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Aerobic' rice cultivation reduces water usage

The suitable areas include irrigated lowlands, where rainfall is insufficient to sustain rice production.

Present day conventional method of rice cultivation utilises 5,000 litres of water for producing one kg of rice than its actual requirement of 3,000 litres. About 2,000 litres is lost due to flooding and seepage losses. Further, decline in water table necessitates the need for improved water-use efficiency and water productivity in agriculture, particularly in rice cultivation.

Thus, the newly upcoming approach of rice cultivation called aerobic rice cultivation reduces water use in rice production and increases the water use efficiency. In simple words, growing rice plant as irrigated crop like cultivating maize and wheat in aerobic condition, where oxygen is plenty in soil.

The suitable areas for aerobic rice cultivation includes irrigated lowlands, where rainfall is insufficient to sustain rice production, delta regions where there is delay in water release from reservoir, irrigated system of rice cultivation, where

pumping from deep bore well has become so expensive and favourable upland system has access to supplementary irrigation.

Accordingly, Tamil Nadu, Jharkhand, Chhattisgarh, parts of Bihar, Odisha, Karnataka, and eastern Uttar Pradesh are the projected area where there is uneven distribution and frequent occurrence of soil moisture limitation.

In aerobic rice cultivation, rice is cultivated as direct sown in non-puddle aerobic soil under supplementary irrigation and fertiliser with suitable high yielding rice varieties. Throughout the growing season, aerobic rice field is kept under unsaturated condition and field is irrigated by surface or sprinkler system to keep soil wet. Therefore, water productivity is reported to be higher in aerobic rice by 64-88 per cent (calculated as grams of grain produced per kg of water input) and utilises 3,000 to 3,500 litres of water to produce 1 kg of rice compared to rice raised under transplanted flooded system.

Mechanised way of sowing

Further, aerobic rice cultivation system involves mechanised way of sowing with no puddling, transplanting and not need of frequent irrigation, which reduce labour usage more than 50 per cent, compared to irrigated rice. However, aerobic rice cultivation needs suitable rice varieties having the characteristics of both upland and high yielding lowland varieties to get good yield under the new unconventional system of cultivation.

Hence, these early-maturing varieties are with good seedling vigour, responsive to high input and tolerate flooding. International Rice Research Institute (IRRI) situated in Manila, Philippines identified several cultivars with high yield potential for this unconventional aerobic rice cultivation. A new improved upland rice variety, Apo developed by IRRI under aerobic rice cultivation system raised during dry season able to attain yield of 5.7 t/ha at IRRI farm.

In India, National Rice Research Institute (NRRI) (formerly Central Rice Research Institute (CRRI)), Cuttack, situated in Odisha, has developed rice varieties suitable for aerobic rice cultivation and so far six varieties were released suitable for this system, — CR Dhan 200 (Pyari) (4.0 t/ha), CR Dhan 201 (3.8 t/ha), CR Dhan 202

(3.7 t/ha), CR Dhan 203 (Sachala) (4.0 t/ha) CR Dhan 205 (4.2 t/ha) and CR Dhan 206 (4.2 t/ha) — which gives higher average yield compared to upland high yielding varieties. Two aerobic rice varieties MAS 26 and MAS 946-1 were also released from the University of Agricultural Sciences (UAS), GKVK, Bangalore, for the State of Karnataka, which is also said to be performing well under this system.

However, constrains in aerobic rice cultivation is increased weed growth, poor crop stand, crop lodging, high percentage of panicle sterility and root-knot nematode infestation. Importantly, high weed infestation is the major constraint for aerobic rice and cost involved in weed control is higher. Further, due to high infiltration rate of water and imbalanced availability of nitrogen makes the aerobic soil further ailing for micronutrients (iron and zinc) and rise in nematode population. Therefore, efficient nutrient management techniques along with integrated weed management are researchable areas for successful aerobic rice cultivation and research is in progress.

However, the yield of aerobic rice is comparable with transplanted rice and it has been reported from several countries. Thus, it is an alternative option to reduce labour drudgery and to increase water productivity. Further, in environmental point of view, emission of methane is lower substantially in aerobic rice.

Therefore, in recent days it is gaining momentum among rice researchers and farmers. However, extra care should be taken, since poorly managed field may cause partial to complete failure of crop, which might happen due to weeds and micronutrient non-availability.

A. Anandan, S.K. Pradhan and O.N. Singh
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National Rice Research Institute,
Cuttack

Water visionary

Ramaswamy R. Iyer was a bureaucrat with a difference, surely the finest in his tribe "A visionary on water issues," Sep.12). His intellectual prowess on policy issues knew no bounds. He produced a rich body of eloquent and forthright commentary on delicate water policy and environmental issues. His articles for *The Hindu* will certainly be missed and his rich legacy will always be cherished. Mr. Iyer will always be remembered as India's "water man" who was instrumental in drafting India's first national water policy way back in 1987.

Chitvan Singh Dhillon,
Chandigarh

I read with profound sorrow the passing away of Ramaswamy R. Iyer, a friend I deeply admired, not only as a brilliant author and contributor to your paper's columns, but for his enlightened views on critical issues concerning water. After a five-year spell in charge of forests and wildlife in the Union Ministry of Agriculture, I was entrusted with setting up a new Department of Environment in November 1980 under the ministerial charge of Mrs. Indira Gandhi. With my experience, I could not help feeling a deep concern over the growing water crisis in our country. This was not only due to our disappearing natural forests and misuse of natural resources, but also on account of its growing exploitation through the government policy of engineering diversion of rivers.

I decided to seek an appointment with the newly appointed Secretary of the Ministry of Water Resources, somewhat sceptically, knowing the indifference with which such senior officials usually listened to concerns involving the environment. However, I was delighted when the new Secretary, Mr. Iyer, listened to me for one hour with rapt attention. From his searching questions, I had no doubt that he fully shared my concerns, suggesting at the end that I give a talk to the technical staff of his Ministry. I returned from the meeting not only having acquired a fine and brilliant friend, but also having found a committed crusader who, with his impressive scientific and technical backing, lent invaluable support to people's movements against the wanton exploitation of our most precious natural resource — water.

N.D. Jayal,
Dehradun

In the real classroom

The RAWEP is a unique programme of the University of Agriculture Sciences that blends theory and practise. A team of students camp at Karere village and work with farmers

For more than two months 13 students of Agriculture College at Karere near Hassan have been staying at Ganjalagudu, a village in Arakalgudu taluk. They spend most of their time with farmers in the field as part of the Rural Agriculture Work Experience Programme (RAWEP), introduced by the Bengaluru University of Agriculture Sciences three years ago. “What we learn in the classrooms within the four walls is different from the experience we gain through interacting and working with farmers in the field,” says Kshama A.V., final year student, who is one among 13 students camped in Ganjalagudu.

The village with a population of a few hundreds was chosen by the teaching faculty for RAWEP considering significant features of agriculture area. The farmers here grow paddy, jowar, potato, ginger, maize, banana and several other crops. The village is surrounded by the canals that supply water to paddy fields from the Hemavati reservoir at Goruru. As part of the RAWEP students have to stay in the village for three months, understand the crop pattern, give suggestions for increasing yield and educate them on modern cultivation methods and composting methods.

“When we came here in June 29,” said Kishor K.B., “majority of the farmers were cultivating ginger and potato. Vast tracts of potato had attracted late blight disease. Our priority was to safeguard potato crop. We gave them suggestions on medicine and could safeguard the crop in some farms. However, the yield is very less as there was no rainfall.”

The students soon after reaching the village conduct a survey on crop pattern, livestock presence and problems faced by farmers. Considering the fact that many families were depending on live stock for livelihood, they demonstrated azolla cultivation. Azolla which is provided as feed for cows increases milk yield. “Milk producers are happy that after azolla was provided as the feed, the quality and quantity of milk have increased. Now many farmers are developing azolla pits,” said Chinmayi M. Prasad, also a student.

The students have demonstrated azolla pit near the dairy, where the milk producers visit twice a day. Anand, a banana grower in the village, is happy that the students gave special interest to increase the yield in his banana farm. “I did not know how to go about bunch feeding of banana. The students did this in my farm. Now I can see the size of fruits is increasing with it,” he said. Similarly, the students have cultivated paddy using varieties of seeds, which are not yet familiar among the farmers,” said Sandesh G.M, another student.

The college has divided final year students into six groups and they have been sent to six different villages in Hassan district under this programme. With the help of local people, they have found accommodation in schools and houses. Coordinators of the RAWEP Dr. G. Nagesh, Dr.H.M. Manjunath and Dr.E.R. Umesh keep visiting the village and give students instructions whenever they need.

They have developed a kitchen garden, to spread awareness among farmers about making use of space available around the house to grow vegetables. Dr.H.M. Manjunath, one of the RAWEP co-ordinators in the college, said that the students were doing a good job in the village. “They constantly interact with farmers and with that they learn. While farmers share their field experiences, students inform them about scientific advances. This activity helps both students and farmers,” he said. Dr.H. Shivanna, Vice-Chancellor of UAS, Dr. L. Manjunath, Dean of

Agriculture College in Karekere have visited the village and appreciated the students' work.

The students soon after reaching the village conduct a survey on crop pattern, livestock presence and problems faced by farmers

Bridge across Mullaperiyar soon

A forty-year-old dream of people in Kottur in Theni district would become a reality in three months as a bridge across the Mullaperiyar is ready.

The 7.5-metre wide bridge across the river, connecting Koozhiyanur and Kottur, and two approach roads - 1.6-km and 2.4-km long on either side of the bridge – to connect the villages and three culverts were being constructed at en estimated cost of Rs.5.34 crore by the PWD.

On completion of this bridge, people at Koozhaiyanur will reach Veerapandi Main road without difficulty. It will benefit farmers to transport agriculture produces to the wholesale market in Theni. Students in several villages in Bodi and Thevaram unions will easily reach Kottur, which has several educational institutions, including government polytechnic college easily.

Deadline to cover crops under scheme extended

The deadline for covering crops under the National Agriculture Insurance Scheme has been extended to September 15. Farmers, who have cultivated crops after August 1, can apply for insurance against crop loss under this scheme. It is mandatory for farmers to get a certificate from the Revenue Department on the extent of cultivation and submit this to the bank.

Farmers, who have cultivated crops after August 1, can apply for insurance against crop loss

Three districts to benefit from PM irrigation scheme

The Departments of Agriculture, Public Works Department and Rural Development are working to prepare a District Irrigation Programme.—File photo

Soon farmers in Dindigul, Krishnagiri and Tirunelveli will benefit from the Prime Minister's Krishi Sinchayee Yojana (PMKSY).

The Central government has chosen the districts to implement this programme to take water to the last field in the areas.

Already, the Departments of Agriculture, Public Works Department and Rural Development are working to prepare a District Irrigation Programme (DIP).

Sources in the Agriculture Department said the DIP is being prepared by collating data from various projects being implemented by the departments. The DIP is likely to be ready by mid-October after which the State government will submit proposals to the Centre.

Of the three districts, only Tirunelveli has paddy cultivating regions. Farmers are into pulses, maize and black gram. Many farmers in Krishnagiri district produce vegetables or were into floriculture. Similarly, farmers in Dindigul produced vegetables and have taken up protected agriculture.

R. Rajappa, a farmer in Soolagiri block of Krishnagiri, said canals in their area were damaged and needed repairs. “Due to seepage, tail-end farmers do not get enough water and since the rains are not yet here the wells too do not have enough water. Repairs to the old canals would help increase vegetable production,” he said.

“By optimally using existing water sources and creating new sources, the idea is to bring more farm lands under irrigation. In dry areas, farm ponds and check dams will be created and old ponds will be revived. In areas that get water from wells, micro irrigation systems will be strengthened,” an agriculture officer said.

Under the PMSKY, existing schemes of water management have been brought under one head to efficiently use water. “Ultimately, other districts in the State will be brought under the scheme and a State Irrigation plan will be prepared. This is a long-term programme,” explained the official.

Recently, under the command area development programme, which has been brought under the umbrella of the PMSKY, the State has submitted a proposal for Rs. 21 crore for lining of canals to prevent evaporation and seepage losses and also taking water through pipelines for these districts.

V. Parasuraman, a farmer from Ponn Vilaindha Kalathur in Chengalpet, said many farmers in his area were finding it difficult to source water for irrigation.

“They have been waiting for solar-powered pumps for irrigation. There are several tanks in our district that need to be de-silted and revived. If our ponds and tanks hold enough water, groundwater too will get recharged automatically,” he said.

Farmers reduce use of chemical fertilizers

Even as the northeast monsoon cheered farmers in Theni district, especially in Cumbum valley and in rain-fed areas, progressive farmers in Chinnamanur have capitalised on the sudden showers that rocked the region last week by reducing use of chemical-based fertilizers.

Normally farmers apply fertilizers during milk stage, also known as ripening stage, for better quality and size of grains. Yield will be decided at this stage.
The recent rain was very useful to standing crops at this stage.

After flowering stage, milk and maturity stages were crucial for paddy crop to ensure better yield and quality, colour and size of the grains. Application of fertilizers would enhance the quality. But intermittent showers and sunlight would supply required nutrients to the plants, and there was no need for external source, said Chinnamanur block Farmers' Association office-bearer A. Ponnu Ram.

Hence, many progressive farmers had reduced the quantity of fertilizers to a minimum level based on the condition of soil and plants, not only to cut production cost but also to preserve soil fertility, he added.

Moreover, farmers had also reduced the quantum of water drawn from the river for irrigation following showers. The demand for water would also be reduced considerably in the coming months as crops would reach maturity stage, heading for harvesting.

The plants need only sunlight and a minimum quantum of water for better yield and quality grains. This would allow a good quantum of water released from Periyar dam to reach Vaigai dam. The paddy growers, however, were facing a problem in the form of attack by brown plant hopper. Though this pest attack was common in paddy fields, the intensity of attack by pests had started haunting them in Chinnamanur region. Meanwhile, scientists and agriculture officials inspected the area and suggested pest control measures recently, he added.

The rain had also expanded cultivation area under rain-fed crops in dry belts of the district, especially in Bodi and Andipatti regions, and improved storage level in several tanks.

Bar-coded identity cards for cotton farmers on the anvil

In continuation of its efforts to leverage technology for promoting transparency in cotton trading, the marketing department is proposing to o issue bar-coded identity cards to the cotton farmers in the district.

With the cotton trading activity set to begin next month, the department has lined up a slew of technology-aided interventions to minimise the role of middlemen and also to ensure minimum support price to the cotton growers at the market yard here.

Though e-bidding system was introduced on a pilot basis at the cotton market yard of the Agriculture Market Committee here in December 2013, the project faced ordeals in the form of opposition from a section of commission agents and traders in the beginning. The ambitious project ran into rough weather due to stiff resistance from some traders last year.

Even as the Cotton Corporation of India (CCI) is contemplating setting up a total of eight procurement centres in the district including two in Khammam market yard next month, the officials concerned have initiated steps to provide necessary facilities for the smooth conduct of the trading activity.

The agriculture market yard here is fully equipped with the requisite infrastructure including a computer room and a bidding hall for the e-bidding system, says P Prasad Rao, Selection Grade Secretary, AMC, Khammam.

A plan is on the anvil to bring the remaining commodities like chilli under the purview of the e-bidding system in a phased manner.
A proposal is in the offing to create an online database of the cotton farmers for issuing bar-coded identity cards to them.

The technology driven initiatives are aimed at eliminating the middlemen , ensuring hassle free and transparent procurement of the agriculture produce besides disbursing payments directly to the bank accounts of the farmers, he emphasises.

A meeting will be convened soon to create awareness on the technology-aided interventions among the farmers, representatives of farmers' organisations and traders, Mr Rao says.

Terrace fields

Paddy in a pot

R. Raveendran of Kochulloor is having a field day. Back in 2011, he entered the Limca Book of Records for harvesting a giant yam weighing 275kg. And he's just grown more successful with every passing year.

Raveendran is the only one in the area who grows paddy in flower pots on his 1,850sqft terrace "From 350sqft, I harvested 35kg of paddy. After reserving some for seed, I got 16-17kg of grains. I cultivate Uma, a variety that does not need much standing water. The remaining 1,500sqft is earmarked for vegetables," he explains. For his Onasadya, he harvested a part of the paddy and gathered all the vegetables necessary from the terrace garden. He only had to buy buy cucumber and drumsticks; that too because the cucumber was planted early. "Ever since I started growing vegetables, we eat only what is seasonal and grown here. We have to buy onions and potatoes but beet, carrot, cabbage, cauliflower are all cultivated. These vegetables are planted in October. Beans, tomatoes, chillies and brinjal can be grown all year round. So our Onasadya in August had curries made of vegetables like beans, amaranthus, green chillies, tubers, different kinds of brinjals, lady's fingers, tomatoes, ginger and bitter gourd." Raveendran also

cultivates different varieties of chillies, curry leaves, mint, lady's finger and ginger in grow bags and pots.

Raveendran, who hails from an agricultural family, returned to his roots after a stint in the Gulf. "I did not want my children to eat pesticide-filled vegetables and fruits. I have been practising terrace cultivation from 1998. Since my father and my grandfather were farmers, I was familiar with farming methods. All I had to do was put those into practice on my terrace and perfect them through trial and error," he says.

He also makes an organic manure called Hridayaamrutham from a mix of jaggery, cow dung, biodegradable waste and green leaves. Raveendran distributes this to people and charges them a nominal amount to buy ingredients to make the next batch. "I want people to make it at home but, if they can't do it, I give them the mixture."

However, the man with the green thumb is not resting on his achievements. He hopes to motivate others to set up their own terrace gardens and cultivate paddy too. "Facebook groups like Adukkala Thottam and Krishibhoomi turn to me for advice. I have given the members tips and information on seeds, growing methods, pesticide control, organic conversion of waste into manure… I also take classes for resident associations and colleges and schools. The agriculture department also invites me to take classes for wannabe farmers. I don't charge a fee or ask for remuneration but sometimes the organisers offer a small fee. My real reward is the number of terrace farms that have come up in the city."

Growing all he needs

He is a lawyer and an award-winning farmer. S. Sree Kumar grows an assortment of vegetables, flowers and fruits and also rears 25 quails and two hens — all in the750 sqft terrace of his home in Vanchiyoor. He has managed to harvest two types of tomatoes, different varieties of beans and amaranthus, cabbage, lady's finger, chillies, bitter gourd, brinjal, curry leaves, coriander, mint, papaya, passion fruit, lemon, jasmine and zinnia.

“Every home should be self-sufficient; we should cultivate the vegetables we need. For the last 25 years, my wife Gayathri and I have been growing our own vegetables. I have also installed solar electricity at home and, with a biogas plant, all the kitchen waste is turned into slurry, manure and biogas for our garden and home. Vermicompost turns organic waste into manure and vermin wash. All paper is burnt in a small furnace I designed. So our household generates practically no waste,” says Sreekumar with missionary zeal. “In places where there is less sunlight, we cultivate Azolla in small tanks. This is ideal feed for the quails and hens. Earlier, I also had grass carp in the tank but now I don’t have fish and have also taken a break from mushroom cultivation.” The couple does not use chemical fertilizers or pesticides and spends an hour in the morning and evening every day to look after their garden.

Green terrace

Ambika Remesh’s green thumb had always been the envy of her friends and neighbours. So when she heard of Raveendran’s experiment with paddy in a pot, she decided to try it out with his advice to guide her. Her family also pitched in to help her. The fruits of their labour are the golden sheaves of paddy on their terrace. “It is almost time to harvest it. From the 50 pots, we should get about 5 kg of rice,” says Gayathri Nair, Ambika’s daughter.

Media reports about use of harmful fungicides and pesticides motivated the family to grow their own food. Since they were already into terrace farming, all that had to be done was reserve a sunny space for the pots of paddy. Remeshan Nair, a former farm videographer with the department of agriculture, always encouraged his wife by helping her get the latest and best kinds of seeds and saplings for their home garden.

Once they are done with this harvest, the family is planning to expand the space for paddy.

Although Ambika is on a trip to Europe, the crop is well taken care of by Gayathri and her husband Muralikrishnan. “On every trip, no matter where she goes, my mother returns with some new plant or the other. Since we also have quite some space around the house, many fruit-bearing plants are planted there. In addition to

veggies like tomatoes, chillies and brinjals on the terrace, we have different kinds of papaya, passion fruit, rose apple, mango and so in our garden," says Gayathri. No chemical fertilizers or pesticides are used in their garden.

"Any one can cultivate vegetables and paddy. All that one needs is enthusiasm," says Gayathri.

Nature keeps tribal people healthy

Living in remote jungle habitations, like a good number of Adivasis in Adilabad district do, can throw up numerous problems but there is a brighter side to it too. Proximity to greenery keeps the inhabitants in good health in general and not many get inflicted with diseases like high blood pressure, diabetes or asthma, though consumption of tobacco is commonly prevalent in such villages.

"Children who live in areas with more greenery have a lower likelihood of being obese," says Reuben Chow as he quotes three studies on health benefits of living near greenery in the January 8, 2009 issue of *Natural News* , an American journal. In Adilabad, the Adivasis are not even over weight.

Famous Anthropologis Christopher von Furer-Haimendorf, among the early researchers to have worked in the tribal parts of this district, does not seem to have made mention of the general health of Adivasis in his books.

One of the apparent reasons is he found nothing amiss in this regard during his stay in the tribal heartland.

There are about 100 to 150 habitations in the agency and Tribal Sub Plan mandals considered remote as they are located beyond 10 km from the main road in forests or whatever is left of it.

Lower incidence of fevers

The inhabitants of these villages - like Movvad in Asifabad mandal, Mangi in Tiryani, Chinna Dhoba and Pedda Dhoba in Jainoor and the 12 villages on the route to Jodeghat in Kerameri etc exhibit a lower incidence of even seasonal fevers which have become a scourge in those habitations which are accessible and not situated close to greenery.

“Yes, the incidence of diseases like asthma is lower among tribals living in the interior parts of the district,” concurred Deputy District Medical and Health Officer in the agency, T. Prabhakar Reddy. “Regular monitoring of the health of these tribals however, should not be ignored,” cautioned District Immunization Officer Thodsam Chandu, who had made a study on general health of Kolams a few years back.

The Gonds, Kolams, Pardhans and Thotties, subjects of the erstwhile Gond Kings of Chandrapur, settled deeper inside the thick forests of Adilabad after the kingdom was defeated by the Bhonsales about 250 centuries ago. Nothing much has changed in the far flung habitations but for some unmotorable roads connecting them to other places.

Training programme on mushroom cultivation and vermicomposting

A one-day training programme on mushroom cultivation will be conducted at the Tamil Nadu Agricultural University Information and Training Centre located at No.U-30, 10th Street, (Behind Jayagopal Garodia School) Anna Nagar, September 16, between 9.30 a.m. and 4.30 p.m.

Another workshop will be organised on vermicomposting on September 19, between 9.30 a.m. and 4.30 p.m.
Training certificates, lunch and notes will be issued to all participants. For details, call 2626 3484.
For details contact 2626 3484.

IFMR Capital bets on agri-finance

IFMR Capital, the Chennai-based non-banking finance company (NBFC), will be focussing on agricultural finance, a new asset class.

There are 8-10 NBFCs specialised in agricultural finance in India and the company will work with these NBFCs connecting the financially excluded class of clients in getting their funds, according to Kshama Fernandes, CEO, IFMR Capital.

In an interaction with *The Hindu* , Ms. Kshama said the company was working closely with clients in providing most optimal debt solution to them at every stage

of their growth. “We act not only as a structurer and arranger for our clients, but also as an investor and liquidity provider, thereby linking our own success to that of our clients,” she said. IFMR capital, for its part, would also invest 10 per cent of the fund requirement of clients, she said.

The other focus area for IFMR Capital was affordable housing finance, an interesting asset class with funding requirement ranging from Rs.5 lakh to Rs.15 lakh, mainly targeting consumers in villages.

She said IFMR Capital was working with 75 NBFCs, which were involved in providing capital to MSMEs and also extending small business loans finance (micro credit). These NBFCs were also offering other asset products such as vehicle loans including two-wheeler loans, to informal, self-employed segment. “Clients belonging to this segment do not have formal income documentation such as income tax returns and these NBFCs have developed and perfected a model for lending, based on enterprise income and cash flow assessment through personal discussions with them, backed by local knowledge and standard business templates,” Ms. Kshma Fernandes said.

Besides, IFMR Capital was working with some recently set up NBFCs by experienced professionals with exclusive focus on MSMEs lending to specific sectors such as education and textiles.

The company since inception in the last seven years, has arranged access to debt capital worth Rs.15,000 crore. In the last two years alone, it has concluded deals for more than Rs.7,000 crore.

Recently the company completed its collateralised bond obligation (CBO) for Rs.98 crore, comprising multi-issuer pooled non-convertible debentures. This type of bond issuance had happened for the time in India, Ms. Kshma Fernandes claimed.

The CBO issuers numbering 11, included microfinance companies and small business lenders whose end customers were either self-employed individuals from the financially excluded segment or the ones employed in informal sectors. The

CBO transaction, facilitated by IFMR Capital, was one of the best efforts by the company in developing scalable structures for meeting the requirements of its clients and investors, and worked as an efficient route for accessing debt capital, she said.

Promoted by IFMR Trust, IFMR Capital works towards the creation of a stable and inclusive financial system in India. It works with high quality originators so that they may deepen their presence and provide access to financial services to million of under-served households.

Now, loan waiver for horticulture ryots

Loan up to Rs. 10,000 would be waived for horticulture farmers in the State, Minister for Agriculture Prattipati Pulla Rao said while participating in the Rytukosam Chandranna programme at Gullepalli in Sabbavaram mandal.

He recalled the amount allotted for waiver of loans to the farmers being given by the government in spite of facing a deficit of Rs. 15,000 crore in State budget. Revolutionary changes were being brought through Agriculture Mission, he added. In response to a request made by MLA Bandaru Satyanarayana Murthy, the Minister announced that mobile Rytu Bazaars would be sanctioned and also special bus facility provided to the horticulture farmers of Pendurty and Sabbavaram mandals to transport vegetables to the urban areas.

Mr. Pulla Rao, Information Minister P. Raghunadha Reddy, Labour Minister K. Atchamnaidu and HRD Minister Ganta Srinivasa Rao distributed assets worth Rs. 92.28 lakh to farmers. An exhibition was organised by agriculture and horticulture departments.

During interactions with farmers at Antakapalli and Amrutapuram villages, Mr. Pulla Rao said online marketing facility is being introduced for horticulture crops. Mr. Raghunadha Reddy said farmers in Anantapur district, where water facility is meagre, are making a good earning through horticulture crops and wanted farmers of this region also to make use of modern technology and advanced methods in agriculture.

MP M. Srinivasa Rao, MLCs M.V.V.S. Murthi and P. Chalapathi Rao, MLAs, Collector N. Yuvaraj, Vice-Chairman of AP State Planning Board C. Kutumba Rao and others participated in the programmes.
At Anakapalle's jaggery market, Mr. Pulla Rao said the system of online sale of jaggery would be introduced in a phased manner.

Villagers get purified water

Residents of Ellapatti, a remote village near Margayankottai town panchayat in Chinnamanur union, can now get purified drinking water, thanks to commissioning of a water purification plant at the village at a cost of Rs. 6.5 lakh. Fifteen litres of purified water will be sold for Rs. 5.

People can insert a Rs. 5 coin into the water dispenser and collect water. The town panchayat has commissioned an ultra-modern water treatment plant at three places in Margayankottai town and one at Ellapatti village, one km away from the town. Each plant, fitted with high-power motors, has the capacity to produce 1,000 litres of pure water in an hour.

The plant has a separate collection tank to store purified water.

Earlier, residents had to run from pillar to post to collect drinking water. In summer, they had to trek a few kilometres to collect water for all purposes. The quality of water available at this village was also not good.

The groundwater was saline and unfit for drinking. Residents had hitherto been depending on groundwater with high TDS levels. With the commissioning of the plant, the TDS level in drinking water came down to a miniscule, said technical experts.

State Minister for Finance and Public Works O. Paneerselvam inaugurated the plant and launched the sale of water to public here on Sunday.

When contacted, Assistant Director (Town Panchayats) S. Sethuraman said that Thevaram was the first of the 22 panchayats in the district to launch this scheme as a pilot project, followed by Veerapandi town panchayat. Earlier on Saturday evening, the Minister also distributed baby kit, containing 16 items worth Rs. 1,000, to women at Theni Government Medical College Hospital.

A mechanical engineer shows the way in dates cultivation

K. Manivannan (40), a mechanical engineer holding managerial post in automotive sector, is showing how certain calculated manoeuvres and patience can make one succeed in dates cultivation, defying the climatic odds stacked up against the crop in the district.

He not only succeeded in getting good harvest using only organic manures and insecticides, but also able to build a brand name of his own for the produces within a short span of time.

It all began four years ago when Mr. Manivannan decided to utilise the two acre he inherited from his late father, who was a farmer, at Pongalur for agriculture, after a gap of 15 years. “Since employed as an engineer, I cannot compete with others by crops such as paddy, vegetables and maize that are primarily cultivated in the district which all needed daily attention. So I chose date palms for two reasons: even though climatic conditions and marketing prospects are unfavourable, I wanted to excel in a lesser explored terrain, and also only very little of my physical presence needed at the field level for the crop. Moreover, dates are rich in dietary fibre and nutritious,” he said.

He selected the Independence Day in 2011 to plant 150 palms and it started giving yield in the third year. “An interesting aspect was that break even of the capital investment has been achieved in second year itself. The yield also increases year by year and attains the maximum in seven years,” he said.

Since the atmosphere temperature in Tirupur from December to February when the palms usually flower, is around 19 to 20 degree Celsius in night, Manivannan uses sprayers to water the flowers which is essential.

“During the flowering time, the temperature in the area should be ideally down to 16 degree Celsius”.

The organic dates produced at his farm are now marketed under a brand name through four outlets he opened in Tirupur district. “I am planning to open outlets in Coimbatore district too soon”, he said.

Demand for commercially sustainable methods in raising seaweeds

Marine Algal Research Station (MARS) here has developed viable and commercially sustainable methods for cultivating 'Gracilaria edulis' and 'Gelidiella acerosa,' the two seaweed species, widely used in food and pharmaceutical industries and commanded good demand in the market.

A team of scientists, led by Senior Scientist M. Ganesan, has developed raft method for cultivating the two species and fishermen in the coastal hamlets of the Gulf of Mannar region are all set to take up the cultivation in a couple of months.
The research station had also developed the method of cultivating Geildiella acersoa in open sea using suspended stones to enhance yield and help the growers get better returns, Mr. Ganesan told *The Hindu* .

The station had established a model demonstration farm at Eranthurai seashore in Erwadi with funding support from Gulf of Mannar Biosphere Reserve Trust (GOMBRT) and imparted hands-on training to 20 fisherwomen. These women would begin cultivation in two months after getting funding support, he said.

MARS had approached the Fisheries Department, nationalised banks and GOMBRT to support the beneficiaries with funding, he said, adding two women could jointly set up 50 bamboo rafts at a total cost of Rs. 35,000.

They could cultivate the species and harvest Gracilaria edulis in 45 days and Gelidiella acerosa in 150 days. They could harvest about 15 kg of edulis and six kg of acerosa in each raft, Mr. Ganesan said.

“We proposed to rope in women fisherfolk in all the 25 hamlets in the Gulf of Mannar region in a phased manner,” he said.

These two species had huge demand in the market and the agar and alginate processing industries were presently importing the species from Mexico and Sri Lanka. The industries imported acerosa for Rs. 250 per kg and the growers in the Gulf of Manner could sell it easily for Rs. 120 per kg, he said. The growers could sell edulis at the rate of Rs. 50 per kg, he added.

Vaibav A. Mantri, Senior Scientist and scientist in-charge, MARS, said that there were 21 agar industries in the State but they were not functioning up to their rated capacity owing to short supply of raw materials.

Rabi crops to be cultivated in 3.5 lakh ha of land in Belagavi district

CULTIVATION TARGET SET FOR RABI CROPS

The Agriculture Department has set a target at 3,49,250 ha for cultivation of rabi crops and expects a total production of 7,38,277.80 tonnes of cereals, pulses and oilseeds in the district.

Joint Director of Agriculture V.J. Patil told *The Hindu* here on Friday that sowing for rabi crops would commence from September 15 and go on for about a month. And sowing for cultivation of wheat would continue till mid-November. Mr. Patil said it has been targeted to cultivate cereals in 2,40,750 ha of land, pulses in 93,000 ha and oilseeds in 15,500 ha. He said that the Karnataka Seed Corporation has been requested to distribute 44,000 quintals of seeds among farmers at subsidised prices through the Raith Sampark Kendras. — Special Correspondent

Seaweed farming with new triangular rafts

Marine Algal Research Station (MARS) has developed an improved method of seaweed farming by using triangular rafts, an innovative design best suited for deep sea farming, Vaibhav A. Mantri, Senior Scientist and Scientist in-charge, MARS, said.

MARS had developed the new method in collaboration with Structural Engineering Research Station (SERC), Chennai, he told *The Hindu* here on Sunday.

“We have tested the method in shore water and deep sea and propose to unveil the method for commercial cultivation after perfecting the design,” he said, adding the SERC helped MARS to improve the model and study the simulation system.

The triangular raft design, which was simple and cost-effective, had improved manoeuvrability and required no specialised training for assembly, and more importantly, it could be practised at individual farmer level, he said.
Preliminary studies inferred that the design increased yield substantially per unit of cultivable area and assembly of triangular raft, in inverted ‘V’ shape, helped to reduce the drag force to increase stability, J. Rajasankar, Chief Scientist, SERC, said.

The triangular shape also enhanced algae growing as it was likely to experience less force from sea waves and there would be only minimum loss due to breakage, he said.

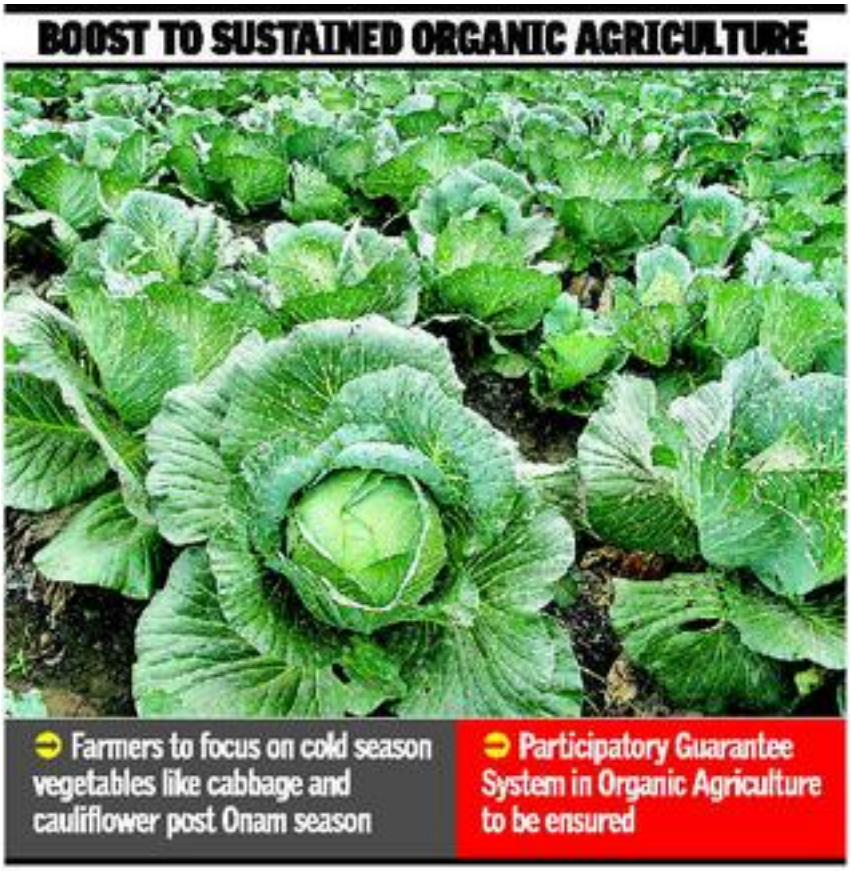
The other benefit of the triangular raft was that it allowed smooth flow of fresh seawater and “such a flow is confirmed to make continuous availability of nutrition to result in better growth of the algae,” Mr. Rajasankar said.
The pressure distribution in a triangular raft was found to be smooth compared to the rectangular raft, Mr. Mantri said. “We proposed to train the local seaweed growers and popularise the concept,” he added.
Currently square raft design was being popularly practised for cultivating several economically important seaweeds.

They worked well only in shore waters and could not be used in open sea, where currents were strong and destabilising forces dominant, he added.

Water level at Mettur

The water level at the Mettur Dam stood at 78.77 feet on Sunday against its full level of 120 feet. The inflow was 2,539 cusecs and the discharge was 15,000 cusecs.

Going organic in the winter



Organic farmers in the district are now focussing on key cold season vegetables like cabbage and cauliflower after the Onam season, which saw substantial quantities of organic produces hitting the market through temporary and permanent outlets that came up under the aegis of different organisations.

It is expected that at least five self-help groups will be set up in each of the local bodies for organic farming, said M. M. Abbas, who is coordinating the efforts for the district unit of the CPI(M), which had brought around 400 acres under organic cultivation ahead of Onam under a programme named *Jaivajeevitham* .

Mr. Abbas said that the Participatory Guarantee System in Organic Agriculture would be used to ensure that the produces were really organically grown.

The district administration and Greater Cochin Development Authority have joined hands to launch *Operation Adukkala* to bring organic farmers within the urban areas together and more than 5,000 farmers will begin their activities ahead of winter.
Veteran organic farmer Henry Suro said that the Onam season brought the need for organic farming into sharp focus.

M.P. Vijayan, secretary of Palliakkal Service Cooperative Society, which has brought 40 acres under organic cultivation in the Paravoor area said that there was no easing on organic cultivation of vegetables. He said that the cultivation would continue on a permanent basis as farmers were getting good returns for their efforts.
P. Rajeev, district secretary of the CPI(M), said that the organic vegetable shop at Edappally, opened ahead of Onam, would be expanded to sell other organic produces, including pokkali rice.

Green Remedies to boost organic farming

Green Remedies, a combine of agricultural officers under the aegis of Association of Agricultural Officers Kerala, has come forward to provide solutions to organic farmers in the State. The aim of the new venture is to provide help to farmers to follow the simple organic methods to produce safe vegetables and fruits, said John Sherry, district president.

The main objective of Green Remedies is to train people in organic farming and to provide information on pest attacks and their remedies online.
The new venture will begin by conducting activities in the Kochi urban areas under the Corporation of Cochin The activities will be inaugurated by Minister for Agriculture K.P. Mohanan on Monday at 10 a.m.

Fillip to terrace gardening: NGO initiates ‘go green’ theme

A Nagercoil-based NGO has taken all out efforts to promote terrace gardening under the theme ‘go green’ among its members in Kanyakumari district in a big way.

The efforts put in by the NGO in association with Green Agri Club headed by a retired agriculture department official Y. Rajakumar started yielding fruits, said C. Shoba, Director, Bhairavi Foundation here on Saturday.

On the sidelines of the valedictory function of the training programme for the third batch of 30 members on terrace gardening through organic farming, Ms. Shoba said that the foundation is conducting various training programmes on self-employment to home makers from poor background to help them eke out a living.

Of the 85 members who completed the one-year training programme on terrace gardening, fifty per cent of them have started establishing garden on their terraces and balconies.

Ms. Shoba said that by taking up kitchen and terrace gardening one could cultivate low cost, nutritive, and organically-grown fruits and vegetables by using kitchen waste, plant remnants and water.

Promoting kitchen and terrace gardening would encourage urbanities to segregate kitchen waste and use it as manure for plants in their garden thus helping in

effective management of garbage at source. It is mainly aimed at promoting vegetable and fruit cultivation, she said.

Loans

The foundation has arranged for loans from the lead bank in the district, Indian Overseas Bank, for raising terrace garden.

The home makers started getting the yield through organic farming. The yield got during the training period was auctioned by the foundation. The proceeds of the auction were ploughed back to the NGO to meet the expenses of the training programme, she said.

The training programme was held on the second Thursdays of every month for one year.

Organic inputs were given free of cost to the trainees.

Y. Rajakumar, Director, Green Agri Club gave the valedictory address. R.S. Lal Mohan, President, Nagercoil Chapter of INTACH offered felicitations.

How green is my roof?

Man with a mission

In two years, S. Natarajan, a retired agricultural officer, has motivated and trained over 200 people in Madurai to create gardens on their rooftops or balconies. It is a good start, he feels, even if it is begins with just a single pot. Growing vegetables at home shows that the movement is here to stay. “We should grow food and not ornamental lawns,” he says and believes housewives are the most effective agents of change in this green initiative.

When Natarajan started his own terrace garden after retirement in 2013, his wife — a Nursing Superintendent at the Government Rajaji Hospital — was the first to support him. “After the initial investment for trays, bags, seeds and manure, all I have given is an hour’s time daily and look what I get in return,” he says, pointing towards his 1500sqft rooftop.

Divided into two parts, one 750sqft has a green shed to grow seedlings in pro-trays. He transfers the saplings into small polybags and sells them at Rs.5 each. “I make it a point to talk, to explain and also give a sapling in order to create awareness.” In the remaining area, he grows plants in large trays and hydroponic bags and enjoys the yield round the year.

Natarajan grows green chillies, beans, lady’s finger, tomatoes, brinjal, drumstick, spinach and a variety of other greens. A bag of 5kg soil yields half to one kilo of vegetables within three months, while greens can be harvested every 30-40 days. Natarajan also runs a Agri Clinic and Business Centre, near the new bus stand, where he sells DIY kits and other supplies related to organic terrace farming. According to him, students and youths need to be drawn into the culture of terrace gardening because their generation will face shortage of space and water. “If more people take this up as a hobby, it will not only add to food production but everyone will also get to eat nutritious, tasty and healthy food,” he says, hoping that the State Government’s 50 per cent subsidy in supplies for organic terrace gardening will come to Madurai soon.

Better late than never

The desire to eat pesticide-free food and the plethora of articles on organic farming prompted Archana Deiva, a lecturer at the K.L.N.Polytechnic College, to start her own terrace garden. And, that was two years before 36 Vaiyadhinile released, she smiles.

Today she strongly believes there will truly come a time when only those who know how to plant will be eating. And that is why she has started a group called "Gather2Garden" (G2G) to promote the message that it is not too late to grow.

As a starter she began with growing the easiest – the greens – on 300 sq feet available space on her terrace. In less than a month, I got fresh green spinach and planted raddish next. That came in 45 days, she narrates. Then she bought more trays and now grows ladies fingers, chillies, brinjal, tomatoes round the year. Creeper plants such as snake gourd can be grown based on the appropriate weather conditions, she says.

Archana gets the harvest twice a week and it is enough for her own consumption. "My mother says vegetables grown in my terrace garden taste like what she used to eat in her childhood 50 years ago!" she says.

But what she is interested in is to get more people into growing their own food. I find the senior citizens are quite familiar with the basics of gardening. Young housewives who are lethargic and youngsters who grow up in apartments unaware about nature have to be motivated, she says.

Installing and maintaining your own terrace garden is like diverting yourself to doing exercise to keep fit," says Archana, who conducts workshops, educates students and provides packages to set up organic gardens in available space. On an average she does two installations per week. Since January, her G2G has got 100 members and she uses the forum to inspire more people to grow and consume fresh and organic produce.

Paddy transplanting machine raises returns

Taking cognisance of shortage of farm labourers, Agriculture Department officials on Wednesday demonstrated utility of machine transplanter at its State Seed Farm in Bhavani.

The demonstration carried out on a six-acre farm was in keeping with the State Government's keenness to utilise machineries and implements in crop cultivation, R.Savithiri, Assistant Director of Agriculture, Bhavani, said.

A new high-yielding paddy variety ADT (R) 49 was planted in the farm to convince farmers that the strategy will not only help in overcoming labour shortage, but also enhance returns by 20 per centage over traditional planting method.

As the seedlings are raised in the pro-trays, just one labourer could look after nursery preparations. Moreover, the seedlings are healthy and vigorous.
There is no wastage while uprooting the seedlings, and the transportation cost to move seedlings to the main field is minimized.
As the standard spacing is maintained in entire cropped area, utilisation of full sunlight is possible and each hill will produce around 60-70 productive tillers, which is the determiner of increase in yield.
Farmers could easily carry out intercultural operation with power weeder, Ms. Savithri said, informing that the Agricultural extension centre, Bhavani, has been

set 220 hectare target for machine transplantation with subsidy of Rs.3,000 per ha. So far, nursery for 200 ha has been prepared for machine transplanting.
On the whole, paddy will be cultivated in 4000 hectares in Bhavani block. Seeds and bio-fertilizers were available at Agricultural Extension Centre, Bhavani. Seed treatment is insisted to all the farmers during distribution of seeds, Ms. Savithri said.

Mat nurseries to cover 20 % of paddy area in Tiruchi district

The Agriculture Department is encouraging farmers to go in for “mat nurseries” as parts of its efforts to promote mechanised transplantation of paddy nurseries on about 10,600 hectares of land in the district during this samba season.
Seedlings raised in mat nursery are ideal for use of mechanical transplanters. The nurseries are established in a layer of soil mix arranged on polythene sheet or seedling trays.

Seedlings are ready for planting in about 15 days.
According to Agriculture Department officials the procedure would help maintain correct plant population and help farmers achieve better yield.

The Joint Director of Agriculture R. Chandrasekar inaugurated the sowing process under the mat nurseries at E. Vellanur and inaugurated similar nurseries raised in other village in Pullampadi taluk on Thursday.

Mr. Chandrasekar said farmers would be extended a back-ended subsidy of Rs. 3,000 a hectare for carrying out transplantation using transplanters under the National Agriculture Development Programme.

The department is planning to promote mechanical transplantation in about 20 per cent of the area covered under the samba season this year.

Paddy is expected to be raised on about 58,900 hectares in the district during the samba season this year.

Mat nurseries would be raised in the fields of progressive farmers to cover 20 per cent of the paddy area in all taluks in the district.

Farmers interested in availing the subsidy for mechanical transplantation should register their names with the Agricultural Extension Centres or officials of the Agriculture Department.

The back-ended subsidy would be credited to bank accounts of farmers concerned.

THE NEW INDIAN EXPRESS

Tackling drought: Jobless villagers find work in govt's water projects

Jayeshree Mahadeo Chavan (32), a resident of Ambi village in Bhoom taluka of drought-hit Osmanabad district, has enrolled herself for a job under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and now works as a labourer on a cement canal project from 10 am to 5 pm. She takes home Rs 181 after a day's work. The hitherto homemaker says she has not done this kind of work before, and that she is trying to get used to the hard labour. "I have always worked in the fields. It involved weeding out wild grass post Kharif season. At times, I would also engage in cutting the crops. Digging soil and carrying it from one end to the other for the cement canal is an altogether new job," says Jayeshree.

Village women in large numbers are volunteering to enroll for the water conservation work under the government's Jalyuka Shivar programme in this small village where men are diverting to dairy work to make a living. There are 25 Jalyuka Shivar schemes, including 10 well recharge, two farm ponds and canal repair works that would continue for the next 45 days. In rural Maharashtra, a large number of women take to "khurpan" — meaning weeding out unwanted grass in the fields post monsoon. It is less labourious and they can earn Rs 60-80 daily. This year, in the wake of drought, there is hardly any activity in the fields, leaving a majority of the rural villagers jobless. To sustain their livelihood, the state government has directed the district collectors to relax norms and employ villagers in Jalyukta Shivar projects under the MGNREGA. The amendment in the

guidelines, which has the Centre's sanction, is being enforced in all eight districts of Marathwada and parts of west and north Maharashtra.

The administration believes jobs and food would bring some relief and check migration from villages to cities. Chief Minister Devendra Fadnavis said, "Work to every hand is our motto. We have urged the district officials to coordinate with gram sabhas and village panchayats to proactively provide work under the MGNREGA." The state government has planned employment for 12.5 lakh villagers across eight districts — Osmanabad, Latur, Beed, Aurangabad, Nanded, Parbhani, Hingoli and Jalna. In the wake of crop crisis coupled with water scarcity, MGNREGA has been the most sought after in the districts of Solapur, and parts of Satara, Sangli and Dhule. A senior IAS officer in the Ministry of Revenue said, "In the last two months, the reports have been mixed. In some villages of Solapur, we have seen people report to work for a week and then discontinuing.

If they earn Rs 181 daily for a week, it helps them sail through a month as food is heavily subsidised, with wheat available at Rs 2 per kg and rice at Rs 3 per kg. While we have older farmers enrolling under NREGA, the same drive is not seen among the youth." However, Vikas Gaikwad, a member of the gram sabha in Osmanabad, said, "Many interior villages are still unaware of the scheme. In villages where panchayats and gram sabhas are active, NEREGA is catching up." Village sarpanch Uttam Gaikwad said, "NEREGA is a must to fight poverty in the drought-hit villages." Solapur District Collector Tukaram Mundhe has shortlisted more than 10,500 Jalyukta Shivar projects in these villages. He says there is no question of denying anybody work under the MGNREGA. –

THE ECONOMIC TIMES

Agricultural scenario looks fairly stable: CARE Ratings

MUMBAI: Despite poor rains in major crop producing states, the agricultural scenario looks fairly stable as area under cultivation has been higher this year for almost all crops so far, CARE Ratings said.

As on September 4, the total area sown under kharif crops increased by 1.97 per cent to 998.67 lakh hectares as compared to 979.40 lakh hectares in 2014 despite poor rainfall conditions, the rating agency said in its report here.

However, fears of a deficit monsoon came true, with rainfall falling below the Indian Meteorological Department's (IMD) initial forecast of 88 per cent of the long term average in August.

The country is witnessing one of its driest years as it received only 658.9 mm of rainfall against the normal 768.9 mm as of September 8.

The maximum rainfall deficit was seen in the southern peninsular region, which witnessed 22 per cent lesser rains from its long term average.

Central and north India, comprising areas of Madhya Pradesh, East Uttar Pradesh, Haryana and Punjab, received only 683 mm rainfall, from the normal level of 812mm.

Although the region has received deficit to scanty rains, well-developed irrigation facilities will keep agricultural production on course.

The country may witness higher pulses crop as area sown under pulses increased by 11 per cent so far this kharif season, it said.

CARE Ratings believes that with monsoon being in its last month, it is to be seen if the southwest monsoon, retreating from parts of northwest India, will provide some relief to agricultural output.

Rabi sowing, which begins after the kharif harvest, can be affected if unseasonal rainfall takes place as it is damaging for rice, it said.

Indian company to invest Rs 5,000 crore in Egypt's agro sector

CAIRO: In a major foray into agri-business sector in Africa, Indian corporate Embee International is in the process of acquiring 33,000 acres of land for farming in Egypt where it will invest over Rs 5,000 crore to grow pulses and vegetables.

The company, which is into textile business in Egypt for the last 28 years, said the land is being given to it by the Egyptian government on lease for 50 years which can be renewed thereafter.

Director of Embee International Sanjay E Khushalani said agriculture sector in Egypt has huge potential and the company hopes to get all the required permission for the "mega project" by next month.

"We are participating in the One Million Feddan land reclamation project of President Abdel-Fattah El-Sisi. We have booked around 33,000 acres. The land is being given on lease for 50 years," Khushalani told PTI.

He said the company has decided to invest between Rs 5,000-6,500 crore in the project which he claimed will be largest investment by any Indian company in Egypt and the first foray by an Indian firm in the country's agriculture sector.

The 'One Million Feddan (acres)' is one of the most ambitious project launched by Egyptian President Sisi after he came to power in June last year. It is aimed at reclaiming one million acres of farm land across the country that relies heavily on imports of basic foodstuffs.

Currently less than four per cent of Egypt's total land area is arable.

Khushalani said Embee International was looking at producing pulses, sesame seeds, tomato, onions and other vegetables on the land. He said the company will sell the produce in Egypt as well as in other neighbouring countries.

THE TIMES OF INDIA

Rooftop farming in Rajarhat gets nod

The state government is inching closer towards development of bio-villages and introduction of rooftop organic farming in Rajarhat New Town.

Union urban development minister Venkaiah Naidu on Saturday discussed about the issue as one of the major components of developing smart cities while conducting a workshop which was attended by senior state government officials.

The New Town Kolkata Development Authority (NKDA) will shortly hold a meeting with state agriculture department to chalk out plans to develop rooftop organic farming in New Town.

State agriculture department minister Purnendu Bose told TOI that his department has already started on working on the issue.

"Our officers are already working on the subject of organic farming to develop bio-villages. We are holding discussions with various NGOs and organizations who are involved in organic farming. We are trying to develop this new concept of farming not only in the urban areas of New Town, but also in the rural areas of Rajarhat," the minister said.

NKDA chairman Debashis Sen said that they would discuss the issue with the agriculture department.

"The concept of rooftop organic farming was presented as a component for developing smart cities. We will shortly work out a plan on this," said NKDA chairman Debashis Sen.

Last week, NKDA approved a proposal to allot three vegetable kiosks to various farmers' cooperatives in one of the newly constructed NKDA market complexes in New Town's Action Area 1C at concessional rates. The idea is to allow farmers to sell fresh vegetables in the retail market directly by bypassing the wholesale market through their cooperatives and self-help groups.

Two vegetable kiosks will be allotted to 'Dharampur SKUS' of North 24-Paraganas while one will be allotted to 'Baruipur Thana Large Sized Co-Operative Society' of South 24-Paraganas.

A senior NKDA official said that the move would benefit both the residents of New Town and the farmers.

He also said that the move would encourage formation of more such farming cooperatives or self-help groups who would sell fresh vegetables coming from district farms directly to customers without involving any middleman.

At present, only a few associations are using large rooftop space of highrises in New Town to do organic farming with the guidance of farming experts. But, its popularity is only set to increase in the days to come.

"Organic food products have already gained much popularity and the trend will only increase in the days to come. But, proper guidelines will have to be framed to

spread more awareness so that more people are encouraged to do organic farming," said an official.

West Bengal takes up Rs 500 crore scheme to improve agriculture productivity

Chief minister Mamata Banerjee on Sunday announced through Facebook a Rs 500 crore project to construct around 800 check dams, water harvesting structures and surface flow minor irrigation schemes in the three Jangalmahal districts of Bankura, Purulia and West Midnapore and in Birbhum. The scheme will help in improved productivity in the agriculture sector by preventing soil erosion and by recharging ground water acquifers.

The chief minister posted on her Facebook page "Our Government has taken up an environment-friendly scheme named 'Jalatirtha' to conserve surface and rain water to provide round the year assured irrigation to the people by construction of Check Dams, Water Harvesting Structures and Surface Flow Minor Irrigation Schemes. The Scheme taken up in four districts of Bankura, Birbhum, Purulia and Paschim Medinipur will help to prevent soil erosion, recharge ground water aquifers, improve production and productivity of agriculture, fishery, duck -rearing and animal feeding etc," the chief minister posted on Facebook.

The CM further posted "Around 800 structures like Check Dams, Water Harvesting Structures and Surface Flow Minor Irrigation Schemes will be constructed under Jalatirtha, which will help irrigate area of nearly 32,000 hectares benefitting around 64,000 farmers. Total cost of the Scheme will be around Rs.500 Crore," the CM's facebook post said.

How villages in Jaipur have become water-sufficient by using the simplest water conservation methods

Prahlad Singh and his friends look at each other, amused as they point to the handpump situated at the centre of their village. "This," he says drawing an arc in the air, "used to be the grand battlefield."

The stout middle-aged man, who works as a driver, cuts back to 2005. In those days there would be hundreds of women queuing up to fill their buckets. Invariably, there would be a few skirmishes over getting the buckets filled. But

sometimes it got worse and led to even more serious incidents with the men taking sides and beating up their neighbours.

"Life used to be miserable. There was always tension in the air and every morning would begin with the sound of people shouting at each other," adds Prahlad, a resident of one of the villages of Phagi block, about two hours away from Jaipur. As there was hardly any water for daily use, a bath used to be a weekly affair.

The high prevalence of fluoride in water also led to several children becoming physically challenged. Nand Singh, a farmer, says farming was also a difficult proposition and they could manage to grow only one crop a year. Due to the extreme paucity of water, every year hundreds of youngsters had to leave their villages in these parts and work in distant cities.

DECCAN Chronicle

Fodder production unit to cater to cattle soon

Chennai: To cater to the growing demand of fodder in the districts of Villupuram and Vellore, a first of its kind fodder production unit that is on the pipeline to

supply cattle feeds at subsidised that will be made available to farmers in the next 20 days.

The scheme is estimated to produce 2,600 tonnes of green fodder per year per unit and an average of around 350-400 animals per year per unit will be benefited from the fodder produced.

According to the officials from the Animal Husbandry department, the project will prove beneficiary to over 1,500 farmers in the northern districts of the state. The 101-acre unit of fodder will be grown initially at Kilveedi village in Vellore district and Pandhadu and Nagalpakkam villages in Villupuram and if successful, the scheme will be soon adopted in Tiruvallur, Tiruvannamalai, Dharmapuri and Sivagangai districts, said S. Thabaindiran, Fodder Development Officer, Directorate of Animal Husbandry and Veterinary Sciences.

“At a time when cattle fodder demand is rising and prices rising, this move has not just proven to be financially feasible, but also provide help in increasing the yield and quality of milk. For the past one week, I have been receiving one and a half liter extra milk,” said T. Narayanan, a farmer at Kilveedu who bought 10 kg of fodder.

The pilot project for fodder production in the state is implemented at a total cost of Rs 6.94 crore in the two districts that is jointly contributed by the state animal husbandry department, Tamil Nadu Veterinary and Animal Sciences University (Tanuvas) and the Rural Development department on which a tripartite agreement was signed.

“The excess fodder produced will be used as buffer stock and made available during the drought periods,” said S. Vijayakumar, Secretary, Animal husbandry department. “Most of these lands were used for cattle grazing from the time Britishers, but were later encroached by private parties,” said Dr Abraham, director of Animal Husbandry department.

Also, there are thousands of acres in the state that are unused and we are in the process of identifying such lands and make it suitable for fodder production, he added. “There is a 25 per cent scarcity for fodder in the state, and with these units we are looking to make up the demand in the years to come. When the farmer is

currently purchasing fodder at Rs 7 and Rs 8 from private units, the government has decided to give it for Rs 1.50," said S. Thilagar, vice-chancellor, Tanuvas.

THE HINDU BusinessLine

Embee to grow pulses in Egypt; will invest Rs.5,000 cr

In a major foray into agri-business sector in Africa, Indian corporate Embee International is in the process of acquiring 33,000 acres of land for farming in Egypt where it will invest over ₹5,000 crore to grow pulses and vegetables.
The company, which is into textile business in Egypt for the last 28 years, said the land is being given to it by the Egyptian government on lease for 50 years which can be renewed thereafter.

Director of Embee International Sanjay E Khushalani said agriculture sector in Egypt has huge potential and the company hopes to get all the required permission for the "mega project" by next month.

"We are participating in the One Million Feddan land reclamation project of President Abdel-Fattah El—Sisi. We have booked around 33,000 acres. The land is being given on lease for 50 years," Khushalani told PTI.

He said the company has decided to invest around ₹5,000-6,000 crore in the project which he claimed will be largest investment by any Indian company in Egypt and the first foray by an Indian firm in the country's agriculture sector.

Bank of Maharashtra launches soil and water health card for farmers

In a bid to help farmers increase soil productivity by appropriate use of fertilisers, Bank of Maharashtra has launched a soil and water health card which will help them ascertain the nutrient status of their farm lands.

"It will give farmers the level of nutrients available in their farm land so that they can administer correct dosage of fertilisers. This will help improve soil fertility and crop yield," bank's executive director RK Gupta told PTI.

The effort comes as lakhs of farmers in Maharashtra stare at a massive drought this year.

The state-focused lender is the only bank providing such facility and has already disbursed 500 cards in Bhigwan, Pune through Mahabank Agriculture Research and Rural Development Foundation.

The bank along with Rashtriya Chemicals and Fertilisers is analysing soil samples at its Soil Testing Lab in Bhigwan.

Food production will be higher this year: Jaitley

Buoyed by reports of ‘reasonably good sowing’, Finance Minister Arun Jaitley today expressed confidence that the country’s food production this year would be much more than last year’s despite less than normal rainfall.

“Information that has come is that sowing has been reasonably good and therefore the food production would be much more than last year. How much more is yet to be seen. I cannot accurately tell you the figure. Only at the end of the season, we will know the accurate figure,” he said.

Talking to reporters on the sidelines of a function here, he said even though rainfall was likely to be less than normal, food production would be much higher.

Asked about deficit rainfall this year, he said: “You had fair amount of rains in July, but in August it was a little low. September so far has not been satisfactory, but last two to three days, it has picked up.”

Although there were predictions, only after the monsoon season ended, the Meteorological department can give a final figure. “Of course by all likelihood it is going to be less than normal,” Jaitley added.