kerosene, liquefied natural gas, naphtha, water, electricity, diesel, fertiliser, iron ore and railways are a few commodities and services that the govt subsidises under various schemes
- Several of these subsidies do not reach beneficiaries

Jharkhand has potential to grow in agriculture: Raghubar Das

He said that Jharkhand will be the 2nd state of the country to have separate budget for agriculture after Karnataka



Chief Minister Raghubar Das today said mineral-rich [Jharkhand](#) has enough potential to grow in sectors like horticulture but people of the state need to change their mindset and show dedication to achieve the desired results.

"Agriculture is the backbone of the economic growth of any country and we have enough potential for growth in all the three fields of agriculture - agriculture, horticulture and animal husbandry," Das said while inaugurating the 27th Annual Flower Show, organized by Horticulture Society of Jamshedpur and Tata Steel here.

However, agriculture, he said, is not possible during 8-9 months of the year due to lack of irrigation facilities in Jharkhand, which results in the [migration](#) of poor in search of livelihood.

It is a scar on the face of the state, he said announcing that his government has decided to prepare a separate Agriculture Budget in 2016-17 to promote [agriculture sector](#) in the state.

Agriculture sector generates maximum employment, he said, adding that Jharkhand will be the second state of the country to have separate budget for agriculture after Karnataka.

In course of his visit across the state to seek suggestion from people regarding the forthcoming budget, the chief minister said he observed that possibilities are abundant for growth in the sector "but we will have to possess positive thinking and dedication to ensure desirable development".

Emphasizing the need for empowerment of villages, women, and farmers, he said development of the state was not possible "unless we empower the women, rural masses and farmers".

The government has already reserved 50 per cent seats for women in [Panchayat polls](#) but need to empower them socially and economically, he said assuring that the government has taken the initiative to provide training to make them skilled.

Mastering the art of egg-nomics

Madurai-based Happy Hens Farm produces free-cage organic eggs conforming to world farm standards



Textile trader Manjunath Marappan and Ashok Kannan, a herbs trader with great knowledge on traditional and natural farming and medicines, share a common passion for healthy food produced by happy animals. This gave birth to Happy Hens Farm, a free-range eggs start-up, in 2012 in Madurai. Free-range refers to the traditional way of raising hens - letting them roam free and forage as they like.

Commercial backyard model

"Though backyard poultry is widely practiced in India, the high rate of consumption in metro cities and poor connectivity between farmers and consumers, and influence of the western model, gave way for factory farming. The rest is history," says co-founder Marappan.

Indian factory farms confine approximately 200 million hens in barren battery cages. Each bird lives within a space smaller than a single sheet of paper for more than a year before she's slaughtered. Cage-free hens have more space and are able to walk, fully spread their wings, and lay their eggs in nests.

Set up on 25 acres in Trichy, Happy Hens Farm's concept is the larger version of backyard poultry. It follows RSPCA (Royal Society for the

Prevention of Cruelty to Animals) standards, which define the space given to each bird and not overcrowding them.

"Happy Hens' eggs assure the sunny side, in its true sense, to our customers, as it is a guilt-free food. We do all that is required to keep our girls (hens) happy," he says.

In addition to free-range standards, [Happy Hens Farm](#) takes interest in treating its birds with natural and traditional remedies. There include Brahmi, basil, sweet flag, turmeric, neem, aloe vera and the like, that have high medicinal value in the diet to ensure good health of the birds.

"The knowledge of rearing with traditional methods is fading. We need to carry forward our rich Vedic knowledge and remedies, which have solutions to the disease issues. We are looking at rearing BSF (black soldier fly) worms from unused/surplus vegetables from the market, which will be a break-through in the industry," says co-founder Kannan.

Happy Hens is the only start-up that operates in the cage-free eggs production industry, which already has established players like Keggs Farm. Marappan, however, says he doesn't see any competition.

"We are unique," he says. "Rearing native Indian breeds while complying with global RSPCA standards, and by practicing in traditional and sustainable methods, make us stand apart from other commercial-scale players."

Living the next lap

Being a non-technology start-up, Happy Hens had faced hard financial times in the initial days. "We need financial institutions' support as no bankers are coming forward to support indigenous farming, the need of the hour. They don't realise our products are in demand when compared with factory farm eggs," added Marappan.

It was after Native Angels Network (NAN), a forum for enabling angel investments in Tier-II and Tier-III regions, promoted by Nativelead Foundation, investing Rs 50 lakh in 2015 that Happy Hens is keeping the ball rolling.

So far confined to Bengaluru, Chennai and Pune, it is now looking at utilising the funds to increase production capacity and spread to Mumbai, Hyderabad and Coimbatore.

"We hope to see 2,000 eggs a day soon, and will get to 10,000 eggs per day, in a year or two. Happy Hens will be known for its nutritious exotic eggs from chicken, quail, ducks to Guinea hens," NAN chairman and Happy Hens board observer, Nagaraja Prakasam, draws the start-up's roadmap. Happy Hens, currently garnering Rs 30 lakh revenues annually, has set an ambitious target of becoming a \$1-million (6.6 crore) company in the next five years. It is also exploring the possibility of taking the franchisee route and engaging women self-help groups to expand. "We have survived and built the brand to the extent we are now. It (free-range eggs) is definitely a viable and scalable business," he adds.

EXPERT TAKE: N Balasubramanian

Most people consume eggs as 'better' food. Therefore, Happy Hens offering 'free-range' eggs by itself is a good concept. Having said that, scalability and viability in a business of this nature depends on execution. For any brand to sustain, maintaining consistent quality and keeping the cost of egg production and distribution under control will be crucial. This is not a new concept; many brands are available locally. One of the major brands in this space I am aware of is Keggs, which now has a national footprint. If they can differentiate in terms of colour (golden yolk) and nutrients delivered, I am sure they will receive a better response. Maintaining consistent quality and keeping the cost of egg production and distribution under control will be crucial to ensure smooth running of operations and viability of the business model. They also need a differentiator in terms of nutrients delivered and consistent quality, with a strong distribution network.

Availability of products and pricing are also key factors. Consumers will not travel a long distance for buying eggs and will not pay too much of a premium because as of today, there is not much of dissonance with the usual 'caged' eggs!

The larger challenge for Happy Farms is to sustain and overcome seasonality of consumption and have multiple production locations if they want to build national scale, as transporting eggs over long distances is expensive. Overall, the challenge in this business is about ensuring consistent quality, managing efficiencies and sustaining the huge swing in seasonality of consumption in India. Since the business also has thin margins, it is easy to tumble!

N Balasubramanian is CEO of organic food brand 24 Mantra Organic

Simhastha: Forest dept embarks on plantation drive

INDORE: Madhya Pradesh forest department is planting medicinal plants on the banks of Kshipra river ahead of Simhastha 2016 for use by saints and akhara members reaching Ujjain for the mega event.

The massive plantation drive has already been started on the banks of Kshipra river. "The plantation is part of forest department's activities to facilitate plants of medicinal value for minor ailments," conservator of forest, PC Dubey, told TOI. The department has procured saplings of plants like kalmegha, sarpgandha, tulsi and ashwagandha for plantation. Kalmegha, an annual herbaceous plant in the family acanthaceae, has been traditionally used to treat infections and some diseases. Mostly its leaves and roots are used for medicinal purposes. The whole plant is also used in some cases, experts claimed.

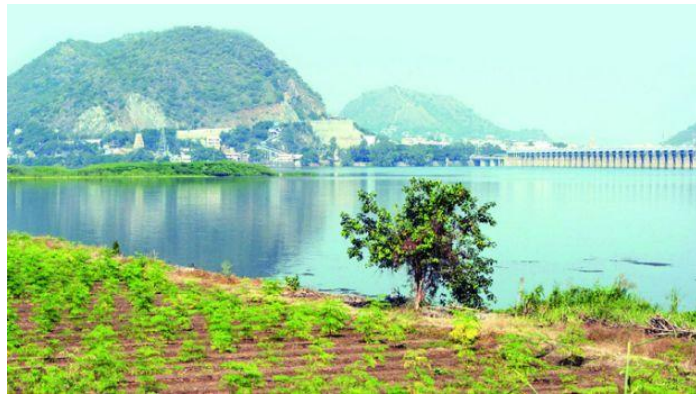
With a mammoth gathering expected at Simhastha, health department officials are wary of infections. Ayush department officials claimed that with the herbs readily available in the vicinity, treatment will be easy. Plants like ashwagandha, one of the most powerful herbs in Ayurvedic healing, has been used since ancient times for a wide variety of conditions and is most well-known for its restorative benefits - helping people strengthen their immune system after an illness. The plantation of tulsi (holy basil), besides

having the religious significance, will also help pilgrims due to its antibacterial, antifungal, antipyretic, antioxidant, antiseptic and anticancer properties. Apart from planting medicinal herbs, the forest department is also focussing on planting khus grass all along the banks of Kshipra river, Dubey said.

The Simhastha will be held during the summer season. Khus grass is known for its coolant effect.

DECCAN Chronicle

Classification of zones fishy, suspect farmers



A resident population of 2.5 million and creation of 1.5 million jobs by 2050 proposed.

Hyderabad: While farmers and landowners are eyeing classification of the AP capital region in three different agri protection zones as suspicious, municipal administration minister P. Narayana said that the classification had been done based on fertility of the soil.

According to the capital city's master plan, all lands on the south, southwest and near the central zone are classified as Agri zone-2 – in Tadikonda, Amaravati, half of Kanchikacharla and parts of Medikonduru and Pedakurpad mandals – and Agri zone-3, falling in Krosuru, Atchampet, Chandralapadu, Phirangipuram, Jaggaiahpet, parts of Pedakurpadu and Kanchikarala. These zones are reserved for future expansion of city.

The other zones around the capital are classified as Agri zone -1 wherein only purely agri and agri allied activities will be allowed.

It has been reported that top TD leaders, both at the state and in the Centre, have purchased huge lands in Agri zone-2.

The capital master plan says all activities in the proposed urban zones will be allowed in this zone which will be of help to the owners. Value of land in Agri zone-2 and Agri zone-3 will rise in the future whereas land value in Agri zone-1 will dip. One can, however, build farmhouses in Agri zone 1.

Mr Narayana said, “There are two plans – perspective plan and master plan – for the capital region of 33,000 acre. The side of the capital which is classified as Agri zone-1 is a more fertile delta land and forestland. So it has been declared as a green zone. However, the perspective plan will change every 10 years and the master plan every five years as per Section 38 of the CRDA Act. The side which is declared as Agri zones 2 and 3 have future expansion possibility. There is no favour being shown to any leaders owning lands.”

He said that the major difference between the previous draft plan and the final draft was realignment of roads like the Outer Ring Road and Inner Ring Road.

“The first plan is based on satellite maps and now it is survey number based,” he said.

However farmers are alleging that the mandals like Verullapadu, Vatsavai, Penuganchiprolu, Mylavaram, G Konduru and Nuziveedu are not fertile. G. Nageswar Rao, a farmer, said, “The delta area is restricted only to land

downstream of Krishna. The big question is why do they want to expand the city towards the South?"

Mr Narayana said, "Depending on future needs, we can change the plan; farmers need not worry."