

18.07.2016

THE HINDU

Developing entrepreneursip



Amrita Centre for Entrepreneurship (ACE), Corporate and Industry Relations (CIR), Amrita University successfully concluded its first month-long Entrepreneurship Development Programme (EDP) last month.

J. Mohanasundari, Managing Director, Sharp Electrodes, introduced the participants to the excitement, realities and challenges in entrepreneurship, and provided highly insightful, prescriptive suggestions for achieving success and sustaining entrepreneurial ventures.

The modules dealt with topics like opportunities of entrepreneurship and schemes of assistance and support; business opportunity identification and guidance, project selection; consolidation of the idea, based on market surveys; developing entrepreneurial competencies among others.

Resource persons from the various fields in the industry offered their guidance. The group also met senior industrialists who form the Career Counselling and Guidance team of Coimbatore District Small Scale Industries Association (CODISSIA), for a one-to-one interaction.

Other external exposures included a visit to Procon Controls and Directorate of Agri-Business Development, Tamil Nadu Agricultural University (TNAU).

Participants were graduates or postgraduates in Science, Engineering and Technology. There were six women. While many of them worked in the private sector, their work experience ranged from one to 10 years.

One of the participants, Subi Prabhakaran, an MTech graduate, said, “I came here with a lot of questions. At the end, most of my questions have been answered. We are going back as entrepreneurs.”

Amuthan, who trades in paper cups and plans to manufacture them, agreed, “I came here without any idea of what financial concepts to follow, but now I have clear idea about the ins and outs of business.”

Hariharan, a mechatronics engineer from Nehru Institute, who is testing his start-up ideas by setting up stalls of egg-based dishes and milkshakes, said “I learnt about the financial aspects of business and we got a permanent stall in Krishna college after coming here.”

No match for mango's diversity



The list of mango varieties expands by the year, thanks to grafting techniques. Photo: G. Moorthy

The mango season is on, and along with it the usual debate about which is the best mango variety to have. My family claims that the Banganapalli or Benishan is matchless and nothing else can come even close. My ‘sambandhi’ family claims that the best is Ratnagiri or alphonso. And friends in UP swear by the Daseri.

This debate is remarkably akin to that concerning wines, and a never ending, never to be resolved one, since India has, at the last count, over 1000 varieties of mangoes. Yes, over a thousand varieties and the list expands by the year, thanks to the ease with which grafting of mango plants occurs. The Indian Council of Agricultural Research (ICAR) has three outstanding centres involved in mango research: the Central Institute for Subtropical Horticulture at Lucknow, the Indian Institute of Horticultural Research at Bengaluru, and the Fruit Research Station at Sangareddy in Telangana. Each of these has been doing yeoman service in the cause of the mango tree and fruit over the decades. In addition, the National Research Centre on Plant Biotechnology at Pusa, New Delhi has been analyzing the genome of the mango plant in order to understand its basic biology. A readable research paper has just been published from there by Dr Nagendra Singh and colleagues, titled: “The origin, diversity and genome sequence of the mango”, in the current issue of the Indian Journal of the History of Science (vol. 51, no.2, 2016), which is available free on the net.

This paper points out that the origin of the mango plant is still not definitely established. It has been variously claimed to be South East Asia, Assam-Burma region, or perhaps near Damalgiri, West Garo Hills in Meghalaya. This last claim comes from scientists at the Birbal Sahni Institute of Paleobotany, Lucknow, who analyzed the fossils of carbonized mango leaves from the Paleocene sediments there. With this comes the claim that the mango is of Indian origin and heritage. While genome sequence studies of the DNA of the plant should help establish the origin, the matter is still unclear. Though the genome of the mango is small (only 439 megabases long), the so called ‘heterozygosity’ complicates matters somewhat, and we look to a resolution of the issue soon enough.

That it is of Indian heritage is clear as one reads through the ancient epics, poems and texts of our history. The poet Valmiki wrote in his Ramayana about mango orchards in Ayodhya. Buddhist scholars and travelers carried mango plants from India to South East Asia and China. The Persians and Portuguese carried them to Africa and as far away as Brazil- and even the West Indies. While mangoes can be bought and eaten in these far away places, alas, none of them matches the taste, the sweetness, juicy pulp and glorious colour of those from our land.

We had recently gone to the Fruit Research Station at Sangareddy and had the pleasure of being taken around the plantation by Drs. A. Kiran Kumar, S. Venkatesh and P. Mahesh Kumar, and also given a copy of the

excellent book written by Dr. A. Bhagwan and others, containing exhaustive research on the various mango varieties. This group has been doing extensive and directly useful and applicable research, has studied and listed over 477 varieties, generated some tasty hybrids (Manjeera from Rumani x Neelam, and Neeleshan from Neelam x Benishan), and others with catchy names (Lal Sundari, Nazuk Badan). More importantly, they have standardized the propagation techniques, off-season fruiting through hybridization, and deblossoming, inter-cropping of brinjal and onions in young mango orchards, and in remarkably extending the life and yield of mango trees by as much as over 100 years by cutting off branches on a regular basis (bonsai of the top), self-grafting and other methods. Thanks to such translational advances, the area under mango plantation in Andhra Pradesh and Telangana has risen to India's highest at 0.45 million hectares, with a productivity of 8.6 tons per hectare. The farmers of the region have directly benefitted through such lab- to- land research efforts.

Why do we call it the king of fruits? It is not just the taste, the fragrance, the sweetness and the juiciness. The mango is a highly nutritive fruit indeed. Some people talk about 17 reasons why a mango everyday is very good for health. One cup of mango (about 200 grams) packs about 100 calories, high amounts of vitamin C and vitamin A, and several of the vitamin B family, good probiotic fiber, and good levels of potassium and magnesium. It is not just the fruit, even the leaves are claimed to carry health benefits. Apparently a decoction made of mango leaves might help in regulating insulin levels.

Then there is this never ending debate about whether one should eat the skin or peel of the fruit or not. People in Tamil Nadu eat the peel while those in the North throw it away. The peel too packs nutrition, digestive enzymes, antioxidants and cholesterol- reducing compounds in it. The taste of the peel, however, is not always inviting. At home, my father would eat the peel while my wife would not. The debate goes on. Ultimately- if you like it, have it and if you don't, don't!

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Seed festival seeks to spread millet cultivation

3.5 tonnes of seeds of millets distributed to farmers free of cost

Seeking to popularise millet cultivation and create awareness of the benefits of the fibre-rich nutritious cereal crops, 'Pasumai Vikatan' and Dharani Agro Research and Rural Empowerment (DARE) Foundation have jointly organised a seed festival and distributed free seeds to farmers.

More than 300 farmers from various districts of the State participated in the festival held at an integrated farm at Ettivayal, developed by Dharani Murugesan, a progressive farmer and founder of DARE Foundation. Addressing the festival, Collector S. Natarajan exhorted the farmers to go back to millet cultivation, which was not only cost-effective but was ideally suited for arid districts like Ramanathapuram.

The cereal crops consumed less water and required no fertilisation, he said.

Pointing out that the farmers had almost given up millet cultivation and totally resorted to paddy cultivation, he said farmers could evince interest in raising minor millets, which were rich in dietary fibre and nutritious.

Of late, millets had emerged as the highly preferred stable food by health-conscious people, he said.

He said the agriculture department had a stock of about 6,000 kg of millets, including sorgam (cholam), samai (little millet), varagu (kodo millet) and kudiraivali (banyard millet) in the district, and the farmers could get the seeds and take up millet cultivation.

The climatic and soil conditions would help the farmers in reaping a good harvest.

Presently, millets were cultivated only on about 6,500 hectares of the 1.98 lakh hectares of cultivable land in the district, the Collector said.

Mr. Dharani Murugesan distributed 3.5 tonnes of seeds of millets to the farmers free of cost at the festival. He also proposed to distribute seeds of at least half a dozen traditional paddy varieties such as 'Seeraga samba', 'Mappillai samba' 'Mysore malli' and 'Author kichadi'.

V. Meenakshi, Assistant Professor at Home Science College and Research Institute in Madurai, a constituent college of Tamil Nadu Agriculture University, informed the farmers of de-huller and de-stoning facilities available in all the districts to market quality millets.

Nirmala Kumari from 'Millets Magathuva Maiyam' and V.S. Vellaichamy, PA to Collector (Agriculture), explained the cultivation process of millets and the benefits of value addition.

Scripting a success story with polyhouse method



Achievers: The Phulekar couple inside the polyhouse in their farm. —
Photo: Gopichand T.

Amarnath Phulekar from Islampur village in Bidar district has tasted success by growing vegetables in a polyhouse built in his farm.

He has built a polyhouse on a one-acre plot. Mr. Phulekar scouted for a potent market for the red and yellow capsicum that he grows in this unit. He met a vegetable wholesaler in Pune and sold him his stock for an encouraging price of Rs. 100 per kg.

The polyhouse is drip irrigated and has foggers to maintain steady temperature in summer. Fertilizer and insecticides are mostly fed through the drip irrigation channels. The one-acre farm has a team of eight labourers working in two shifts, irrigating the beds, strengthening the plants with sticks and wires and checking for signs of pest or insect attack. "Vegetables in a polyhouse are like babies in intensive care units. They need constant care," says Mr. Phulekar.

He plans to produce at least 25 tonnes of the high value vegetable in one year, at an estimated 60 per cent yield and continue selling it at these rates. “If we earn around 25 lakh per year, and spend around 30 per cent of it on cost of cultivation, we can repay the Rs. 40 lakh bank loan and achieve break even in two years,” Mr. Phulekar said. He got a 90 per cent subsidy for building the polyhouse from the Department of Horticulture under the National Horticulture Mission scheme. Mr. Phulekar’s one-acre polyhouse is the biggest project in the district. “We are also promoting 20 other, albeit smaller polyhouses,” says S.M. Baragimath, Deputy Director of Horticulture. The scheme provides 90 per cent subsidy to farmers from the Scheduled Castes and Scheduled Tribes and 50 per cent to others.

Mr. Phulekar is a diligent farmer who knows his numbers well. He says the most important principle is to reinvest money obtained from farming into improving crop cultivation practices. “Several times, farmers tend to take out money from farming and use it on family expenses. Such reduced investment cycles will not help farmers,” he says.

Mr. Phulekar plans to put solar panels on the top of an open tank meant to collect from borewells. He is buying hybrid and native breed of cows and buffaloes to set up a mini dairy on his farm. “We will use the slurry as an input for our ‘gobar’ gas plant,” Mr. Phulekar said.

Five years ago, he successfully cultivated bananas on his 20-acre plot and profited from it by ensuring that he got weekly and monthly harvests of various types. What is important, he shares his knowledge of agriculture and advanced farming methods with young farmers who visit his field. He also visits farm fairs organised by agriculture universities and colleges and organises field studies on his farm.

The polyhouse is drip irrigated and has foggers to maintain steady temperature in summer

Award for scientist

P. Suseela, Professor, Hi-Tech Research and Training Unit, Instructional Farm, Kerala Agricultural University, has been awarded the Swami Sahajanand Saraswati Outstanding Extension Scientist Award 2015 by the Indian Council of Agricultural Research (ICAR) for her outstanding contributions in the field of agriculture.

MADA office to be set up in Agriculture Department building

Excise and B.C. Welfare Minister K. Ravindra on Sunday said that the newly constructed agriculture department building on the Collectorate premises would be spared for Machilipatnam Area Development Authority (MADA) office. Mr. Ravindra accompanied by revenue officials on Sunday inspected the building. “The building site has space for constructing additional conference hall of least 1,000 seating capacity. We will held talks with the Agriculture Ministry,” said Mr. Ravindra.

He hoped that the special staff attached to the MADA for survey and other activities would likely to join the duty soon.

Who introduced agriculture to South Asia?

Scientists who analysed ancient human remains in Iran are piecing together the story of these Stone Age farmers

Scientists say a previously unknown group of Stone Age farmers may have introduced agriculture to South Asia, challenging earlier theories that attributed the spread of farming to a different population.

Previous research held that a single group of hunter-gatherers developed agriculture in the Middle East some 10,000 years ago and then migrated to Europe, Asia and Africa, where they gradually replaced or mixed with the local population.

But scientists who analysed ancient human remains found in the Zagros mountains of present-day Iran say they belonged to a completely separate people who appear to have taken up farming around the same time as their cousins further west in Anatolia, now Turkey.

“There was this idea that there’d been one group of genius inventors who developed agriculture,” said Joachim Burger, one of the authors of the study published online on Thursday in the journal *Science*. “Now we can see there were genetically diverse groups.”

Scientists from Europe, the United States and Iran who examined the DNA of 9,000 to 10,000-year-old bone fragments discovered in a cave near Eslamabad, 600 kilometers southwest of the Iranian capital of Tehran, found they belonged to a man with black hair, brown eyes and dark skin.

These humans ate cereals

Intriguingly, the man's diet included cereals, a sign that he had learned how to cultivate crops, said Fereidoun Biglari of National Museum of Iran, who was also involved in the study.

Researchers were able to piece together a picture of a population whose closest modern relatives can be found in Afghanistan and Pakistan, and among members of Iran's Zoroastrian religious community, said Biglari.

The Zagros people had very different genes than modern Europeans or their crop-planting ancestors in western Anatolia and Greece, said Burger, an anthropologist and population geneticist at Johannes Gutenberg University in Mainz, Germany.

Burger said even though the two ancient farming populations didn't mix, it's probable that they knew of and even learned from each other, given that the development of agriculture is highly complex and therefore unlikely to have spontaneously occurred twice around the same time.

"You have to build houses, clear forests, cultivate several plants and ensure a plentiful supply of water. You also have to domesticate several animals, be able to grind flour, bake bread," said Burger. "This is a huge process that takes several thousand years."

Burger said the findings could help shed light on important developments in human history that have been neglected due to researchers' long habit of focusing on ancient migratory movements into Europe. AP

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Agri fair attracts farmers

The 16th edition of Agri Intex, an agriculture fair, is attracting farmers from different parts of the State. On Friday and Saturday, nearly 50,000 people visited the exhibition.

With 400 exhibitors, including those from other States and foreign countries such as China, Italy and Germany, the fair has a wide range of machinery, appliances, farm inputs, seeds, and accessories.

Live demonstrations of irrigation systems and farming methods, model farms, sale of products, and details of government schemes are available at the fair. The expo is organised by Coimbatore District Small Scale Industries Association (CODISSIA).

About 80 per cent of the exhibits are machinery. So far, mostly large machinery was displayed at the fair. This year, affordable and smaller ones are exhibited, said R. Shasi Kumar, chairman of the event. Yet, mechanisation in farming is just 45 per cent and more ranges of affordable machinery should be made available, he said.

The products on display also showed the increasing use of technology in farming activities such as pumping of water and irrigation.

Mobile based applications, sensors, and digital displays are used now.

Solar energy systems are also used widely. Government departments, institutions such as Tamil Nadu agricultural University, and private companies have put up stalls.

At the India International Coir Fair, organised by the Coir Board and CODISSIA and which has 95 exhibitors, a wide range of coir products are on display.

From coir machinery and hydroponic grow bags to mats, and decorative items made out of coir, the exhibition has it all.

Exhibitors have come from Odisha, Gujarat, and Karnataka, apart from Kerala and Tamil Nadu. At some stalls, artisans make the small products and take up bulk orders too.

Furniture made of coir wood, bags and umbrellas made of coir, vertical gardens using coir pots, and varieties of coir pith have been displayed.

The exhibitions are on at CODISSIA Trade Fair Complex on July 17 and 18.

Paddy cultivation during ‘kar’ season may be hit

In view of less rainfall during the southwest monsoon



BETTER PROSPECTS: A view of paddy cultivated near the Thamirabarani.— Photo: N. Rajesh (picture for representation purpose only)

With the southwest monsoon playing truant, farmers are not prepared to go in for paddy cultivation during the ‘kar’ season this year in a big way though all other factors associated with farming are conducive.

The State Government had waived crop loans to the tune of Rs. 164.82 crore, availed by a total of 21,326 borrowers in the district, from the Primary Agriculture Cooperative Banks.

The farmers, who should have started the ‘kar’ paddy season on a happy note, are not so enthusiastic as they are sceptical about the yield they may get during this season this year as the southwest monsoon that brings copious water into major dams in the district has belied their expectations.

After being blessed with excess rainfall during northeast monsoon last year – 1,421.07 mm rainfall against the annual average of 814.80 mm – farmers were gearing up for yet another paddy season after enjoying a bumper harvest in the ‘pisanam’ season as the weathermen had predicted above average rainfall during southwest monsoon also.

However, nature has dashed all their hopes as the district that should have received 275 mm rainfall between January and July, has so far got only 197 mm rainfall this year – a deficit of 28 per cent. The dams which had

the storage of 5,353.75 million cubic feet water during the corresponding period last year against the cumulative storage of 13,765 mcft (38.90 per cent) now has 4,474.32 mcft (32 per cent). Storage level in the irrigation tanks is also not impressive with 1,634 tanks including 724 systemised and 910 rain-fed tanks are bone dry. Against this backdrop, the farmers are not prepared to test their fortunes during this ‘kar’ paddy season.

“Though water has been released from the dams for ‘kar’ paddy season, the farmers are doubtful about the supply of water till the end of the season as rain in the catchment areas is far from satisfactory. Since the flow into the dams and the storage level of reservoirs will collectively decide their fate, agriculturists are not prepared to take the risk,” says S.T. Shaik Maideen of Vadakarai, a farmer.

Their fear reflects in the ‘kar’ paddy cultivation taken up so far during this season. Though Agriculture Department has originally planned to cover over 23,000 hectare under paddy during the ‘kar’ season this year, cultivation has been taken up only on 5,850 hectares till July 14.

“Anticipating good rainfall, we’ve stocked adequate inputs like certified seeds, pesticides, fertilizers etc. across the district. However, the deficit rainfall has compelled the farmers to believe that all is not well this time. So, farmers are going in for cultivation of millets and oilseeds like groundnut or sesame. The farmers may help us achieve the paddy cultivation target this time only if southwest monsoon becomes active at least in the days to come,” said an official.

TN records increase in food production, says Minister



Ministers R. Doraikannu (fourth right) and S.P. Velumani (third right) releasing the fair directory at the inauguration of agriculture seminar organised as part of Agri Intex in Coimbatore on Saturday. Deputy Speaker Pollachi V. Jayaraman (second right) and Mayor P. Rajkumar (second left) are in the picture. —Photo: S. Siva Saravanan.

Tamil Nadu has registered over 100 lakh tonnes of annual food grain production for the last five consecutive years, Agriculture Minister R. Doraikannu said here on Saturday.

He was speaking at the inaugural of the seminars organised as part of Agri Intex 2016 by Coimbatore District Small Industries' Association.

The Minister said the State produced 130 lakh tonnes of food grains in 2015-16. This was because of the priority given by the State Government to the agriculture sector. Three phase power supply was provided for 12 hours a day for agriculture connections now and loans to the tune of Rs. 5,780 crore were waived for small and medium-scale farmers. The Chief Minister has announced crop insurance scheme for farmers. These were efforts taken for the development of farmers and the agriculture sector. The aim was to double agri production and triple profits for farmers.

Minister for Municipal Administration and Rural Development S.P. Velumani said the State does not have power shortage problems now and the efforts taken by the Government in areas such as rain water harvesting and direct marketing of agricultural produce should be highlighted.

Coimbatore District Collector T.N. Hariharan said the exhibition has 320 stalls and over one lakh visitors are expected. It displayed machinery and value added products.

V. Sundaram, president of CODISSIA ,said the fair supports agricultural sector and it was getting visitors and exhibitors from different parts of the country.

R. Shasikumar, chairman of Agri Intex 2016, said 430 companies had put up stalls and solar energy technologies were highlighted at the event. Almost all the guests who spoke at the inaugural on Saturday pointed out to the organisers that the event did not mention or highlight the State Government or its schemes taken up for the agriculture sector.

Further, the master of ceremonies announced the vote of thanks even before the chief guest, the Agriculture Minister, spoke. Others on and off the stage had to prompt him about the inaugural address by the chief guest.

Campaign launched

Through the campaign 'Farmers First', the NDDDB has reached out to milk cooperative societies in the region with encouragement to develop and strengthen brands, with the idea of securing more returns.

Through training programmes, the farmers are initiated into the nitty-gritty of manufacturing and marketing quality products with brand names at the Southern Regional Demonstration and Training Centre at Chithode.

There are several dairy units with brand names in the district, and there was scope for more players to enter the market and run profitably, industry sources said.

Plant a sapling and send a selfie



Kabbalraj H.D., police sub-inspector, planting a sapling on the Kota police station premises in Udupi district.

Taking selfies is a now craze. But, a group of youth from Sasthan village near here has been putting this craze to good use. They have been promoting planting of saplings through a scheme titled 'Selfie with green'.

Formed about four years ago, this group, which calls itself 'Sasthan Mitraru', comprises 36 members.

Every year, they have been taking a social cause such as helping farmers, keeping six hamlets around Sasthan clean and so on.

Under the 'Selfie with green' scheme, people will have to plant a sapling in their house or neighbourhood and send a selfie taken to 8197407570 or email it to sasthan576226@gmail.com.

Those participating in the scheme will have to send three selfies or photographs. First of a barren ground, another one of the planting of sapling and third one of construction of a fence around the sapling, with a board giving the name and address of the person and the name of the sapling planted.

Vinaychandra Sasthan, team leader of ‘Sasthan Mitraru’ told *The Hindu* that so far they had received more than 700 selfies and photographs. “We have got some selfies and photographs from other districts also. We launched the scheme on July 1 and wanted to conclude it on July 31. There are a lot of requests to extend it by a month, so we are thinking of extending till August 31,” he said.

That’s not all. Those sending these selfies or photographs would be given prizes. “The prizes will be given depending on how the fences have been put around and other parameters,” said Prashanth, another member of ‘Sasthana Mitraru’.

In order to ensure that the saplings are taken care of properly, the group will be contacting all those who had sent selfies after six months and ask them to send selfies again of the saplings and plan to give prizes for best maintained saplings. “Selfie is only a medium. Our main intention is protection of environment,” Mr. Vinaychandra said.

Those who have participated in the scheme include K. Annamalai, Superintendent of Police, and Kabbalraj H.D., sub-inspector attached to Kota Police station.

Top choice for those with green thumbs

Take up terrace gardening as a hobby and have a regular supply of fertilizer-free greens and vegetables



L. Rajeswari who has turned her terrace into a herbal garden in Lourdu Nagarin Madurai.— Photo: G. Moorthy

Rapid urbanisation has transformed many cities into concrete jungles and Madurai is no exception as buildings have gobbled up green and open spaces.

With no beach or a river with water, there is nothing much to go out and spend quality time for city people ensconced within the four walls of their houses. For such people, terrace gardening provides a relief in the form of a useful hobby. Realising this, the State government has extended its promotion of terrace garden through Urban Horticulture Development Scheme.

“It will be a healthy hobby for elders and homemakers as they can keep themselves engaged and also get chemical fertilizer-free vegetables and greens in the bargain,” says Go. Poopathi, Deputy Director-Horticulture.

His department has been distributing terrace garden kits that come with six grow-bags, 1 kg of compressed coir pith, fertilizer, neem-based pesticide, seeds and seedlings — all at a subsidised price of Rs. 500. An encouraging sign is that the concept has been a huge hit in Madurai — of the 2,700 terrace garden kits made available, only a few are yet to be sold.

From father to son

Maria Sargunam of Surya Nagar, a retired official of the Highways Department, who passed away in January this year, is fondly remembered by his neighbours for his active involvement in terrace gardening. “My father was doing this for at least five years. I am continuing the gardening but without his finesse,” says his son S.M. Jose Jeyasimman. His father took much pains to collect the basic inputs for terrace gardening such as plastic drums, coir pith, soil and seeds in the initial days.

“Our kit comes handy, especially for the starters,” Mr. Poopathi said.

Sargunam also benefited from the horticulture department’s kits and expanded his terrace gardening.

With the kit, it is a lot easier to set up the terrace garden. All one needs is some space with good sunlight to place the bags.

Mr. Jose, a graduate in aeronautical science, has picked up several techniques which he observed while helping his father in maintaining the garden. The terrace of the two-storey building has a variety of vegetables, fruits and greens. What started with lemon, pomegranate and chillies, has grown into a full-fledged terrace garden with greens, climbers and many other plants.

They have planted on different containers such as drums, grow-bags and plastic buckets.

New entrant

But for L. Rajeswari of Lourdu Nagar, her interest in terrace gardening started with the kits she bought from the Horticulture department. However, over the last three months she has expanded her garden with additional pots to grow mostly greens and herbal plants.

“It is easier to handle greens. We pick them once a week. Besides, the herbal plants help me to make ‘kashayam’ to keep the common cold away,” says the 46-year-old teacher.

The garden keeps her busy in the evenings in watering. With her little knowledge in gardening, the woman has set up a facility for making vermi-compost manure. The woman has been putting all kitchen waste in a plastic container filled with soil to turn them into a nutritious manure.

“Even a sprout and fresh leaves from my garden makes me feel happy,” she says. She is confident that the greens and the herbal plants are totally free from chemical pesticides.

““The very charm of terrace garden lies in growing organic vegetables and greens. There is no point in using chemicals. So, we always prefer vermin-compost manure available in local shops,” says Mr. Jose.

Apart from watering the plants, these people weed them daily. “Once a week, I spray neem-based pesticide on the leaves,” says Mr. Jose. He proudly recalls that his father used to bring some vegetable or greens every other day to their kitchen. “Often, the greens will travel to Chennai to my aunt’s kitchen,” he says. The garden easily provides for the family of three.

“Sighting each sprout or leaf, even if it is just one or two, will give a great sense of satisfaction,” says Mr. Poopathi. Raising a terrace garden

need not be exerting. “Pouring a mug of water for each bag is enough,” he says.

Comes with CD

The seeds or seedlings given by the department are those that suit Madurai’s climatic conditions.

The kit also comes with a compact disc that gives a demonstration on usage of the kit and maintenance of the plants.

The garden will also help the children have hands-on experience that could teach them the pains of farmers who feed the world.

For, many of the urban children do not know whether rice comes from a plant or a tree, the officer says.

For details, contact his office on 0452 2532351.



IITM workshop on climate change begins today



Indian Institute of Tropical Meteorology

The Indian Institute of Tropical Meteorology (IITM) and the Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) are jointly organising an Advanced School on Earth System Modelling

(ESM) programme on July 18, followed by a Workshop on Climate Change and Regional Impact over South Asia on July 28-29, at IITM.

The programme will be inaugurated by the Secretary of Ministry of Earth Sciences, Dr M Rajeevan.

IITM is a research centre of tropical meteorology, regional and global monsoon systems, ocean-atmosphere coupled climate system, physical meteorology and oceanography, atmospheric chemistry and science of climate change.

It is actively involved in modelling, simulation and prediction of global climate and regional monsoons on different time-scales, using fully coupled climate models.

The advanced school on Earth system modelling, the newly developed IITM Earth System Model (IITM ESM) will be the focus of the school and used during the practical sessions. The IITM ESM is expected to contribute climate simulations and projections for the forthcoming Intergovernmental Panel on Climate Change Assessment Report 6 (IPCC AR6).

The programme will consist of forenoon sessions with key lectures delivered by experts on fundamental topics in climate science and afternoon sessions devoted to practical training with the IITM ESM.

A workshop will be held on climate change and regional impacts over South Asia climate variability and significant influence on society and natural environments, with consequent impacts on agriculture, water-resources, health, terrestrial and marine ecosystem, energy, industry and various sectors.

There are major uncertainties in understanding climate change and its impacts at regional levels.

The broad objectives of the workshop are to provide an overview of the regional aspects of climate change and impact assessments in the South Asian context, deliberate on gap areas and propose directions for future research work.

Govt has already provided Rs 7,000 crore help to farmers: CM Fadnavis

Farmers struggling with drought in the state have already received Rs 7,000 crore in aid from the government, Chief Minister Devendra Fadnavis said on Sunday. Of the total Rs 4,000 crore set aside for crop losses, Rs 3,500 crore has reached the farmers, the CM said. Similarly, from the Rs 4,200 crore for crop insurance, farmers have received Rs 3,500 crore. The funds, coupled with a good monsoon this year, have led to 80 per cent completion of sowing in the kharif season, he added.

While stating that farmers have increased the sowing of cereals, specially tur dal, Fadnavis said, “We have proposed a price control policy. I have discussed the proposal with Union minister [Ram Vilas Paswan](#) in Delhi. To ensure a check on price hike, we have ensured that the maximum price of tur dal cannot exceed Rs 120 per kg.”

While outlining the progress in his government’s flagship project Jalyukta Shivar Abhiyan, the CM said, “The results of the first phase are excellent across 6,000 villages covered. The project will be extended to 5,000 more villages in the second phase.”

Ahead of the monsoon session in which the government is likely to face heat over corruption charges against senior ministers, Fadnavis said there would be no room for compromise on corruption.

“My government is committed to zero tolerance on corruption. There is no question of engaging in any cover-up for any individual in the the government. However, the Opposition should also display responsibility and not make unfounded allegations.”

Responding to a question on allegations against women and child development minister Pankaja Munde on the Take Home Ration scheme, Fadnavis said, “The high court order has been referred to the legal department. The court has not objected to the norms and conditions. It has questioned the eligibility criteria and called for a survey. We will put our points in the court.”

The government has decided to bring in 10 new bills, including the controversial amendments in the Agriculture Produce Market Committee (APMC).

Responding to question related to his interaction with minister Pankaja's Munde on Twitter, Fadnavis quipped, "We well know how to use Twitter."

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Govt readies mega pulses plan to rein in inflation, boost supply



Rising food inflation is a major worry for the government not just because it roils household budgets but also acts as a hindrance to its growth agenda. Added to that, the supply of lentils, a common source of protein for the poor, has failed to keep pace with demand, due to rising incomes leading to higher consumption of protein, analysts say.

The government is readying a new policy framework to rein in the inflationary impact and stabilise the supply of pulses, a widely consumed but scarce food item with economy-wide implications.

Three ministries – agriculture, food and finance – and the state-run policy think-tank Niti Aayog are coordinating efforts to frame the new measures that will see the government step in as one of the key importers of pulses.

"The goal is self-sufficiency in pulses. We are clear on that, whether it takes five years or six years," farm minister Radha Mohan Singh said.

A panel led by chief economic adviser Arvind Subramanian will, for the first time, take a call on the minimum support prices (MSP) for pulses. MSPs are usually decided by the farm ministry-headed commission for agricultural costs and prices.

An MSP is the price at which the government buys produce from farmers, which also acts as the floor price for private traders. Higher MSPs incentivise farmers to grow more.

The government has hiked the support prices for pulses but they are still below market prices. This means farmers get far lower than what lentils sell for in the markets. “This will be addressed,” an official said.

The food ministry has proposed converting a recently set up stockpile of pulses into a permanent buffer, which should hold 10% of the country’s total output.

Rising food inflation is a major worry for the government not just because it roils household budgets but also acts as a hindrance to its growth agenda.

High inflation for instance limits scope for lowering of interest rates, needed to expand manufacturing. Wholesale inflation rose sharply to 1.6 % in June compared to a rise of just 0.8% in May. The increase in food prices quickened to 8.2% in June, compared to a 7.8% jump in May.

The food ministry has proposed steady imports through longer-term government-to-government deals rather than just “spot purchases”. As part of this, India has already signed a bilateral pact with Mozambique for growing and importing pulses. The Myanmar government is currently examining a similar draft agreement from India.

The supply of lentils, a common source of protein for the poor, has failed to keep pace with demand, because rising incomes have led to higher consumption of protein, analysts say.

The farm ministry has expanded the National Food Security Mission to cover all states. More than 90% of the funding under this programme will go to pulses.

“This year, Rs 1700 crore is being spent under the National food security mission. The allocation for pulses is Rs 1630 crores,” a farm ministry official said. This is nearly 95% of the total funds, he said. Separately, Rs 20 crore is being made available for new type of breeder seeds for pulses, he said.

Yet the challenges are steep. At an all-India level, just 16% of area under pulses has irrigation cover, compared to 58% for cereals.

India’s yield is low at 622 kg per hectare yield, compared to the world average of 1200 kg/ha. Moreover, most pulses varieties are long-yielding, which means they take a long time from sowing to harvest.

Whitefly back, Centre to help Punjab fight it, PAU to develop resistant seeds



That pest whitefly is back. At least 4,400 hectares of the 36,000-hectare cotton area in [Punjab's border belt of Fazilka is under its invasion](#) . The Centre will remain in touch with the state government to protect the crop in the remaining season.

The next 45 days are critical, so the Union Ministry of Agriculture will keep the fibre crop under its eyes throughout. On Saturday, its three-member expert team led by plant protection adviser SN Sushil gathered the inter-state monitoring committee that includes agriculture officers from Haryana and Rajasthan as well. “Punjab Agricultural University (PAU) will give us updates on the crop health,” Sushil said.

Read more | Whitefly fear: Cotton area in Punjab, Haryana shrinks 27%

The Union ministry will come to Punjab's rescue if the pest attack intensifies. “We are in the cotton belt to review the situation,” Sushil said. On the second day of their visit, the experts said Abhohar and Khuhian Sarwar seemed the only affected blocks in Bathinda, Mansa, and Muktsar districts. “Whitefly's presence in all these areas is below the alarming level,” said one of the three central experts.

PAU vice-chancellor Baldev Singh Dhillon said whitefly's population had declined from last year. “Farmers, who last time had to go for multiple sprays of pesticides, haven't given the cotton plants even a single dose this year,” Dhillon further said.

PAU to develop resistant seeds

Pest-busters are in action. Punjab Agricultural University, Ludhiana, and National Botanical Research Institute (NBRI), Lucknow, are going to sign a deal to develop whitefly-resistant seeds. “The formalities are done,” said university vice-chancellor Baldev Singh Dhillon, “The NBRI

has developed whitefly-resistant gene TMa12, which we will add to the new hybrid seeds. The research will take eight to 10 years. We are also testing the pest-resistant hybrid varieties prepared in collaboration with Gujarat Seeds Corporation.”

THE HINDU Business Line

Coming soon: Cereals that use nitrogen better, pollute less

Project driven by India, UK will explore new varieties of cereals



New varieties of cereals that use up nitrogen more efficiently and thus produce more and pollute less could be real in the near future.

A global consortia has started exploring natural variations of cereals and basic research in model plants to deliver new varieties of cereals with enhance nitrogen use. The project is driven by a team of researchers from India and the UK.

Traditional farming has been tapping nitrogen fixation as a key booster in crop yields. The new partnership also aims to turn out varieties that could reduce greenhouse emissions and make farming more profitable and sustainable.

£10-million funding

The initiative will get a funding of £10 million through the Newton Bhabha Fund, UK; Biotechnology and Biological Research Council (BBSRC), UK; and the Department of Biotechnology (DBT) of the Government of India.

As part of the effort, four new Virtual Joint Centres in Agricultural Nitrogen will be created. The Centres comprise multiple research organisations in India and the UK, with each receiving a co-investment of approximately £2.5 million. These are delivered in partnership with BBSRC, the Natural Environment Research Council (NERC) and the DBT.

The Cambridge-India Network for Translational Research in Nitrogen (CINTRIN), one of the four centres, is led by the National Institute of Agricultural Botany (NIAB) in the UK and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India. It also brings together the Department of Plant Sciences and Sainsbury laboratory, University of Cambridge, the Punjab Agricultural University (PAU), the National Institute of Plant Genome Research (NIPGR), India, ADAS UK Ltd. and agri-IT specialist KisanHub.

The launch meeting of CINTRIN was held recently in Cambridge, UK, which was attended by all the partners of the consortium and a memorandum of agreement was signed between Icrisat and DBT on July 8.

“The overarching aim of CINTRIN is to improve not only the income and livelihood of farmers by reducing the inputs cost, but also to save the environment by minimising the negative impact of excessive use of fertilisers,” says Rajeev Gupta, Principal Scientist, Icrisat, who is leading the Indian team of CINTRIN.

“The natural variation for nitrogen use efficiency will be studied in diverse germplasm of wheat, sorghum, pearl millet and foxtail millet. The findings will be applied to develop new breeding lines with enhanced NUE. CINTRIN will also use model plants such as Arabidopsis and Brachypodium for basic research which will be translated into crops in the future,” he says.

NIAB Director of Genetics and Breeding Alison Bentley explains: “The CINTRIN partners will translate developmental biology research into innovation in nitrogen use by Indian farmers, by connecting developmental research, crop breeding, agri-technology and extension work. This will be enhanced by easily accessible data-driven methods of technology transfer, developed by India and UK-based company, KisanHub.”

Maharashtra plans separate dept to keep tab on schemes

The Maharashtra government is planning to set up a policy research department to keep tab on various schemes, policies and services run by it involving the tax payer's money.

The department, which will be called Institute for Policy Research (IPR), will be on the lines of the Centre for Policy Research (which acts like a think-tank) to review and research schemes, policies and services where tax payer's money is involved, said a senior government official said.

The IPR will study schemes, policies and services and find out if they need any amendments or improvement in implementation so that the tax payer's money is utilised properly, the official said requesting anonymity.

“The government is in the process of finalising the draft proposal that is expected to be tabled before the State Cabinet for final approval. After its notification in the Government Resolution, the government expects to implement it from January 2017,” the official said. He added that initially the government will take up some policies on pilot basis and thereafter research will cover the rest of the schemes, policies and services.

“The state administrative training institute YASHADA, Pune will anchor the research. The government may appoint few administrative officers, hire private experts on policy for the purpose. The government will take assistance from the reputed Harvard Business School in the exercise,” he said.

“The IPR system will definitely help to improve the policy of implementing process. The study will be helpful in whether the policy, scheme or service is being properly implemented or not or it has a loophole, or if it should be continued at all,” he said.

The official further said departments like Home, under which police render services to the people, their services have never been audited to find out if they really serve the people or the public feedback has ever been sought.

He said the system also needs to upgrade so that a departmental inquiry gets completed within six months which otherwise normally goes on for 5—6 years.

At present, there are about 24 major government departments like agriculture, school education, rural development, food and civil supplies,

public health, social justice, energy, Home, women and child development and others.

Some of the major schemes that are being implemented by the government include Bal Thackeray Upgath Vima Yojana, Mahatma Jyotiba Phule Jeevandayeeni Yojana (for cashless treatment for poor), Rajashri Shahu Maharaj Scholarship for SC students and others.

Sugar, cotton prices to trend higher

Sugar's spot price is up 40.7 per cent since last October, on expectation of tight supplies, in the next season. The Sugar season is from October to following September. Since the April, prices had traded sideways, due to government policies on sugar export and stock limits.

To stabilise prices, government decided to impose duty of 20 per cent on sugar exports and imposed stock limits for traders and wholesalers to avoid hoarding.

According to preliminary prediction was from the Indian Sugar Mills Association, output is down seven per cent in 2016-17 to 23.3 million tonnes (mt). But, sowing under sugarcane, according to the agriculture ministry, was up 4.8 per cent at 4.6 million hectares as of the second week of July. Acreage in Maharashtra has fallen 7.2 per cent, while Karnataka is down three per cent from a year ago Uttar Pradesh and Tamil Nadu has reported higher sowing.

In the current season, farmers in Maharashtra and Karnataka are continuing with the existing cane or ratoon crop due to drought conditions. The yield from ratoon will be lower. The lower production for second year could further widen the sugar deficit. However, due to strict import and export policies, the supply and demand will be in balance and we expect the NCDEX October 2016 sugar contract (current price: Rs 3,860) to trade between Rs 3,800-4,000 a quintal until clear production estimates are known.

Cotton spikes on multiple events

Cotton has jumped about 35 per cent in past two months on reports of lower domestic supplies, coupled with reports of slow sowing progress and pest attack in north India. Shortage in supplies can be attributed to lower production and higher exports compared to the previous year.

According to the Cotton Advisory Board (CAB), production for 2015-16 fell 12 per cent to 33.8 million bales while exports increased 51 per cent to 6.8 million bales. To meet domestic cotton demand, India might be importing nearly two million bales. One bale is 170 kg.

Slow progress in cotton planting, due to late monsoon might delay, arrivals in the new season. The demand-supply imbalance might stay until early November. In the current season, cotton area in north India, Maharashtra and Gujarat has declined 27 per cent, 19 per cent and 41.2 per cent, respectively. Overall, the area is down 22 per cent versus last years' acreage until the second week of July.

We expect cotton prices with a positive bias on reports of higher imports until the new crop arrives in October-November. More, the United States department of agriculture has forecast lower world production and beginning stocks for the 2016-17 season, due to lower production in Asia. Although the stocks in India are comfortable, stockists are holding on to the stocks on reports of pest attack, demand from textile units, and low progress of sowing. We expect the MCX October 2016 cotton contract (current price: Rs 22,270) to touch Rs 24,000 a bale in the medium term.

Agriculture university gets Rs 5.50 crore to establish central library

Students of Sardar Vallabhbhai Patel University of Agriculture and Technology (SVPUAT) have a reason to cheer now, as the long-pending demand of having a central library was met by the state government on Sunday.

University authorities told TOI that Rs 2 crore has been sanctioned by the state government to build a library, while Rs 3.5 crore has been allocated to set up a food engineering college on the campus.

A good grant to develop Agri Science. Ravishankar Bhujanga

"Since 2000, we have had a library located in an administration block with minimum resources. But with the injection of funds, we plan to open a digital library where students will be able to access books of international writers and journals. Besides, 7,000 books will be kept in the library," said Deepak Mishra, a university official working at the engineering section of the varsity.

Mishra said construction of Post-harvest Technology and Food Engineering College had started, and would be completed before the next

academic session starting in July 2017. "Rs 1 crore had already been granted by the government to build the college. This will be the fourth school in the campus," he added.