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THE HINDU

CRISPR-edited mushroom cleared



White button mushrooms used in the study. Photo: K. K. Mustafah

A species of genetically engineered mushroom has been freed of regulation by the U.S. Department of Agriculture (USDA). This means that it can be cultivated and sold without being overseen by the USDA, according to a news report published online in *Nature* recently. Though about 30 genetically modified organisms have been similarly freed by the USDA, the special thing about this mushroom species is that this is the first organism to have been edited using the tool CRISPR-Cas9, which has been making waves in the field of genome editing, lately.

Known as the common white button mushroom, this fungus species (*Agaricus bisporus*) was genetically engineered by Yinong Yang of Pennsylvania State University using CRISPR-Cas9. The engineered mushrooms do not brown easily when sliced. This can improve their shelf-life, thereby rendering them valuable commercially.

The browning of the mushroom is caused by the enzyme polyphenol oxidase (PPO) and the above effect may be got by removing the genes that code for this enzyme. By removing some base pairs from the mushroom's genome,

Dr Yang succeeded in getting rid of one of the six PPO genes which reduced the enzyme's activity by 30 per cent.

This process did not introduce foreign DNA from other viruses and bacteria. This is perhaps the reason why the modified mushroom was given the green signal. Among the 30 plant species that have escaped the regulatory framework is a rose-coloured pineapple variety.

Cultivating genetically modified crops is a huge industry which may be undergoing a massive rethink involving a three-pronged argument, with the industry on side, the biologists on another and activists opposing it from the third. The U.S. National Academy of Sciences, Engineering and Medicine will meet on April 18 to discuss this issue and, among other things, bring out a report that will predict what kind of advances will be made in biotechnology products over the coming years. The report will also comment on regulatory processes.

There is a whole spectrum of rules and regulations in countries around the world when it comes to research in genetic engineering and implementation of the results of research outside the lab. A case in point is that of germline editing using CRISPR, in which area many countries have even banned research. With regard to genetically modified crops, the U.S. has been quite liberal and it is likely to become more so.

The organisms that have currently been given the green signal involve somewhat simple steps of editing such as knocking off a set of genes to create a desired effect. As the technology advances, more complex procedures will be initiated and so the whole process of regulating these products will need to be reviewed as and when that happens.

The circle of economy, the cycle of drought

Ground water levels have plummeted and water sources are bone dry

The water train chugged into Latur last week capturing national attention. But it took the spotlight away from the daily struggles of lakhs facing the most immediate consequences of an extended drought and acute water scarcity in Latur district. The vagaries of nature have already taken their toll,

the farmer in the hinterland has no way out, and the common man clings to a collapsing water infrastructure in the cramped city space.

Nitin Kalantary, CEO, Kalantry Food Products Limited, a leading exporter and supplier of pulses from Latur, says, “Scarce water availability has resulted in poor farm yield, low income and diminishing spending power of the farmers. The weddings lack the pomp, while festivities are curtailed both in urban and rural areas. It has never been like this before.”

Falling output

The local Agriculture Produce Market Committee (APMC) turnover fell to Rs 905 crore in 2015-16 from Rs 1,460 cr the previous year and Rs 1,875 cr in 2013-14. The drop in the arrival of pigeon pea from 15,000 quintal last year to only 5,000 this year is an indicator of the crashing economy, say experts.

Drought and water scarcity is a complex phenomenon. The district administration blames nature’s vagaries while the oilseed and pulses lobby point fingers at the water-guzzling sugarcane crop. The politicians, of course, blame each other. Geographically, too, the impact of the current crisis varies across regions.

Northeastern Maharashtra Jalkot, Ahmedpur, Deoni, Nitur and Udgir — are facing more of a hydrological drought and scarcity as compared to the slightly better off and greener northwestern belt of Renapur, Latur City and Ausa, which are hit by both an agricultural and meteorological drought. But they are also home to three powerful sugar factories and major sources of water, including the Manjara dam, and the Bhandarwadi barrage among others.

Sugarcane to blame?

“The western belt grew around the big three: Manjara, Raina and Vikas sugar factories; the banks too belong to the same politicians. The cyclical economy was complete once they got better access to water from the barrages. It is this economy that is facing the prospect of a collapse,” says Sudhir Mane of NAAM foundation started by actor Nana Patekar which offers funds as drought relief for farmers.

The ground water level at Jalkot has gone down to an alarming 4.7 metres; at Ahmedpur it is touching 4.38m and at Deoni it is 4.08m. According to guidelines of the Ground Water Act, levels below 1 metre are termed manageable scarcity, those below 2 metres as critical and below 3 metres are declared alarming. The district hit the danger mark in October with an average fall of 3.53 metre across the ten talukas.

In contrast, the East has fewer barrages and dams; existing ones have gone bone dry because of three years of deficient monsoon. At the 33 small water projects at Ahmedpur, having a capacity of 14.4 mcm (million cubic metre), the current water availability is zero. In the 10 water projects, with a capacity of 25.26 mcm at Jalkot, every single drop has disappeared. Ironically, the belt falls in the assured rainfall zone with an expected 700 mm to 800 mm of monsoon as compared to prosperous western sugar belt which is a declared drought prone areas programme (DPAP) Rainfall Zone with less than 500 mm of average rainfall.

“The east was never meant for development as water here doesn’t flow with gravity; [the area] being on an elevation, the soil is somehow less fertile than the west. Water used for sugarcane as opposed to the perception of being wasted, always percolated back into the soil in the western belt,” says Vajinathrao Shinde, former Congress legislator from Latur Rural and director of Vikas Cooperative Sugar Factory near Niwali in the western belt.

The shifting rainfall pattern is the biggest cause of crop failure, which has hit both kharif and rabi sowing this year. For example, the average July rainfall in 2013 and a year before was 331.54 mm but in 2015 it was just 31.7 mm in Latur. The number of rain days in a year is now reduced to 36 in Latur and 37 in Beed, leading to reduction in rain precipitation and hence, poor ground water availability. The rainfall deficit in the district has been 50.12 per cent in 2014, and 47.94 per cent in 2015.

“For four years (2009-2013) I grew sugarcane but with falling market prices and changing rain pattern I chose soyabean after taking a loan of Rs 40,000. But that crop failed, I had to sell three of my seven cattle to repay the loan. The vicious cycle never ends,” says Dayanand Ashokrao, 26, who has a four acre farm near the Raina sugar factory.

There was no rain in June in the region, some in July and in most parts concentrated around August, and back again in October with devastating

hailstorms in February. This mean it becomes challenging for a farmer to opt for pulses (pigeon-pea, urad and moong) and easier to go for oilseeds (soyabean). With only 1.72 per cent water remaining in 141 small and big sources of water, the district officials estimate failure of in excess of 70 per cent of the kharif crop.

As many as 125 farmer's suicides were reported from Latur district till July 2015.

MPEDA to declare Krishna, West Godavari Tilapia zones



MPEDA Joint Director Sampath Kumar (right) and NaCSA CEO Shanmukha Rao having a look at the Tilapia fish harvested in a pond in Krishna district.

: Authorities of the Marine Products Export Development Authority (MPEDA) are planning to declare Krishna and West Godavari districts Tilapia fish zones, which have a good demand in the international market.

Tilapia, also known aquatic chicken, is the second largest farmed fish across the world. The fish, which is almost vegetarian, is the most sought after variety.

MPEDA officials said that Tilapia can survive in high temperatures, requires less investment, gives high yield and depends on agriculture waste in ponds, corn and other preservatives. Farmers who are cultivating Genetically Improved Farm Tilapia (GIFT) are receiving good profits, they said.

“Tilapia is the future fish. The species can be cultivated in all seasons in all fresh water areas, particularly in delta areas. Export chances are bright for GIFT and exporters are offering good price for Tilapia, if the size and quality are good,” said MPEDA Chairman Leena Nair.

Explaining that GIFT is a good diet for pregnant women and children, Ms. Nair said Tilapia contains less fat, high calcium, proteins, vitamins and calcium. Aquatic chicken is mercury-free which is good for children, she said.

Need for diversification

Stressing the need for diversification in aqua culture, the chairman said Tilapia can beat rohu, catla, bocha and other variety fishes. Recently, Rajiv Gandhi Centre for Aquaculture (RGCA), a research wing of MPEDA has released all male Tilapia in Andhra Pradesh, which gave good results, Ms. Nair told *The Hindu* .

MPEDA Joint Director (Andhra Pradesh) Sampath Kumar said the organisation in association with Fisheries Department officials is planning to organise field visits and demonstrations in Krishna and West Godavari districts.

Farmers’ hopes dry up with power shortage, summer heat



IN DANGER:With kuruvai crop failing in the last four seasons in some pockets in Thanjavur district, farmers dependent on summer paddy crop for their cash requirements.— FILE PHOTO

Summer paddy crop has been raised on 80,000 acres in Thanjavur district

With the scorching sun troubling farmers and labourers working on the fields no end, inadequate power supply for irrigation is compounding the problems of the delta farmers who had raised summer paddy in close to 80,000 acres of land in the region.

Other standing crops such as gingelley, cotton, and sugarcane too suffer forcing farmers to demand assured three-phase power supply for fixed pre-announced duration. With the kuruvai crops in the past four seasons failing them because of inadequate flow of water down the Cauvery, farmers in some pockets of the delta region depend heavily on the summer paddy crop for their cash requirements.

The crop assuming importance, irrigation had now become a spot of bother for the farmers who were threatened by the hot and humid weather with temperatures hovering around 40 degrees Celsius coupled with inadequate water supply even though they depend on borewells and filter points for sourcing water.

Unfortunately for them, unannounced power cuts had put paid to their hopes of reaping a good harvest.

“We need assured three-phase power supply continuously for at least six hours during the day and at night for completely irrigating the fields. But that is not happening in many parts of the district now. We don't know when we will get power as the TANGEDCO officials themselves are not in a position to say so,” points out vice-president of the Tamil Nadu Vivasaya Thozhilalar Sangam V. Jeevakumar.

Complaints galore that in some pockets three-phase power supply was extended only for about three hours and that too in unearthly hours when farmers are not in a position to irrigate their fields. With groundwater levels plummeting, the need for more power to irrigate all areas in a farm is felt by all farmers. Shorter spells of three-phase power supply will be of little use for them.

Even during the required power supply, there have been instances when agricultural pumpset motors getting damaged because of low voltage. The quality of power being supplied had come into question now and farmers loath frequently mending their power motors.

Meanwhile, farmers in the Kumbakonam region of Thanjavur district had alleged scarcity of urea in their area.

The farmers are forced to purchase urea from private dealers who conveniently jack up the price according to their whims and fancies.

Kumbakonam, Tiruvidaimarudur, and Papanasam are some of the affected areas, say farmers bodies.

The farmers require urea for basal application ahead of planting in the case of paddy. However, in some primary agricultural cooperative societies, the officials could not meet the demands of the member farmers who had to shell out more to source it from private dealers.

Farmers say they need three-phase power for six hours a day

Kumbakonam region is said to be facing shortage of urea

Harvest of cucumber brisk



Summer crop: Farmers harvesting cucumber at Azhagiya Manavalam near Tiruchi.— Photo: B.Velankanni Raj

Cucumber is the most needed produce during the summer to beat the heat. Fortunately, harvest of cucumber has been brisk in parts of the district.

Farmers have been harvesting it for the past couple of weeks. Those who cultivate the crop say they have to adopt crop protection strategy for harvesting quality cucumber. The expenditure was anywhere between Rs. 20,00 and Rs. 22,000 for reaping quality crop.

P. Subramanian, a farmer of Azhagiya Manavalam, says he had raised the crop on about three-fourth of an acre and could realise a good harvest. Good agricultural practice was more important.

The crop is usually raised during the 'Thai' pattam coinciding with the second or third week of January and is ready for harvest from the 55th day. Every flower turns into cucumber, he says explaining the abundant growth of flowers in his fields. The crop can be harvested daily and is readily marketed to Tiruchi.

P. Ganesan, another farmer, says that the crop should be irrigated properly at least three times a week. "The more water supply, the more delicious is the crop," they said. Supply of fertiliser is equally important.

"Fertiliser, groundnut cake and castor cake is applied periodically to protect cucumber from any pest attack and to ensure its growth," they said. Although people prefer tender and smaller cucumber, it is the large-sized cucumber which is more delicious.

While the smaller cucumber is marketed at bus stands and highways, the large-sized crop is sold at restaurants. Although people prefer the cucumber, they do not understand the hard efforts being taken by the farmers in cultivating it. "We have to sell cucumber only after a tough bargain," they say explaining their difficulty in marketing the produce, particularly at the retail outlets.

Go for the plough, says agricultural college Dean

Career opportunities were aplenty for students who opted for courses in agriculture, said K. Velayudham, Dean of Agricultural College and Research Institute, Madurai, while speaking at *The Hindu* Career Counselling/Fair 2016 here on Sunday.

Suggesting to the students and parents to give serious thought to courses in agriculture, Mr. Velayudham said that many persons who studied agriculture had ended up at the helm of affairs in various government and private institutions.

“One of our students was even part of the team in Organisation for the Prohibition of Chemical Weapons, which won the Nobel Peace Prize in 2013,” he said.



SOLID GROUND:K. Velayudham, Dean, Agricultural College and Research Institute, Madurai, speaking at the the fair on Sunday.— Photo: G. Moorthy

Mr. Velayudham also highlighted the cutting-edge research being done by many of the Tamil Nadu Agriculture University (TNAU) staff, students and alumni.

He said that job opportunities were available in teaching, research and government institutions. “When you get into a teaching job in a government college, you are paid as per UGC norms, which is far better than IT companies,” he said.

“Students who take up agriculture course have a greater chance of clearing Civil Services examinations since they gain better understanding of rural issues and administration,” he said.

Mr. Velayudham also spoke in detail about the 13 courses offered by the TNAU, of which seven are technology-based programmes and six science-based programmes.

Govt. to start fodder banks in all villages

Chief Minister N. Chandrababu Naidu has directed the officials to start fodder banks in all the villages in the State.

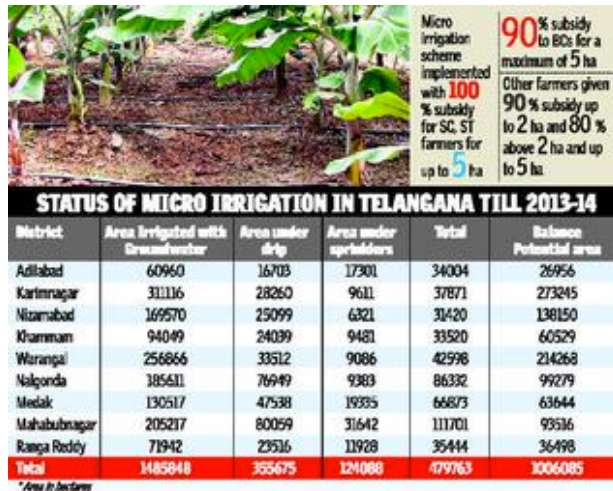
At a review meeting here on Sunday, Mr. Naidu said that every government department should work in tandem and coordination. The officials should ensure that water scarcity, fodder, drinking water, horticulture crops would not be affected due to summer. At least 50 acres land in every village should be identified for the fodder banks. If required, the land should be taken on rental basis, he said, adding, the officials should take necessary steps and ensure that drinking water problem would not arise. Mr. Naidu said that the irrigation department, MNREGA and agriculture should work in coordination. The works can be taken up under NREGA programme . The farm ponds should be ready before rainy season. Making 10 lakh farm ponds ready before rainy season would help in saving flood water resources, he said.

“As the rabi purchases have begun in Nellore and East and West Godavari districts,” the Civil supplies, Agriculture Departments’ officials should ensure remunerative prices for the farmers.

They should keep a tab on paddy purchase centres and take necessary steps in consultation with district Collectors concerned,” the Chief Minister said.

Bringing five lakh hectares under micro irrigation a distant dream

Only 39,640 hectares was brought under sprinkler and drip irrigation facility across the State during 2015-16 and 30,592 hectares the year before, say officials



The Telangana government’s plans to bring an additional 5 lakh hectares of land under micro irrigation by 2019-20 are likely to remain a distant dream if the progress made in that direction during the last two years is any indication.

According to the officials of the micro irrigation project, only 39,640 hectares was brought under sprinkler and drip irrigation facility across the State during 2015-16 and 30,592 hectares the year before. In its economic outlook plans released along with the budget presentation in March 2015, the State government charted a course to create micro irrigation potential to 5 lakh hectares, 50 per cent of the potential area, between 2015-16 and 2019-20 by covering at least one lakh hectares every year. However, the baffling fact is that the government, in its budget estimates, proposed to cover only 37,300 hectares during 2016-17 with the plans to spend Rs. 253 crore. The focus areas include cultivation of vegetables, spices, fruits, oil palm, sugarcane, mulberry and a few other agriculture crops.

Micro irrigation officials stated that about 4.8 lakh hectares of land was covered under drip and sprinkler systems from 2003-04 to 2013-14 in Telangana with an expenditure of Rs. 2,075 crore. The total extent reached 5.5 lakh hectares by the end of 2015-16. The State government was able to spend only Rs. 73 crore in 2014-15 and Rs. 170 crore in 2015-16 against the budgetary allocations of Rs. 200 crore and Rs. 250 crore, respectively.

The yawning gap between the government plans and the targets achieved is likely to widen further with an allocation of only about Rs. 250 crore for 2016-17, including assistance from the Centre, though it could help achieve

the target of 37,300 hectares during the year. The fate of poly houses also remains the same with the extent covered during 2014-15 (116 acres) and 2015-16 (472 acres) piling before the plans of covering at least 1,000 acres each in two years.

When contacted, a senior government official told *The Hindu* : “We work as per the targets given to us in proportion to the budgetary allocation. Besides, lack of awareness among the farming community is keeping the number of farmers availing the scheme low.” He, however, felt that bringing a sizeable extent under micro irrigation would have paid dividends to farmers, at a time when drought conditions prevailed across the State since the last two years.

At food expo, Revenue Minister promises help for organic farmers

Revenue Minister V. Srinivas Prasad has said the government is committed to promoting organic farming across the State and has earmarked Rs.10 crore to initiate steps to promote it.

Inaugurating an organic food expo here last week, the Minister said those engaged in growing agriculture and horticulture crops organically face certain problems like market and authentication. He said the Agriculture Department, along with a few other departments, has been working out a plan to provide a definite marketplace for organic growers and also plans to provide them certification.

Workshop on terrace gardening

Tamil Nadu Agricultural University Information and Training Centre is conducting a workshop on terrace gardening on April 21 at U-30, 10th Street, Anna Nagar. Time: From 9.30 a.m. to 4.30 p.m. For details, call 044 2626 3484.

Odisha asks Centre for pulses research institute

The Odisha government on Saturday urged the Centre to set up a national-level pulses research institute in the State so that suitable varieties can be developed in a time-bound manner.

“I would request you to consider setting up a national level pulses research institute or a branch of Indian Institute of Pulses Research (IIPR) Kanpur in the State so that suitable varieties can be developed here in a time-bound manner,” Chief Minister Naveen Patnaik wrote to Union Agriculture Minister Radha Mohan Singh.

Mr. Patnaik said pulses are grown on about 20.88 lakh hectares of land - 6.86 lakh hectares in kharif season and 14.02 lakh hectares in rabi season - higher than most states in India.

Odisha has about 16 lakh hectares of fallow rice fields which can be easily utilised for cultivation of pulses during rabi season, he said. - PTI

ICAR plans research institute in Srikakulam

The Indian Council of Agriculture Research (ICAR) is seriously exploring options and possibilities to set up a research institute of national importance on the coastline of north Andhra. Meanwhile, high placed sources told *The Hindu* that ICAR has received a request from Srikakulam Member of Parliament K. Ram Manohar Naidu, who appealed the ICAR to set up a national institute related to marine or fisheries sciences on the Srikakulam coast.

The sources said that the MP had underlined the need for setting up the institute related to marine or fisheries, citing that the Srikakulam district has the longest coastline of above 193 km but it did not have any major academic or research institute till date. “The ICAR is engaged in examining the possibilities to set up any research institute with national importance in Srikakulam district in response to the request,” sources said.

It is learnt that Visakhapatnam has already three institutes related to the field of marine and fisheries sciences including National Institute of Oceanography. Recently, the ICAR has sought reports from the experts, academicians and scientists engaged in the fisheries and marine research on the possibilities to set up any research institute on the Srikakulam coast. In Srikakulam district, the Nuclear Power Corporation of India Limited has proposed to set up a nuclear park at Kovvada on the coast and Andhra Pradesh State government was engaged in developing a port at Bhavanapadu. However, the marine trade is yet to be tapped in the Srikakulam district.

MP appealed to ICAR to set up a national institute

on the Srikakulam coast

Inadequate rainfall hits pulses cultivation

After steady increases in the acreage for the past many years, the pulses cultivation in the district hit a rough trough during the just ended 2015-16 financial year with area coverage down to 18,249 hectares, a reduction of more than 2,000 ha.

Collective acreage under different varieties of pulses like black gram, green gram, red gram, horse gram and Bengal gram, in the district stood at 16,419 ha in 2012-13 fiscal, 19,176 ha in 2013-14 fiscal and 20,530 ha in 2014-15 fiscal.

National Food Security Mission's district consultant K. Mariappan, who is also a retired Deputy Director of Agriculture, told *The Hindu* the decline in the acreage could be attributed primarily to the non-reception of adequate rain at appropriate time of the season.

“Sowing in the case of pulses is normally done in June-July period anticipating the commencement of monsoon, as the crop used primarily raised under rain-fed conditions in the district. What happened in 2015-16 was that the district received good rainfall of 153.66 mm in April and 187.3 mm in May.

But when needed, i.e., during June and July, the district received only 34.24 mm and 2.07 mm, respectively and this situation forced many farmers to opt out of the crop during the kharif season”, he said.

Interestingly, the acreage under pulses could have been even worse if the rain did not come in November.

Till October 2015, the acreage was just 5,797 hectares.

“Many of traditional pulses farmers tried their luck once district started receiving good rain towards end of October. As a gift of nature, the district luckily received 215.6 mm rainfall in November which pushed up the

acreage to reasonable levels at the end,” said agriculture department officials.

K. C. M. Balasubramanian, a pulses farmer and also a retired agriculture economist, pointed out that in the case of pulses, any assistances would be useless if it did not rain.

Farmers hit by absence of thrashing floor

They use paddy field or road for thrashing paddy



INNOVATIVE:A farmer set up a tarpaulin sheet for thrashing the paddy harvested in his field at Pachamalai in Tiruchi district.— Photo: B.Velankanni Raj

Harvest of paddy crop has been brisk on the hills in Pachamalai with farmers and farm labourers working overtime in registering maximum yield. The absence of thrashing floor on the hills has been posing a great challenge to the farmers forcing them to use the paddy field itself as a thrashing floor.

The farmers had raised ADT 43 which is locally called as ‘Super Ponni’ variety. It is suitable for the tribal area with slopes where the water is not stagnant. Farmers say they could register appreciable yield this season – about 30 bags of paddy from an acre, each bag weighing 60 kg. They have been cultivating the variety shortly after the ‘Pongal’ festival so that the crop is ready for harvest by middle of April every year.

Visit any part of Pachamalai, one can see paddy farmers resorting to thrashing the produce using conventional method. A couple of bullocks are used for thrashing the paddy. A tarpaulin is spread over the paddy fields on which the farmers thrash the harvested paddy.

T. Ponnusamy (55) a paddy farmer of Top Sengattupatti in Pachamalai, says he had raised the crop on one acre and registered a good yield at the end of about four months. His entire family is involved in harvesting the paddy. Nallathangal, his wife, their son Velusamy and son-in-law V. Sakthivel were seen toiling hard on the fields, spreading a sheet of tarpaulin.

R. Rajathi (38) of Kamboor says her field is located close to the ghat road and she has been using the road for thrashing the paddy.

Mission Kakatiya starting to bear fruit

According to a study by ICRISAT, moisture retention capacity has increased in farms

Mission Kakatiya, the Telangana government's flagship programme aimed at restoring minor irrigation sources like tanks and other water bodies to help small and marginal farmers, has not just increased water retention capacity by de-silting, but has also improved on-farm moisture retention capacity.

When local farmers used silt lifted from the water bodies in their respective fields, it was noticed that moisture retention went up by four to seven days, according to a pilot study by ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), recently.

The study in water bodies where works were completed showed that the addition of tank silt by 50 to 375 tractor loads per hectare improved available water content by 0.002 to 0.032 g in the soil.

An increase in clay was noticed from 20 to 40 per cent in the root zone. A decrease in coarse and fine sand was also noticed, while there was no change in pH, EC and organic carbon.

Importantly, an 'appreciable change' was observed in available Nitrogen, Potassium, Phosphorus and a moderate reduction in Sulphur.

Senior officials explained that the improvement in clay content would reduce the losses of nutrients through leaching because of improved Cation Exchange Capacity (CEC) or ability to absorb nutrients.

The findings were presented to the Central government officials when the Irrigation Minister, T. Harish Rao, and other officials involved in monitoring the works went to New Delhi a few days ago. The silt addition is also expected to help reduce the chemicals by 30 per cent and also lead to a decrease in the number of wettings required for the crops. It was realised that the fresh silt-received plot had a higher plant population and also higher plant height, resulting in increase in net income of the farmers.

Savings on fertilizers and pesticides ranging from Rs. 2,500 to Rs. 3,750 per hectare in case of cotton (a major crop here) were observed due to an increase in the yield to the tune of 1,000 kg per hectare. Tanks de-silting, feeder channels re-sectioning, repairs to bunds, water sluices and weirs, increasing of full tank level, etc., under Mission Kakatiya are to help bridge the 63 per cent of existing gap ayacut.

Increase in farmers' income, crop intensification and diversification, fisheries/livestock development, rise in groundwater levels are among the objectives while plantation of toddy trees on bund slopes is expected to strengthen bund plus to generate income to the rural poor.

Popularising the farm pond concept

In an effort to popularise farm pond concept, Komatireddy Pratheek Foundation dug up a farm pond at farmer Kola Bikshamaiah's field at Kakulakondaram village of Nalgonda mandal here on Sunday.

Pratheek Foundation had started closely working with Deshpande Foundation, which has been actively working on rain water harvesting in Nizamabad and Maharashtra.

CEO of Pratheek Foundation M.V. Gona Reddy said that they simply want to replicate the work of Deshpande Foundation in the district for the benefit of the farming community.

The chairman of the foundation and Nalgonda MLA Komatireddy Venkat Reddy said they were planning to initiate several skill enhancement

programmes for the youth in the district to improve their employability. “They would also concentrate on maternal health, student leadership, micro-entrepreneurship and livelihood opportunities,” he said.

Several skill enhancement programmes planned to improve employability

Rain damages banana crops

Heavy rainfall damaged hundreds of banana trees that were ready for harvest in Nidaghatta and Hottegowdana Doddi, in Maddur taluk, of the district, on Saturday night.

Several parts of Maddur experienced heavy showers late on Saturday and left many banana trees damaged, sources at the Department of Horticulture said. The rain damaged 800 trees belonging to K.V. Shivaram of Nidaghatta and completely destroyed 2,200 trees belonging to Narayan of the same village.

The rain also caused severe damage to hundreds of trees owned by H. Nagaraju, grown in an area of nine acres in Hottegowdana Doddi, 1,200 trees of Bojaiah at Nidaghatta and 1,500 trees of Raju at the same village. The cultivators urged the Department of Horticulture and other agencies concerned to initiate steps to compensate their loss.

State govt. releases Rs. 18.3 crore input subsidy to farmers

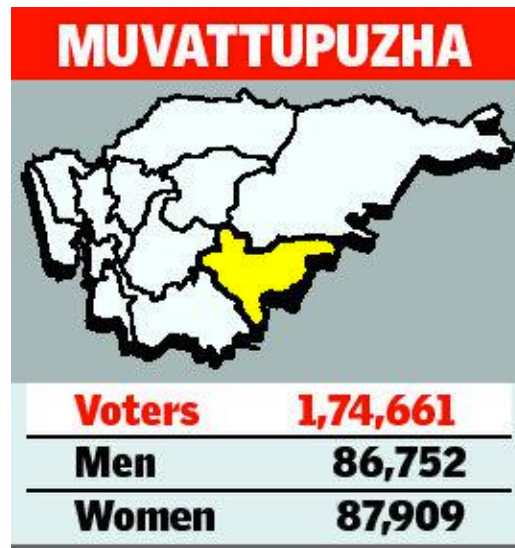
The State government has released Rs. 18.3 crore input subsidy to farmers who suffered crop loss in 2014-15.

As per the calamity relief guidelines, Rs. 71.6 crore had been released for Bidar district, but Rs. 18.3 crore was pending.

Deputy commissioner P.C. Jaffer had written to the government seeking release of the pending amount.

The fund has been released under the State disaster management guidelines, district in-charge Minister Umashree said in a press release.

Rubber, agro-industry to be key issues



The politics of rubber coupled with the performance of agro-industries has swung the electoral fortunes of Muvattupuzha between Kerala's major fronts.

If the constituency elected K.M. George, who contested on the Congress ticket before founding the Kerala Congress, in the first two elections, it gradually evolved into a citadel of Kerala Congress breakaway groups that stayed within the United Democratic Front (UDF), with the Communist Party of India (CPI) wresting the seat once in a while.

Johny Nelloor, the only person to have been elected from here thrice — first on the KC(M) ticket and in the succeeding elections as KC(Jacob) candidate — tasted defeat at the hands of CPI's Babu Paul in 2006.

Congress's Joseph Vazhakkan wrested it back from Mr. Paul in 2011. As Mr. Vazhakkan seeks to repeat the show, he has a strong contender in CPI's Eldo Abraham.

A youth leader of note, Mr. Abraham's impressive record as standing committee chairman of the Payipra grama panchayat within the constituency and his outlook on environment friendly development makes him an acceptable face.

The Left Democratic Front (LDF) wrested the Muvattupuzha municipality in the recent local body polls.

The 11 grama panchayats that fall in the segment, in the meantime, got divided between both fronts, with a marginal advantage for the UDF.

The steep fall in the price of rubber and the inability of the outgoing government to support the crop may well be a shot in the arm for the LDF.

Carbon sharing between trees



One of the five labelled spruce trees as seen from the crane gondola at 40 m aboveground. Photo: Tamir Klein/University of Basil

Forest trees are even more interconnected than thought, suggests a new study, which showed that around 40 per cent of the carbon in fine roots of spruce trees came from neighbouring trees.

A chance discovery in a mixed forest in Switzerland reveals that tree-to-tree interaction in forests goes beyond mere competition for resources.

Forest trees are even more interconnected than thought, suggests a new study, which showed that around 40 per cent of the carbon in fine roots of spruce trees came from neighbouring trees. This level of sharing can be

crucial for forests, especially under stress conditions like wildfires, say the authors in their paper published in *Science* recently.

Human-driven activities have been releasing vast amounts of CO₂ into the atmosphere since industrialisation began two hundred years ago. Consequently, there is a lot of interest in understanding to what degree forests the largest terrestrial pool of biological carbon, are able to absorb this amount, thereby mitigating climate change, said Tamir Klein who studies eco-physiology at University of Basel, Switzerland, in an email interview sent to me.

While investigating the responses of trees to elevated CO₂, Klein and team stumbled upon this discovery. To track the flow of carbon, they had used a tall canopy crane to label five 40-metre-tall Norway spruce trees with stable carbon isotope 13. Five unlabelled spruce trees were used as control. The labelled and unlabelled trees were then measured for C-13 from “tip to toe” - canopy twigs, stems, and fine roots. This was also done for neighbouring unlabelled non-spruce trees. Their methodology ensured no label transfer to other trees. However, the team noticed something unexpected. “We discovered that labelled carbon does find its way to other trees, albeit in the root zone,” said Klein.

In fact, the numbers revealed that roots of neighbouring trees, species no bar, shared an almost similar isotopic signature. The scientists strongly suspect that this interaction is mediated by networks of symbiotic fungi called mycorrhiza which connect the roots of different trees. “Mycorrhizal networks are very common in most forests across biomes and climates. In spruce forests they are so common that they are considered a substantial carbon sink,” said Klein.

Much about the magnitude, direction and the regulation of these transfers is yet unclear. Since all the trees in the study were healthy, and stress-free the authors acknowledged the possibility that the labelled trees were transferring its excess carbon below ground and, in turn, triggering mycorrhizal growth and activity. However, this level of carbon sharing capabilities among neighbouring trees may have implications for forests under stress. “We hypothesise that under stress conditions, trees which are connected to each other through the “right” mycorrhiza species (a multi-host mycorrhiza) might have some advantage over trees which have to withstand as individuals,” said Klein.

Foodgrain procurement: Banks to tighten norms for cash credit

Banks, which suffered losses and reported huge non-performing assets (NPAs) in the December quarter, are expected to resume cash credit only after resolution of the ongoing issue.



The RBI had asked banks to set aside 15 per cent as provisions when it was discovered that the Punjab government warehouses did not have enough foodgrain stocks to cover the loan amount.

Banks which are in a bind over the Reserve Bank directive to make provisioning for Rs 12,000-20,000 crore cash credit extended for foodgrain procurement are likely to tighten the lending process.

Currently, banks are not involved in any verification of physical stocks for which the cash credit is used. “Banks don’t conduct any inspection or verification of stocks. This situation is likely to change,” said a banking source.

Bankers are meeting on Monday to discuss the issue of provisioning of 15 per cent on the cash credit extended to the Punjab government. The RBI had asked banks to set aside 15 per cent as provisions when it was discovered that the Punjab government warehouses did not have enough foodgrain stocks to cover the loan amount.

Banks, which suffered losses and reported huge non-performing assets (NPAs) in the December quarter, are expected to resume cash credit only after resolution of the ongoing issue.

“Banks will release funds only after they are satisfied about the stocks warehouses and provisioning of the previous shortfall,” said a bank official.

According to a banker who was involved in the food credit business, banks are totally in the dark of foodgrain stocks in the godowns. While banks extend the credit to Food Corporation of India (FCI), foodgrain stocks are under the State government control. The interest which is normally charged at the Base rate.

“Banks should verify whether the required stocks are in the godowns. If provisioning has to be made by banks, the interest rate charged will also go up,” he said. While State and Centre loans are considered sovereign borrowings, that status has taken a hit with the Punjab food credit saga.

FCI depends on an annual cash credit limit of around Rs 55,000 crore public sector banks for procurement of rice and wheat from the farmers which in turn is distributed to states for the Public Distribution System.

FCI avail these loans against the value of foodgrains stock held with the corporation. On the other hand, the Centre’s outstanding dues to FCI shot up from Rs 7,377 crore five years ago to Rs 56,114 crore in fiscal 2015.

Meanwhile, a Punjab government statement said all payments are released by FCI directly to the bank without recourse to the state, after receipt of stocks and as per the specification fixed by the Centre. These deliveries are dependent on the schedule fixed by FCI from time to time as per demand in various parts of the country, it said in the release.

The food credit issue has now added to the stress of banks. Rating firm Crisil had said that weak assets of public sector banks are set to balloon to Rs 710,000 crore — which is 11.3 per cent of the loan book — by March 2017. Crisil recently downgraded its ratings on the debt instruments of eight PSU banks and revised its outlook on five others to ‘negative’ from ‘stable’.

Onion output to hit record high of 203 lakh tonnes in 2015-16

Nearly 60 per cent of India's annual output comes from the rabi season, while the kharif and late-kharif sowing seasons contribute 20 per cent each.



Onion output had dropped to 189.2 lakh tonnes in 2014-15 crop year (July-June) due to poor rains. The previous record was 194 lakh tonnes in 2013-14.

India's onion output is estimated to touch a new record at 203 lakh tonnes in 2015-16 crop year as favourable weather and better prices boosted acreage and crop yields, a government research body has said.

Onion output had dropped to 189.2 lakh tonnes in 2014-15 crop year (July-June) due to poor rains. The previous record was 194 lakh tonnes in 2013-14.

“Onion production is going to be a record at 203 lakh tonnes this year. Better prices during the kharif (summer) season encouraged farmers to bring more area under onion in the rabi (winter) season,” National Horticultural Research and Development Foundation (NHRDF) Director R P Gupta told PTI.

Favourable climatic conditions have also encouraged the rabi crop prospects and yields are expected to be better than last year, he said, adding unlike last year, there were no unseasonal rains and hailstorm this time.

Onion has been grown in 12 lakh hectare this year, slightly higher than 11.73 lakh hectare last year. Stating that rabi onion crop condition is good at

present, the NHRDF chief said total rabi output is estimated to be higher by 15-20 per cent as compared to year ago. “The harvesting of rabi crop started in Maharashtra, Gujarat and Madhya Pradesh.

It is only rabi onion which is stored for use in lean season. Farmers and traders have started storage of onion,” Gupta said. Around 45 lakh tonnes of expected to be stored in the current year due to availability of good quality of onion bulb in the market, he added.

On prices, Gupta said farmers are getting an average Rs 8 per kg in Lasalgaon in Maharashtra, Asia’s biggest wholesale market for onion and earning minimum 20 per cent profit over the cost of production. Nearly 60 per cent of India’s annual output comes from the rabi season, while the kharif and late-kharif sowing seasons contribute 20 per cent each.

Rabi onion is grown in almost all states, but major growing states are Maharashtra, Gujarat, Madhya Pradesh, West Bengal, Bihar, Rajasthan, Odisha, and Uttar Pradesh.

Only 1.8% got 150 days of work in drought-hit states: MGNREGA data

The data for 10 drought-hit states show that a total of 1.52 crore people got employment under MGNREGA in the financial year ending March 31, 2015.



Central government officials attributed the low off-take as a reflection of the demand as they said MGNREGA was demand-driven.

For states hit with severe drought, the latest decision of the Ministry of Rural Development to continue providing 150 days of employment under MGNREGA may come as a much-needed succour.

However, data shows that in 2015-16 of the households that were provided work under the scheme in these regions, merely 1.8 per cent got full 150 days of employment.

The data for 10 drought-hit states show that a total of 1.52 crore people got employment under MGNREGA in the financial year ending March 31, 2015. But of this, just 2.80 lakh i.e. 1.8 per cent were employed for 150 days.

In states such as Rajasthan and Uttar Pradesh, the proportion of such workers is 0.2 per cent or less.

The data is specifically that of the 1 lakh gram panchayats in the 10 states categorised as drought affected including in Maharashtra, Telangana, Karnataka, Andhra Pradesh, Odisha, Madhya Pradesh, Jharkhand and Chhattisgarh. However, central government officials attributed the low off-take as a reflection of the demand as they said MGNREGA was demand-driven.

“There isn’t much gap between work demanded and supplied,” said an official. Going by absolute numbers this is true: of the 1.78 crore households registered as having demanded work, 85 per cent have been provided with some form of work under the scheme.

However, the registered official demand is a conservative figure of the actual demand on ground. Activists have blamed lack of funding for agencies at the state government level for not registering the demand unless they are able to provide work.

This is because the Act mandates that once a demand is registered, work has to be provided within 15 days or else the state has to bear the liability of paying each worker an unemployment allowance.

Nikhil Dey of Rajasthan-based Mazdoor Kisan Shakti Sangathan said, “In a drought scenario, the government can’t produce fodder or water and, hence, NREGA is the only instrument that can generate work and wages for those

affected. Last year, there weren't even enough funds to provide for 100 days of work let alone 150 days. Unless the finance ministry gives funds required for MGNREGA, neither the Rural Development ministry nor the state agencies can carry out their mandate.”

The Centre has claimed that the Rs 38,500 crore allotted to the scheme in this year's Budget is the highest ever. But Dey pointed out that even if the scheme were to continue as per allocations in 2010-11 while adjusting for inflation, the current allocation would have to be nothing less than Rs 65,000 crore.

MGNREGA guarantees 100 days of wage employment annually for rural households willing to do unskilled manual work. In September 2015, with the monsoon deficit adversely affecting Kharif crop and, thereby, rural incomes, the Cabinet approved 150 days of employment per household in drought-hit areas.

However, there was no corresponding increase in the budget allocation for the scheme. Last year, Finance Minister Arun Jaitley had promised an additional Rs 5,000 crore if the scheme requires it. However, it was only after several states sought more funds, the finance ministry released Rs 2,000 crore.

hindustantimes

Plain, sweet, spicy: Bowls made of leaves, forks and spoons you can eat

When Madhur Saluja ordered biryani at a Bangalore café in December, he was surprised to find the cutlery that came with it was edible.

“It was actually really tasty,” says the 40-year-old IT manager, laughing. The spoon he'd been served was jowar cutlery made by Hyderabad-based Narayan Peesapaty, a former scientist with the International Crop Research Institute for Semi-Arid Tropics (ICRISAT).

As a scientist, Peesapaty says, he had become increasingly concerned about the ease with which Indians used, and discarded, plastic spoons. “Plastic is a petroleum derivative and contains toxic chemicals,” he says. “It’s not just bad for the environment, it’s bad for us too.”



A dinner plate by Anahata, made from areca leaves

Peesapaty isn’t the only one stepping up. Amid growing concerns over global warming, mounting garbage and rising pollution levels, three companies have begun to offer edible or even biodegradable cutlery and even dinnerware over the past two years.

While Peesapaty’s Bakeys offers edible spoons, soup spoons, forks, sporks and chopsticks in three flavours — plain, sweet and spicy, 18-month-old Shunya Alternatives offers bowls, plates, meal trays and takeaway boxes made from wheat-straw and sugarcane fibre. And month-old Anahata founded by former copywriter Alok Banerjee, 28, makes dinnerware (including soup bowls, plates, and spoons) from areca leaves.



Anahata, a month-old company set up by former Mumbai copywriter Alok Banerjee, 28, makes dinnerware (including soup bowls, plates, and spoons) from areca leaves.

“We first thought of creating an alternative when we were at Mumbai’s Juhu beach three years ago and saw the waves of plastic and Styrofoam littering the sand,” says Yash Maniar, 24, who set up Shunya with his sister Sachi, 27, in Mumbai, incubating the idea at Germany’s Do School.

“We picked wheat and sugarcane because both crops are grown across the country and we can use the chaff that otherwise goes to waste.”

Since areca leaf and the chaff have high heat-resistance, the products made by Shunya and Anahata are microwavable, in addition to being freezer-friendly and water-resistant.

Back to basics

The aim, say Peesapaty, Banerjee and the Maniars, is to steer people away from non-biodegradable options and back towards traditional alternatives that produce near-zero waste.

Bakeys, for instance, is a take on the Indian tradition of lifting food with a chapatti or a sukha puri. And Anahata draws on the leaf-based platters and pudis of coastal Maharashtra, Karnataka and Tamil Nadu.

Even if Saluja had wanted to throw away his spoon rather than eat it, for instance, he could have done so without any guilt, because it would have been devoured by insects, dog or birds, or —as with the products on offer by Anahata and Shunya — broken down into its natural components in a matter of days.

Scale and distribution are something all three companies are still working on. At Shunya and Anahata, the minimum order is 25 pieces, with prices per piece starting at Rs 80 and Rs 125 respectively.

Bakeys was launched in December 2013 offering limited delivery for bulk orders only, but scaled up in March and now has a minimum order of 100 pieces (which costs Rs 275) and delivers across India.



Bakeys edible spoons do not droop or melt in liquids. They come in three flavours — plain, sweet and spicy. Optional add-on flavours include onion and tomato, garlic, and ginger.

Already, in the last case, the benefits of scaling up are showing. Where Peesapathy had 20 clients before March, he has since had over 2,700 orders for cutlery worth Rs 5.5 lakh.

“We mortgaged our family house to fund the initiative,” says Peesapaty, whose operation consists of his wife and 10 workers. “But we knew it was an idea that would work, and we are now seeing interest from investors too.”

Meanwhile, as retail orders trickle in, the largest customer base for all three product lines is café and restaurant chains, wedding caterers, and event planners.



Bakeys spoons are made from wheat, jowar and rice flour, which is packed into moulds and baked.

In Mumbai, for instance, the trendy Kala Ghoda Café is among Shunya's 40 hospitality clients across 12 cities, including Mumbai, Delhi, Pune, Goa and Indore.

"We decided to turn fully organic in December and went looking for eco-friendly cutlery at various exhibitions," says café manager Sayeed Shaikh. "That's when Yash got in touch with us and we have since bought 1,000 forks and spoons and 500 takeaway containers from him every month. All our takeaway orders now feature Shunya."

In Hyderabad, event management company Royal Treat Hospitality Services has used Bakeys cutlery at 20 events since April 2013.

"We've used the spoons and forks at weddings, cocktail parties and business conferences. I love the concept and so do my clients," says Krishna Jakka, 52, owner of Real Treat.

Retail customers are snapping them up too, encouraged by their durability and uniqueness.

"I ordered 50 Anahata plates for my daughter's birthday party on April 7 and I am amazed by how sturdy they are," says Pallavi Ajmera, 38, a chartered accountant from Mumbai. "Friends at the party were asking where I got them."

These are great initiatives and have the potential to reduce the use of plastic, says Chandra Bhushan, deputy director general at the independent Delhi-based thinktank Centre for Science and Environment. “Though there is pressure to reduce the use of plastic bags, not much is being done about plastic cutlery, whose use is growing at a phenomenal rate. We must do everything to reduce its use.”

THE HINDU BusinessLine

Green spell for farmers on the cards

Skymet predicts above-normal monsoon rainfall but some pockets may receive less

The India Meteorological Department has predicted above-normal rainfall this year in the June-September period at 106 per cent of the Long Period Average (LPA), with a model error of +/- 5 per cent.

The chances of a below-normal or deficient monsoon is only 5 per cent and 1 per cent, respectively, as the El Nino conditions are set to moderate. “Analysis of previous data shows that monsoon season rainfall over the country as a whole was deficient or below normal during 65 per cent of the El Nino years. However, over 71 per cent of the years followed by El Nino years, monsoon was normal and above the LPA. The latest forecast from the Monsoon Mission Couple Climate Model indicates that El Nino conditions will weaken to moderate or weak levels during the first half of the monsoon season...”

This is good news as it comes after two successive years of deficient monsoons. In 2015, the south-west monsoon ended with an overall deficit of 14.3 per cent after a deficit of 11.9 per cent in the 2014 monsoon as well.

The country’s foodgrain production has hence dropped sharply. From a record production of 265 million tonnes in 2013-14, it dropped to 252.02 million tonnes in 2014-15 and is estimated to be at 253.16 million tonnes in 2015-16 with crops such as sugarcane, tur, coarse cereals and soyabean likely to see a 4-12 per cent drop in output.

With two successive years of drought, the water level in major reservoirs across the country has also diminished. Currently (as on April 7), according to the Central Water Commission (CWC), the total water stored in 91 reservoirs that it monitors is 37.92 BCM (billion cubic meter) which is less than a fourth (24 per cent to be precise) of their capacity and 77 per cent of the average availability during the last 10 years.

Compared to the same time last year, the water available is just 69 per cent. Of the five regions, the south, which includes Andhra Pradesh, Telangana, Karnataka, Kerala and Tamil Nadu, is the worst hit. In the 31 reservoirs in this region monitored by CWC, the total water available as on April 7 was 8.08 BCM — which is just 16 per cent of their capacity and 27 per cent of the average storage of the last 10 years. If 2016 turns into a drought year again, farm production will be severely hit.

Risky regions

Though it is expected that the country may receive above-normal rainfall in this year's south-west monsoon season, there are areas that are likely to see lower rainfall. GP Sharma, Head-Meteorology, Skymet, says, "Even the best of monsoons leave some districts with scanty rainfall. So, this year too, though pan-India it is going to be a good monsoon, south-east parts of the peninsula that includes Tamil Nadu, parts of Karnataka, Rayalaseema, along with north-east India may see low rainfall..."

The west coast and central parts of India, which were hit by a severe drought in the last two years, should, however receive good amount of rainfall, says Skymet.

This includes Marathwada and Vidarbha in Maharashtra. Last year, more than 3,000 farmers in Maharashtra had committed suicide due to mounting debts, according to the Centre's data.

Inflation outlook

The drought and subsequent crop failures have hit farmers badly. Consumers, though, didn't feel the heat much as the crash in commodity markets globally gave them the needed relief.

Recent data shows that CPI inflation hit a six-month low of 4.83 per cent in March with a drop in food prices (5.52 per cent in February to 5.27 per cent March), especially pulses, and lower inflation in fuel prices.

However, depending on the diet pattern of individuals, inflation may still pinch, as the prices of pulses are still 30-35 per cent higher over last year. So, a good monsoon is crucial to bring down prices of key food items.

Madan Sabnavis, Chief Economist, CARE, says, “The forecast from IMD does not tell anything more than the assumption of ‘normal monsoon’ which we do take into account when forecasting inflation for the year. So, we believe that inflation will hover in the range of 5-5.5 per cent with food inflation also in the same range.”

So, what’s the outlook on pulses specifically? “It depends on how the monsoon spreads to the Deccan area which grows tur and urad. The chana crop this year is sub-normal, which tends to push up prices of the entire basket. Therefore, careful monitoring is essential to ensure that we can import in case of shortfalls. Only then can price rise be negated. The MSPs will also play a role as we tend to increase them sharply whenever there is crop failure in the previous year,” he adds.

Business Standard

Rains alone won't help; India needs reforms

Key farm inputs like seeds and fertilisers still suffer from needless controls and official interventions

Optimistic forecasts of this year's monsoon have, predictably, caused much cheer. It is hoped that it would lift agricultural output and incomes, stimulate rural demand for goods and services and restrain food inflation.

The confidence on this count is not confined to the sectors that are likely to benefit directly from the impact of normal rains on agriculture, such as suppliers of inputs like seeds, fertilisers, pesticides and farm equipment or the bulk consumers of agri-commodities for processing and trade.

It spills over to a variety of other sectors as well, such as the auto industry, consumer goods, construction and a whole range of services which can potentially benefit from the expected higher disposable income in rural areas.

Reserve Bank of India (RBI) Governor Raghuram Rajan has indicated that a rate cut might be considered if the monsoon is good and inflation remains moderate.

The India Meteorological Department (IMD) has predicted monsoon rainfall this year will be six per cent above the long-period average.

This is in line with the projections made by many other weather forecasters, foreign as well as domestic.

The most notable feature of these prognoses is that the rains are likely to be fairly well-distributed. Northeast and parts of southeast India - Tamil Nadu and adjoining Rayalaseema - may face some rainfall deficit but that may not be large enough to depress farm output to any significant extent.

However, after the well-founded initial excitement, the economic pundits are now realising that good times are still some distance away.

Any advantages would begin to accrue only from the second half of the current financial year, October onwards, when the kharif crops are harvested and marketed. In the meantime, rural distress may worsen further.

An important point to bear in mind is that though ample rainfall enhances chances of a good harvest, it does not automatically assure higher farm incomes. That depends on numerous other factors, the most notable among them being competently managed input supplies and efficient marketing of output. These, sadly, are the areas which have not received due attention.

Key farm inputs like seeds and fertilisers, for instance, still suffer from needless controls and official interventions.

Recent capping of the sale price of Bt-cotton seeds and the continued government control over the most consumed fertiliser, urea, are cases in point. While the price caps on hybrid seeds and indecisiveness on the fate of genetically modified seeds tend to deter private research on seed

improvement, the failure to liberalise the urea sector has frittered away the likely gains from the nutrient-based subsidy policy.

This apart, the irrigation sector which is vital to impart drought resilience to agriculture, has not seen any worthwhile reform. The state governments' tendency to supply power free or at highly concessional rates to the farm sector is proving counterproductive.

In the pesticides sector, circulation of spurious chemicals is rampant. They damage the crops and cause heavy losses to farmers. Agricultural marketing, too, remains by and large in a shambles despite initiatives to reform it by prevailing upon the states to amend their agricultural produce marketing committee (APMC) Acts.

The newly launched electronic platform for agricultural trading will take years to show results. Unless such vital aspects are suitably addressed and the farm sector is adequately reformed, gains from good monsoons may not be realised in full measure in the near future.



THE TIMES OF INDIA

NABARD to focus on farmers' producer organizations in Goa

Taking a cue from its experience in boosting agriculture and the union budget for 2016-17, NABARD (National Bank for Agriculture and Rural Development) has decided to focus on the formation of a farmers producer organizations in Goa over the next couple of years. NABARD aims to slowly guide existing farmers' clubs in the state towards a farmers producer organizations.

Transformation of farmers' club federations into producer organizations will build on the social mobilization of farmers' that has already taken place. The federations will thus require less handholding support compared to any other interventions, NABARD said.

In Goa, the number of farmers' clubs has touched 102 during 2015-16, with five new clubs launched in the last financial year. Most of the federations of

farmers' clubs are in the nascent stage of development with many of them still identifying their role.

Launched in 1982, the farmers' club programme aims at development through credit, technology transfer, awareness and capacity building and has led to the formation of over 1.50 lakh farmers' clubs in the country. NABARD noticed that lack of funds, unclear land titles and inability to compete caused quite a few of the clubs to turn dormant.

"Federating the farmers' provides an opportunity to reinvigorate the programme. Federating about 50 farmers' clubs in contiguous blocks will generate membership of nearly 1000 farmer which will make the federations sustainable. These federations can undertake economic activities to derive benefits of economies of scale," a NABARD official said.

Union finance minister Arun Jaitley had announced the creation of a producers' organization development and upliftment corpus (PRODUCE) in the 2016-17 Budget. As a follow-up, NABARD has decided to increasingly focus on reinvigorating the farmers' clubs in the state. During the last financial year, NABARD sanctioned a grant assistance of 18.12 lakh to mineral foundation of Goa for promoting two farmer producer organizations in South Goa district, out of which 2.10 lakh was disbursed.

NABARD's research has shown that productivity of small farms can be substantially increased through use of technology, mechanization and better support systems. Efficient cropping systems, aggregation of small and marginal farmers' through development of farmer producer organizations, value chain creation and market linkages can provide a significant boost to small scale farmers, according to NABARD.

NABARD Goa felicitated Nachinola Farmers' Club as the best farmers' club for 2015-16. A capacity building for adoption of technology programme was also organized by Nachinola Farmers club for South Goa district.

Swaraj Abhiyan launches helpline for farmers to air grievances

To provide a platform to farmers to air their grievances, the Yogendra Yadav-led Swaraj Abhiyan has started a helpline - 011- 66977663 - for them.

The move is aimed at enabling farmers to call them and record their '*Mann ki peeda*' (sorrows). The helpline has been named '*Mann ki peeda*' in an apparent dig at Prime Minister Narendra Modi's '*Mann ki baat*' radio programme.

"The Prime Minister narrates his "Mann ki Baat" but the government never pays heed to farmer's agony, which always goes unheard. To improve its anti-farmer image, the center has now launched a new campaign "Gram Uday se Bharat Uday Abhiyan."

"Jai Kisan Movement (Swaraj Abhiyan) sees it as an opportunity to bring to the fore the true voice of farmers before the country. A helpline number 011-66977663 has been released for the farmers, where problems being faced by villagers can be recorded. Jai Kisan Andolan will act as a carrier for the voice of rural people," reads a Swaraj Abhiyan press release.

It further reads, "The government has announced many programmes to be run in the campaign, from April 14 to April 24. Through these programmes, the centre claims that the government will hear the voice of every gram panchayat.

There is always a question of accountability and reliance in such campaigns and many a times such announcements prove to be an eyewash. Jai Kisan Andolan, being a responsible social movement, will try and ensure optimal utilization of the government campaign, and will bear the role of an independent observer.

Our aim is to project correct and factual information related to this campaign in the public sphere. Jai Kisan Andolan will ensure that real issues of farmers are communicated to the whole country."

Good monsoon forecast sends delta farmers' hopes soaring

Prediction of a good south west monsoon this year has indeed come as a shot in the arm for farmers in the delta region who have been keeping their hopes alive for a good kuruvai crop that is due for harvest in June. It also holds out hope for a bountiful samba crop that is cultivated in most parts in the delta region from October.

However, the farmers contend that the government has to make effective arrangements for storing excess water by desilting tanks and drainage channels. Water scarcity has restricted cultivation round the year to 8-10 lakh acres from 24 lakh acres in the past decade.

"Kuruvai cultivation is carried out in 4 to 5 lakh acres in Trichy district. Since 2011, there was no cultivation in most of these areas as there was no release from the Mettur dam," said Puliyur A Nagarajan, president, Tamil Nadu Horticulture Crop Producers Association.

"With no release from the Mettur dam for the four consecutive year, kuruvai farmers have started looking ahead for the samba cultivation in August," said Nagarajan, adding that the extent of kuruvai usually in about 13-18 thousand acres mostly in Lalgudi, Musuri and Manachanallur areas is actually restricted to 3,000 acres.

Farmers in the delta region have been incurring a loss of over Rs 1,000 lakh every year due to the failure of the kuruvai crop over the past few years. Alleging that 40 per cent of the funds allocated for desilting tanks and channels go to local politicians, Sivasuriyan said that apart from allocating funds, the government has to take measures to desilt tanks and drainage channels.

President of the Cauvery Delta Farmers Welfare Association Mahadanapuram Rajaram, however, said it would take at least two months for the reservoirs in Karnataka to reach their capacity even if there is good rainfall this year. Since that would mean the end of June, it would be too late for cultivation of the kuruvai crop, he said.

"The government must encourage alternate crops like pulses or cotton so that water could be utilised for samba cultivation. It has been over four years since kuruvai is taken up in the delta districts," he said. "There was a similar

prediction of overwhelming SW monsoon in 2013, but lack of preparedness led to wastage of 5-10 TMC water which drained to the sea, said Aiyalai Sivasuriyan, district secretary of the CPI-led Tamizhnadu Vivasayigal Sangam.

"Most of the tanks constructed several hundred years ago in Thanjavur that can store such excess water have not been desilted," said president of the Cauvery Delta Irrigation System Dikshidar S Balasubramanian.

While the AIADMK government had promised 16 new check dams across the Cauvery over five years ago, it has not been fulfilled, he said.

S Devadoss, assistant meteorologist, meteorological office at the Trichy Airport, says it was natural phenomena that whenever there is excess temperature during summer the subsequent monsoon would bring more rain due to wind flow from high pressure to low pressure areas.

Further, the rhythm of temperature fluctuation and wind movement is studied over the years, which would help predict rainfall pattern. On most occasions, the predictions have been correct and we can make planning based on the forecast, he said.

Rain damages standing crops

Unseasonal rain and hail storm have caused extensive damage to standing Rabi crops in Bhojpur district and most of the farmers are apprehending low yield.

A farmer of Ashdhan village Bihari Yadav on Wednesday said his crops of masoor (lentils), khesari, pea, mustard and wheat have been damaged to a great extent due to rain and hail during the last two days. "I fear, the output will be badly hit," said Yadav. Agriculture scientist PK Dwivedi said compared to wheat, lentils, gram and mustard badly hit. Even mango trees laden with flowers were hit. He said, "Lodging (faltening of crops) of wheat crop is likely to happen in some cases due to heavy rain and high velocity winds."

Bhojpur DM Birendra Prasad Yadav said the agriculture department is already conducting a survey to find out the extent of damage to the crops.

"After the completion of the survey, compensation to affected farmers will be given according to the disaster management rule," said the DM.

Meanwhile, CPI (ML) town secretary Dilraj Pritam said disbursement of compensation to affected farmers should be done at the earliest. He said his party has always been fighting for the rights of farmers and downtrodden people, and in future also they will keep fighting for the rights of poor farmers if the compensation gets delayed .

Opium crop destroyed in Varanasi

The team of Central Narcotic Bureau destroyed the opium cultivated in Rasoolpur village, a bout 1km from the district headquarters in Cantt police station area on Thursday. The opium was cultivated in four fields.

According to the narcotic inspector in-charge KK Srivastava, acting on a tip off that opium is being cultivated in Varanasi the CNB team led by superintendent DK Singh raided the village and found four fields under cultivation of opium. The opium crop worth of about Rs. 1 crore was destroyed at the field. He said that four persons including Laxmi Patel, Kale, Kamla Prasad and Ganishankar were involved in illegal cultivation of opium. They were booked under 8/18 NDPS Act.

The accused persons managed to flee from the village during the raid. Efforts were being made to nab the accused, he said.

‘PM crop insurance scheme revolutionary’

The uncertainty of weather has become one of the biggest deterrent for farmers all over the country. While in the north excess rains or floods destroy crops, drought, untimely rains, hailstorms etc cause huge damage almost every year in almost entire western states and Central India. And though there always have been some crop insurance schemes, the latest launched by the BJP government, the Pradhan Mantri Fasal Bima Yojna (PMFBY), is one of the best crop insurance schemes launched by any government so far, said Nitin Gadkari, Union minister for surface transport and highways on Saturday.

Gadkari, who visited the one-day awareness programme on the scheme organized by the Krishi Vigyan Kendra (KVK) at Central Institute for Cotton Research (CICR), claimed that about 50-70% of farmers will benefit from the scheme as compared to 30% farmers in earlier government schemes. "Government has created an outlay of Rs29,000 crore for the scheme in nationalized banks, which also covers the horticulture and cash crops. So far, all the schemes were more in the interest of banks instead of benefiting the farmers.

"The present scheme has the least premium of 2% and 1.5% for Kharif and rabi crops of the insured amount. Thus, it is a historic and revolutionary scheme. For minimum, partial or total losses the monetary benefits have been put at 70, 80 and 90%," said Gadkari.

Speaking in general about agriculture, Gadkari said that irrigation schemes should be taken up seriously by every government as well as the farmers themselves. "Government should ensure that all irrigation projects are completed at the earliest while farmers should ensure that in their area all desilting and deepening projects are taken up every year before the monsoon. Besides, drip irrigation should also be promoted." He insisted that the old saying of stopping the flowing water and letting the stopped water percolate be followed religiously by farmers.

Earlier, CICR director Keshav Kranthi also referred to the insurance scheme as a boon for farmers. He said with ever increasing input cost in cotton, the investment by farmers now three times more. "The investment in cotton had gone up from 21,000 per hectare to 74,000 per hectare. Farmers are also affected due to the uncertainty in cotton price which can crash anytime. Hence CICR has come up with certain desi varieties which have good staple length, some even better than Bt cotton," he said and suggested that farmers must take desi varieties using organic cultivation method.

Gadkari, besides visiting stalls of various agriculture institutes like CICR, Central Citrus Research Institute and state agriculture department, also inaugurated the cotton picker machine developed by CICR in collaboration with Mahindra & Mahindra.

Ramtek MP Krupal Tumane and CD Mayee, former chairman of Agriculture Scientists Recruitment Board (ASRB), also spoke on the occasion. CCRI scientist MS Ladaniya and KVK scientist RC Singandhupe were also present.

Arrival of summer onion crop increases

The average wholesale onion prices at the country's largest wholesale onion market at Laslgaon Agriculture Produce Market Committee (APMC) increased marginally on Wednesday compared with the rate on March 22.

The market reopened after 13 days of holidays on Tuesday. Now, the stock of late kharif crop has exhausted and the summer crop has begun arriving in large quantities in the market.

On Wednesday, there was not a single tractor or vehicle of late kharif onions in the market and the entire arrival was of summer crop, which has better shelf life compared with the kharif crop.

Sources from the Lasalgaon APMC said, "The arrival of late kharif crop at the Lasalgaon market before March 22 was around 7,000-10,000 quintals a day. But the after the re-opening of the market after 13-day holiday, the arrival of the late kharif crop has completely stopped."

"There was not a single vehicle of late kharif onion at the market on Wednesday. On the contrary, the arrivals of the new summer crop have increased a lot. From the 1,000 quintals per day in mid-March, the arrivals have now increased to 7,500 quintals a day. The arrival of fresh summer crop is expected to increase up to 12,000 quintals a day in a week or two," sources said.

Sources added, "The kharif and late kharif onions have a shelf life of less than 25 days and they rot thereafter. Hence, the farmers have no option but to sell the commodity at the prevailing market rates. On the other hand, the summer crop has a shelf life of six-seven months. Hence, farmers prefer storing them with a hope of getting better prices and bring the commodity to the market as per their requirement."

The average wholesale onion price at Lasalgaon APMC was recorded at Rs 825 per quintal on Wednesday, against Rs 760 per quintal on March 22. The minimum and maximum prices were recorded at Rs 400 and Rs 923 per

quintal, respectively. Around 7,500 quintals of onions were auctioned at Lasalgaon on Wednesday.

THE ECONOMIC TIMES

Traders fear rise in wheat price if reports of missing grain stocks in Punjab are true



Traders are also concerned that if the controversy is not resolved expeditiously, withholding of further food credit will lead to squeeze in funding.

NEW DELHI: Traders and grain procuring companies say if reports of missing grain stocks in Punjab are true, it could trigger a rise in wheat price in domestic and international markets.

India is the world's second largest wheat producer and consumer. Reports of 5-6 million tonne disappearing from godowns of Punjab have been doing the rounds for some time now. Although the state government has said all stocks procured have been accounted for, it has not assuaged traders' concerns.

"If news of stock disappearance from Punjab godowns turns out to be true, the situation can become very scary," said head of a global trading company based out of Gurgaon. "With current stocks as on April 1 around 14.8 mt, if this news of disappearance of 6 mt is true, you are looking at actual opening stock of 8.8 mt, which could be a 10-year low."

Traders ET spoke with said the government should revamp the structure of the Food Corporation of India (FCI) in order to make it more transparent and accountable. They said the situation reminded them of 2003, when FCI had done a stock adjustment of 5 mt of wheat on a single day, a situation that led the government to ban exports of the grain and prices firming up. "Currently, the supply side of wheat is of great concern due to two successive droughts and an estimated sharp fall in rabi production of about 8-9 mt in 2015-16.

Lower output and vanished wheat may trigger ideas of import, both on private and official account, sooner rather than later," said a leading grain trader from Delhi. "Pressure for immediate removal of import duty of 25% will build up and local market prices will be firmer. Speculation of Indian wheat import will further escalate international prices."

At present, French wheat is selling at \$174 (Rs 11,658) free on board (FoB) per tonne and Russian wheat is fetching \$182 (Rs 12,194) FoB (1\$=67 approx).

However, a trade analyst said as per clarification of the Punjab government and FCI, the matter appears to be of accounts reconciliation for several years due to change in "principles" redefined by the ministry for disbursement of credit to states for procurement of grain after 2003-04.

"If such 'principles' relate to accounting adjustments, then presumption of non-availability of stocks is meaningless. Such reconciliations may be pending with some other states as well," he said.

Traders cited earlier said if modified "principles" relate to disappearance of stocks, damaged, non-edible or non-saleable grains due to sub-standard specifications, it needs to reflect in FCI stock holdings. Carry-in position for 2016-17 will reflect a steep decline due to lack of physical and damaged stocks, they said.

Traders are also concerned that if the controversy is not resolved expeditiously, withholding of further food credit will lead to squeeze in funding and affect wheat procurement from Punjab.

Onion output to hit record high of 203 lakh tonnes in 2015-16



Onion output had dropped to 189.2 lakh tonnes in 2014-15 crop year (July-June) due to poor rains. The previous record was 194 lakh tonnes in 2013-14.

NEW DELHI: India's onion output is estimated to touch a new record at 203 lakh tonnes in 2015-16 crop year as favourable weather and better prices boosted acreage and crop yields, a government research body has said.

onion output had dropped to 189.2 lakh tonnes in 2014-15 crop year (July-June) due to poor rains. The previous record was 194 lakh tonnes in 2013-14.

"Onion production is going to be a record at 203 lakh tonnes this year. Better prices during the kharif (summer) season encouraged farmers to bring more area under onion in the rabi (winter) season," National Horticultural Research and Development Foundation (NHRDF) Director R P Gupta told PTI.

Favourable climatic conditions have also encouraged the rabi crop prospects and yields are expected to be better than last year, he said, adding unlike last year, there were no unseasonal rains and hailstorm this time.

Onion has been grown in 12 lakh hectare this year, slightly higher than 11.73 lakh hectare last year.

Stating that rabi onion crop condition is good at present, the NHRDF chief said total rabi output is estimated to be higher by 15-20 per cent as compared to year ago.

"The harvesting of rabi crop started in Maharashtra, Gujarat and Madhya Pradesh. It is only rabi onion which is stored for use in lean season. Farmers and traders have started storage of onion," Gupta said.

Around 45 lakh tonnes of expected to be stored in the current year due to availability of good quality of onion bulb in the market, he added.

On prices, Gupta said farmers are getting an average Rs 8 per kg in Lasalgaon in Maharashtra, Asia's biggest wholesale market for onion and earning minimum 20 per cent profit over the cost of production.

Nearly 60 per cent of India's annual output comes from the rabi season, while the kharif and late-kharif sowing seasons contribute 20 per cent each.

Rabi onion is grown in almost all states, but major growing states are Maharashtra, Gujarat, Madhya Pradesh, West Bengal, Bihar, Rajasthan, Odisha, and Uttar Pradesh.

Moving matches out of Maharashtra won't help farmers, GM crops will



Agriculture accounts for almost half of all employment but only 14% of GDP. India must move people out of agriculture into industry and services.

Two droughts in a row have caused immense distress in areas like Marathwada. The courts have ordered the Indian Premier League to move its cricket matches out of Maharashtra to conserve water. But this will not improve farm incomes.

Far more relevant would have been the ending of free canal water and free electricity for pumpsets encouraging inappropriate water-guzzling crops like sugarcane. Agriculture accounts for 80% of all water consumption. This can be halved by switching from field-flooding to drip and sprinkler irrigation.

Agriculture accounts for almost half of all employment but only 14% of GDP. India must move people out of agriculture into industry and services. Meanwhile, it must harness the latest technologies to improve farm yields and income.

Many farmers' organizations have long demanded the approval of genetically modified (GM) crops to raise yields. They have been opposed by various NGOs on pseudo-scientific grounds. Environment minister Prakash Javadekar needs to urgently secure approval for growing GM crops in the interests of both science and farming.

Two weeks ago, six farmer organizations demanded government approval to grow GM mustard, developed by Indian scientists. This will raise yields by 20-30%, and improve farm income by over Rs 1,000 crore. It will also reduce India's dependence on imported edible oil.

Farmers' leader Chengal Reddy says GM mustard and GM brinjal could replicate the stunning success of GM cotton. This has revolutionized cotton farming, doubled output and converted India from an importer to a major exporter of cotton. Like all crops, GM cotton needs constant improvement, especially against new pests, but its impact in the last decade has been stunning.

International NGOs like Greenpeace have enormous budgets and now channel millions of dollars into developing countries. Many Indian NGOs now depend critically on such dollar inflows for their jobs and budgets. That's why they exude passion on western green agendas like GM crops,

while saying relatively little about environmental disasters that India actually needs to focus on, like the destruction of aquifers by farmers getting free electricity, and diversion of scarce canal water to water-guzzling crops like sugarcane and paddy at the expense of crops like maize needing much less water.

The NGOs claim GM foods are unsafe. This is flatly disproved by the simple fact that in the US, which grows a wide variety of GM foods, over three trillion meals have been eaten without any adverse consequences. India has long imported and consumed edible oils based on GM soybean and canola. Cotton-seed oil extracted from GM cotton in India is widely consumed. There is not the slightest evidence of any harm.

The activists seek by hook or crook to delay genetically modified crops, using the courts and rented mobs financed partly by dollar inflows. In consequence, they have increased approval time in many western countries to seven years or more, raising the cost of bringing a new GM crop to market to almost \$150 million. This means only the biggest companies like Monsanto can afford to stay in the game. Thus the very activists that demonise Monsanto end up strengthening its market domination.

Sharad Joshi, India's most famous farm leader, used to say that most Indian greens were really "watermelons" — green outside but red inside. Marxists who can no longer sell the idea of the dictatorship of the proletariat have shifted to selling horror stories about GM crops. They claim to have scientific knowledge, but much bogus green "research" on the terrible fate that would hit Indian farmers growing GM cotton turned out to be as fictitious as the worst Stalinist literature.

Norman Borlaug, Nobel Laureate and father of the green revolution, was a great supporter of GM crops. He blasted anti-GM activists as ignorant alarmists spreading falsehoods. "There is no evidence that biotechnology is dangerous." A top science writer like Matt Ridley has long exposed the anti-GM campaign as hollow.

Dr Patrick Moore, a scientist and founder of Greenpeace, later left that organization in protest against its non-scientific opposition to GM crops. When I last met him, he was seeking funding to prosecute Greenpeace and other NGOs for "crimes against humanity." He said that depriving farmers

and hungry people of the benefits of GM crops was nothing less than a crime against humanity.

So Mr Javadekar, please dump the bogus objections of pseudo-scientific activists, and expedite approval of GM brinjal and mustard. Bangladeshi farmers are already growing GM brinjal, getting higher yields and incomes.

Ordinary brinjal needs 30-35 sprayings of pesticide against just five sprayings for GM brinjal. Pesticide levels in Indian diets are already dangerously high and need to be reduced. For the sake of consumers as well as farmers, let the GM revolution spread fast and wide.