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# THE HINDU

## Bountiful rainfall brings back farming on track

*Farmers in Tirunelveli and Tuticorin districts commence 'pisanam' activity on one lakh hectares*

Buoyed by the comfortable storage level in 11 dams and adequate availability of chemical fertilizers in primary agriculture cooperative societies, farmers in Tirunelveli and Tuticorin districts have commenced 'pisanam' paddy season operations on over a lakh hectares with much vigour after a gap of five years.

As the Northeast Monsoon let down the farming community after 2008, only the farmers having their agricultural holdings either near the reservoirs or close to Tamirabharani river course could go in for cultivation of paddy, a water-intensive crop, during the second season.

With the active Northeast Monsoon this year, all 11 dams in Tirunelveli district are gradually inching towards their maximum capacity. The water level in Papanasam was 132.65 (maximum level 143), Servalar 147.57 (156), Manimuthar 95.45 (118), Gadana 83 (85), Ramanadhi 83 (84), Karuppanadhi 66.49 (72), Gundar 36.10 (36.10), Vadakku Pachchaiyar 32 (67), Nambiyar 23 (25), Kodumudiyar 52.50 (57) and Adavinainar 105 (142).

At the same time, most of the 2,449 irrigation tanks – 921 systemised and 1,528 non-systemised tanks – across the district too now have decent storage level. This has ensured sufficient water for even 'advance kar' paddy cultivation if the available water is used judiciously.

Tirunelveli Collector M. Karunakaran, who personally monitors the stocks and the supply of chemical fertilizers to the district since September-end, has made arrangements for ensuring adequate stocks in the primary agriculture cooperative banks across the district.

Satisfied with the present situation, the farming community in both the districts have started 'pisanam' paddy cultivation on over a lakh hectare, including 54,100 hectares in Tirunelveli district.

With comfortable water availability, the farmers in both the districts are expecting Pongal celebrations to be vigorous in 2015.

## **TNAU develops park on its premises**

*It has a bridge-like structure at its entrance; it is called Japanese Park*



A park which has been developed at TNAU - Anbil Dharmalingam Agricultural College and Research Institute near Tiruchi.— Photo: B.Velankanni Raj

The Tamil Nadu Agriculture University – Anbil Dharmalingam Agricultural College and Research Institute has developed a piece of land on its premises and converted it into an entertainment park.

What remained a neglected area has been developed adding beauty to the fauna and flora of the premises, said D. Pandiyarajan, Dean of

the college, who along with the former Special Officer of the TNAU Horticulture College for Women and Research Institute, T. N. Balamohan, designed the park.

Called Japanese Park, it has a bridge-like structure at its entrance. “It is the bamboo tree which adds elegance and brings more élan to the area, he said. Mr. Pandiyarajan said it would be beautified further by setting up tiles and allowing a few ducks. “The park would be thrown open to the public,” he said. It is bound to be a boon not only to students but also to the entertainment-starved residents in and around Navalur Kuttapattu.

## **Plans for more community radio stations**

In an effort to reach out to more farmers and members of the public, the Tamil Nadu Agricultural University (TNAU) is planning to start more community radio stations.

The university has written to the Ministry of Information and Broadcasting seeking permission to start six such stations at the Krishi Vigyan Kendras in Villupuram, Cuddalore, Tiiruvapur, Nagapattinam, Pudukottai and Virudhunagar districts.

The application was sent more than a month ago and the Ministry was considering it, sources said.

## **‘Absence of honeybees will lead to slump in crop yield’**

*School students present a research paper in Dindigul*

What would happen if honeybees went extinct? “We will face slump in crop yield and snap in food chain,” cautioned a group of students of a matriculation school in Natham, who presented a research paper at the District Science Forum meet held here on Sunday.

The team, led by Anusaya, researched the flora and fauna of Karanthaimalai Hill, which was once an ideal home for honeybees, but disturbed much by man-made disasters.

They compared the natural wealth of the hill that existed in the past and the present. Anusaya said the presence of honeybees was good on the hill and nearby areas a decade ago as the hill had plenty of flowering species like Kurinji, Veppalai and Palai. These plants had been feeding the honeybees well.

Change in climate and increase in atmospheric temperature owing to failure of monsoons and use of chemical-based fertilizers changed its eco system and it had started destroying these flowering species. Now, a majority of these species had been facing the threat of extinction. Local people too disturbed the bees by destroying its habitat, she added. The bees pollinate crop species in the region. Honey bees are responsible for crop production,” she said.

“In the future, we may lose all the plants that bees pollinate and animals that eat those plants. Ultimately, such extinction will destroy food chain,” the team worried.

Mango would face slump in yield in the years to come owing to the absence of honeybees, the team members said.

***“The bees pollinate crop species in the region and they are responsible for crop production”***

## Record sales at Salem's Uzhavar Sandhais

*More than 44,000 people visits the markets*



A busy day at the Suramangalam Uzhavar Sandhai in Salem -  
PHOTO: E.LAKSHMI NARAYANAN

The 11 Uzhavar Sandhais in Salem district registered a record sales turnover of vegetables to the tune of Rs. 49.5 lakh on the Karthigai Amavasai Day on Saturday.

The Uzhavar Sandhais in the district at Sooramangalam; Hasthampatti; Ammapettai; Thathagapatti; Attaiyampatti; Attur; Mettur; Thammampatti; Jalagandapuram; Edaippadi; Elampillai received a stream of visitors from the break of dawn on Saturday.

For Karthigai Amavasai, they purchased plantain, plantain leaf, brinjal, tomato, beans, bhendi, pumpkin, greens, flowers etc.

According to Uzhavar Sandhai sources, more than 44,000 people visited the sandhais and purchased vegetables etc weighing 204 tonnes and worth Rs. 49.5 lakhs.

More than 1,100 farmers marketed the vegetables.

Sooramangalam Uzhavar Sandhai in the city registered the maximum sale of vegetables. About 43 tonnes of vegetables worth Rs. 10.42 lakhs were sold in Sooramangalam sandhai, which was visited by 8,775 people.

Attur Uzhavar Sandhai registered a turnover to the tune of Rs. 9.35 lakhs; Thatagapatti Uzhavar Sandhai Rs. 8.35 lakhs; and Hasthampatti Uzhavar Santhai managed a sales of Rs. 3.25 lakhs, Uzhavar Sandhai sources said.

### **Minister verifies availability of fertilizers**

Edappadi K. Palanisamy, Minister for State Highways and Minor Ports, conducted surprise inspection at the Primary Agricultural Cooperative Credit Society in Sekkidipatti village on Saturday and verified the availability of fertilizers etc.

The Minister made enquiries with the farmers about the availability of fertilizers in the society. The farmers replied that they were getting adequate fertilizers without any scarcity.

The Minister inspected the fertilizer stock in the godown.

He directed the officials to extend the farm loan, crop loans without any delay and also ensure that adequate stock of fertilizer is available with the society at all times.

## Bacterial infection hits brinjal crop in Pudukottai



Farmers and scientists ascertaining the bacterial disease management in brinjal at Vamban near Pudukottai

Bacterial infection in brinjal has been a matter of concern for farmers in various regions across the district.

The crop is raised on 600 hectares of land mainly in Tiruvarangulam, Karambakudi, and part of Pudukottai blocks.

The problem of bacterial wilt is acute in Tiruvarangulam block and the scientists of the Krishi Vigyan Kendra at Vamban have been visiting various fields for suggesting preventive and remedial measures to the farmers.

R.P.Gnanamalar, professor and head, Krishi Vigyan Kendra, said that withering of the top leaves and stem is the early symptom of the disease. The crop in a few villages, including Koththakottai and Keeramangalam, have been severely affected by the bacterial disease.

Since the bacteria spreads through the soil, the problem affects the entire field within a few days, and lack of awareness among farmers was one of the prime reasons for the complete damage of the crop.

S.Mathiyazhagan, assistant professor, Plant Pathology, said that the application of farm yard manure would go a long way in containing the disease.

He also said that pseudomonas should be applied in a phased manner as part of crop protection strategy.

For further details, farmers could contact the kendra by dialling 9944520544, Ms.Gnanamalar said.

### **'Zero-budget farming can double food production'**



Farmer Krishnappa displaying arecanut cultivated through zero-budget farming. — photo: M.A. SRIRAM

Advocate of zero-budget spiritual farming Subhash Palekar has claimed that farmers' suicide in the country was observed among those practicing the chemical-farming methods.

Making a plea for encouraging chemical-free farming, Mr. Palekar said there were nearly 4 million farmers practicing zero-budget farming in the country who were prospering. Mr. Palekar, who interacted with media persons here on Saturday, said there was not a



single example of farmers practicing zero-budget farming committing suicide, due to higher yield and low cost input. Zero-budget agriculture entails no external chemical inputs like fertilizers or insecticides.

While chemical farming methods yield about 12 quintals of basmati rice per acre, under the zero-budget farming method, yield was observed to be as high as 18 to 24 quintals, according to Mr. Palekar.

Similarly, about 6 quintals of wheat per acre was the normal yield while it was 18 quintals under zero-budget farming.

Despite the obvious advantages of alternative methods, not many farmers were switching over to it due to government policies which link all credit, marketing, and insurance facilities to chemical-based agricultural practices, said Mr. Palekar.

He noted that the alternative method of farming was more popular in Karnataka, than in Maharashtra, Uttar Pradesh or Bihar.

He came down heavily on the organic farming policy of the State government on the grounds that it was more expensive than chemical-based agriculture. In Mysore region, nearly 400 to 500 farmers have switched to zero-budget agriculture.

## **Better crop advisories for farmers soon**

*Move to link crop advisories to weather-based insurance scheme*

Farmers across the State will soon have access to better and more precise location-specific crop advisories as the Department of Agriculture prepares to augment its Agromet service and link it to the weather-based crop insurance scheme.

The weekly crop advisory and weather information issued to farmers will be improved with additional inputs from automatic weather stations installed by private agencies. The India Meteorology

Department (IMD) currently issues quantitative forecasts for seven weather parameters, namely rainfall, maximum and minimum temperatures, wind speed and direction, relative humidity and cloudiness, and weekly cumulative rainfall.

### **Agro advisory**

Experts at the Agromet Field Units functioning under Kerala Agricultural University interpret the meteorological information and use it to prepare an agro advisory for crops. The forecast is issued every Tuesday and Friday. The university depends on a network of automatic weather stations installed by the IMD at Ambalavayal in Wayanad, Peelicode in Kasaragod, Vellayani in Thiruvananthapuram, Thrissur and Kumarakom, in addition to three stations at Kannara in Thrissur, Pattambi and Alappuzha. ISRO has weather stations at Thrissur, Manjeswaram, Ernakulam and Thiruvananthapuram while private agencies have a larger network across the State.

### **Weather data**

“By procuring data from private weather stations, we hope to widen the input and equip farmers to deal with the vagaries of weather,” says R. Ajithkumar, Director of Agriculture.

The weather-based crop insurance scheme being implemented in Kerala by the Agricultural Insurance Company of India is designed to provide insurance protection against risks like excess rainfall, heat and humidity that account for the majority of crop losses.

### **Compensation**

The area-based scheme depends on the data provided by a reference weather station and a backup station to assess adverse weather incidences. The compensation is dependent on the weather data.

The government has plans to extend the scheme which currently covers paddy crop in 11 districts and banana, sugarcane, mango and cashew in select districts.

*Private weather stations to be tapped for data*

*Insurance scheme to be extended to districts*

## Farmers demand organic fertilizers for crop nutrition



Collector R. Nanthagopal at the farmers' grievance day meeting at the Collectorate in Vellore.— Photo: C. Venkatachalapathy

Farmers have urged the district administration to provide organic fertilizers to restore soil fertility and improve nutrition of the crops.

At the farmers' grievance redressal meeting on Friday, a farmer, Pichandi of Serpadi village said the nutrients in the soil were destroyed by using fertilizers such as urea, potash and complex in the last few decades. "Nearly 35 years ago, the government distributed neeli seeds, known as Indigo.

This served as organic fertilizer for the crops. It enriched the crop nutrient and gave good growth,” he said.

The district administration should take measures to distribute organic fertilizers, he added.

A number of farmers stressed the importance of green fertilizers for preventing pest attack and magnesium deficiency. Purushothaman, another farmer, said that another organic fertilizer, asola leaf, was beneficial for paddy crops.

Farmers urged the district administration to take efforts to protect sandalwood trees in Javadhu Hills. A farmer said that a special committee should be formed to prevent illegal felling of sandalwood trees. Smugglers were destroying the roots of young saplings in a bid to check the growth of the trees, he said.

K. Ranganathan, a farmer from Thirumalpur village in Arakkonam taluk said there were frequent thefts of wire from the pump sets in agricultural fields.

“We have petitioned several times and have also sought police help but nothing has been done till now. This is costing us several hundreds of rupees,” he said. Following this, Collector R. Nanthagopal told the police department to take immediate action and register cases on wire thefts

## KCR to visit greenhouse in Nalgonda to popularise cultivation



### THE HINDU

Nalgonda (Telangana) 22/11/2014 Farmer &#13; A farm worker spraying pesticide in a ploy house at Marrur village in Nalgonda district. &#13; Photo:Singam Venkataramana &#13;

To encourage farmers to take up greenhouse cultivation in the district, particularly in mandals that are located close to the State capital like Bhongir, Bommalaramaram, Bibinagar, Choutuppal, Aler and others, Chief Minister K. Chandrasekhar Rao will soon be visiting a greenhouse farm located near Bhongir.

As some legislators raised questions during the budget session as to whether poly-house cultivation is beneficial to farmers, the Chief Minister wanted to take some public representatives, including MLAs, ZPTCs and MPTCs, to a farmhouse, to explain the benefits of the practice.

Speaking to *The Hindu*, Assistant Director, Horticulture, G. Yugandhar, said that currently 12 acres in the district were under greenhouse cultivation. Of this, greenhouses have come up on eight acres in Bommalaramam village where local farmers raise flowers.

But a farmer in Bhongir is known to grow tomatoes and cucumber and the Chief Minister has decided to visit the farm sometime later.

The yield is 200 tonnes of high quality tomatoes if cultivated under poly-house while in normal course, the output is about 50 tonnes, the horticulture officer said. To boost horticulture, particularly vegetables under greenhouse cultivation, the officials said that the Chief Minister was eyeing Ranga Reddy, Nalgonda, Medak and Mahabubnagar districts, which are located close to the State capital.

Mr. Yugandhar said the Ranga Reddy horticulture department had received overwhelming response from farmers to greenhouse cultivation since the Telangana government had allocated Rs. 250 crore towards it in this year's budget. As many as 400 farmers have approached the office so far in Ranga Reddy district.

Forty farmers from Nalgonda also approached his office, particularly people from Bhongir, Bommalaramaram, Choutuppal Suryapet and Tungaturthy. Mr. Yugandhar hoped that greenhouse cultivation would get a boost with the State government and farmers showing an interest in it.

Meanwhile, a lone greenhouse farmer from Nakrekal mandal, Barisetti Balaraju, who cultivates capsicum and cucumber, said he was finding it difficult to market produce. "The government should offer buy back services for the produce, which will encourage more farmers to opt for greenhouse cultivation," he observed.

## **e-trading in copra fails to help farmers**

The much-hyped online trading in copra (dry coconut), launched in February this year at Tiptur has not helped farmers.

The price of copra has plummeted to Rs. 11,333 per quintal and the farmers are planning not to sell their produce to merchants in the Agricultural Produce Market Committee (APMC) yard.

The problem is that the new system has not brought in new traders, resulting in farmers not getting competitive prices. More importantly, it has not eliminated malpractices. B.S. Devaraj, State secretary of Karnataka Rajya Raitha Sanga, said the price of copra in Delhi is Rs. 300 per kilo but merchants in Tiptur are buying copra at Rs.145 per kilo. He alleged that the rates had come down due to a merchants' lobby

B.R.Vishwanath, president of Copra Merchants' Association, Tiptur, on the other hand, argued that the rates had dropped as the demand had come down.

K.C. Doreswamy, APMC secretary, said he had a proposal to the Marketing Directorate in Bengaluru seeking permission to meet the merchants of Maharashtra, Uttar Pradesh, Delhi, Punjab, Rajasthan, Gujarat who buy copra from Tiptur and convince them to participate in online-trading directly "so that farmers get competitive price and middlemen eliminated." He said banks had agreed to open zero-balance accounts for farmers to facilitate online payment.

## **Blueberries may not help night vision**

Scientists have claimed that the belief that blueberries help healthy people see better in dark, may not be true after all.

Wilhelmina Kalt and colleagues note that studies published decades ago provided the first hints that blueberries might improve people's

night vision. Later, lab experiments appeared to shore up these early findings. For example, anthocyanins, which are pigment molecules in blueberries and other plants, encourage the regeneration of key molecules in the eye involved in perceiving light. But reviews of the earlier clinical research that tested the effect of blueberries on night vision in human subjects revealed that the studies were poorly controlled. Kalt's team wanted to revisit the matter with a new set of carefully designed experiments.

The researchers found that a blueberry-supplemented diet did not improve sight in the dark, but they did help subjects recover normal vision after exposure to a bright light. The findings are published in *ACS' Journal of Agricultural and Food Chemistry* .

## **Agencies told to procure farm produce till last stocks**

*Union Ministry of Textiles directs the CCI to open 12 more purchase centres*

The Government of Telangana has directed the procurement agencies of cotton, paddy and maize to purchase the produce from farmers till the estimated production is procured to maintain support prices.

In a review meeting with the Marketing and Agriculture Department officials on Sunday, Principal Secretary of Agriculture and Marketing Poonam Malakondaiah stated that procurement centres were opened in October this year unlike the earlier times when it were usually opened in November. The Union Ministry of Textiles has directed the Cotton Corporation of India (CCI) to open 12 more purchase centres, she said.

The CCI has so far set up 74 purchase centres in the State and has procured 24.08 lakh quintals of cotton from farmers till November 22, by paying price ranging from Rs. 3,888 to Rs. 4,050 per quintal,



based on the moisture content in cotton. Cotton was cultivated in 16.76 lakh hectares in Telangana this year and the production was estimated to be about 205.77 lakh quintals.

Similarly, private traders have purchased another 6.98 lakh quintals of cotton with 60 per cent of farmers getting a price between Rs. 3,888 and Rs. 4,050 per quintal. The CCI had fixed the price of Rs. 4,050 with 8 per cent moisture content followed by Rs. 4,009.50 for 9 p.c., Rs. 3,969 for 10 p.c., Rs. 3,929.50 for 11 p.c. and Rs. 3,888 for 12 p.c. moisture.

For procurement of paddy, 1,143 centres were opened, including 566 by IKP, 555 by PACS and 22 by DCMS/GCC. The agencies have procured 4.68 lakh metric tonnes of paddy so far.

## Under the trees, doing nothing



*Farm tourism in the State is fast opening up a new landscape for the discerning traveller*

Anu Mathew says in all seriousness, “people come here to do nothing”. *She is speaking about the guests who arrive at her farm, Philipkutty’s Farm, near Kumarakom. This Italian concept of doing nothing or the sweetness of doing nothing, dolce far niente , and now*

*a favoured word with holidayers is apt for guests reaching out for farm stays. Anu is bang on in her assessment about the lover of farm holidays. And Kerala with its rural hinterland offers the interested a variety of farms to choose from. If a guest wishes to do nothing or if he/she wishes to indulge in rustic farming- sowing, harvesting, tilling, picking, milking - or any typical farm activities he can do so; he can also study varied patterns of farming; he can also study the tropics. Farm tourism presents a landscape that recharges the traveller differently.*

*Sejoe Jose, of Marvel Travels, who has been watching the changing profile of the traveller to Kerala says, "People are looking for newer experiences and a stay in the farm opens up an entirely new vista. Kerala has plenty to offer on this front and we need to project this market."*

*"It is definitely not mainstream but works extremely well when thrown into an itinerary" says Maneesha Panicker of Silk Route Escapes, who charts bespoke holidays. She recently had an enquiry from an Australian group that wished to visit organic farms in the State, in a bid to study the farming patterns. She has had guests who have engaged in below sea level paddy cultivation in Kuttanad and done traditional fishing here.*

*Away from some of the typical agricultural activities is Kurian Jose's farm Harvest Fresh at Lowercamp in Cumbum Valley. In its fifth year the 35 acre property is a fruit farm with a mix of pomegranate, papaya, mango, passion fruit, tender coconut, jackfruit and some spices. It has a well-laid out vegetable and herb garden and the food in the kitchen is made from garden fresh products. To give the guests a complete rural feel he has curated a farm experience, Fruit Trail that offers a bullock ride, bee cultivation know-how and a visit to neighbouring plantations. Harvest Fresh farms have the vantage of being near Thekkady and places of historical importance like Lord Pennycuick's Mullaperiyar Dam. Kurian says, "Farm tourism is not as*

*much about commerce as about experience. The people who opt for it are looking for something different. It is not resort type. We don't have those facilities but the fact that there are many enquiries is proof that people are keen to connect with Nature. Harvest Fresh is Indocert certified and guests are curious about organic lifestyle."*

*Thampi and Geeta run their four-acre farm, Thomaschettan's Farm, near Kolenchery. What makes their farm unique is the agricultural practice they follow, which is done on Cosmic Rhythms based on the Panchangam . "It is Vedic practice based on position of the stars," says Thampi who is happy to have guests interested in his farm. But he does not market it aggressively believing that such indulgences are selective. On the farm the guest is treated to farming practices and can participate in all the activities there. The kitchen is looked after by his wife and he has six farm hands to help him run the place. "In the end our guests just give us a hug and leave," he says with immense satisfaction.*

*Off Angamaly, near Athirampally falls, is Mathew Urumbath's Nutmeg Greens, a 15-acre property. He entered this tourism aspect by default, "as friends and family insisted on sending their extended friends and family." But Mathew reasons that the tourism aspect helps keep the farm in ship shape. With nutmeg as his main crop he does integrated or multi-cropping along with live stock farming, hence offering the guests a complete rural experience. He serves what he calls farm cuisine to his guests and says they can participate in as mundane an activity as walking the goats to performing a tougher job like milking cows. Mathew too lays stress on organic farming and cultivates a mix of rubber, coconut, areca nut and 200 varieties of fruit trees.*

*The trend he notices is that more people are taking to farming and hence the scope of farm tourism too increases. "Farm tourism has not taken off the way it was envisaged when it started," says Mathew adding that the truly interested will always be come. He recently had*

*a group of agriculture research scientists who just sat under the trees relishing the concept of integrated farming that he practices.*

*Philipkutty's Farm is probably one of the earliest in Kerala that came up with the concept of hosting guests at their remote isolated island farm near Kumarakom. Today, Anu Mathew runs it along with her mother-in-law Anlamma carrying forward the dreams of her husband who built the first cottage in 1999. She has six cottages and guests who are thrilled at being there "just doing nothing."*

*With tourism trying to reinvent itself in the State, farm tourism, in its multi-faceted versions, can surely be the cash cow that's still not tapped completely. It's potential remains uncultivated.*

## **Farmers get expert tips from agricultural scientists**

Deputy Chief Minister T. Rajaiah, who inaugurated a workshop on irrigation dry crops held at agricultural research center here on Sunday, said farmers should also focus on poultry, fisheries and horticulture. Most of the farmers just blindly follow others, rather than experiment, which is causing great harm, he said.

The State government on its part has earmarked Rs. 100 crore for farm mechanisation, Rs. 250 crore for drip irrigation, besides waiving loans to help farmers in Telangana.

Farmers should keep shifting - instead of sowing cotton or paddy every time, he said.

Pousomi Basu wanted farmers to opt for sericulture, which gives more income. The district administration is setting up a cold storage and now farmers should also focus on cultivating vegetables too, said Pousomi Basu.

DCC Bank chairman J. Raghava Reddy wanted farmers to get the soil tested before deciding on the crop. He said the bank will extend

loans for construction of godowns if the PACs get three acre of land.

Agriculture University Vice-Chancellor Raji Reddy said farmers should opt for mixed farming to earn more income.

They should also concentrate more on other activities, he said.

Agricultural scientists R. Uma Reddy, L. Jalapati Rao and others present.

## National Biodiversity Museum in city



The museum is expected to be built in a six-acre site near the 15-acre Bio-diversity Park at Raidurg

*The first-of-its kind museum is expected to be built in a six-acre site near the Bio-diversity Park at Raidurg*

The State capital will soon get another important landmark with the Government of India deciding to set up a first-of-its kind National Biodiversity Museum (NBM). The museum is expected to be built in a six-acre site near the 15-acre Bio-diversity Park at Raidurg on the hilly landscape of the Mehdipatnam-Gachibowli stretch at an estimated cost of Rs. 200 crore.

The Telangana Government has already agreed to provide land for the prestigious museum and the allotment process is in the final stages, senior officials of the Biodiversity Board, who preferred to remain anonymous, , said. The idea was conceived during the Convention on Biodiversity (CoP-II) held in the city two years ago.

The NBM is aimed at creating awareness among people on the importance of conservation of biological diversity and genetic integrity of plants, animals and micro-organisms along with ensuring unhindered evolution of living resources.

### **Thematic galleries**

The museum will have nine thematic galleries (each with an area of 1,000 sq. mts), auditorium, library, 3D theatre, digital interpretation centre, aquarium (marine and freshwater) exhibition hall, activity centre, etc.

The museum will have a visual documentation of biogeographic zones of India, first of which would be the entire mountain chain running from north-western to north-eastern India, trans Himalayas of Ladakh, plains and non-Himalayan hill ranges of north-eastern India, frozen desert, high altitude wetlands, migratory birds, etc.

Evolution of agriculture in the country, especially in the Gangetic plain, soil diversity, semi-arid regions of Punjab, Gujarat, desert of Rajasthan, Eastern and Western Ghats, coasts and islands of Andamans and Lakshwadeep, et al, would be showcased.

### **Audio-visual documentation**

Anthropological and cultural connections of biodiversity will be depicted through audio-visual documentation of food practices, festivals, clothes, etc.

An account of the endangered and extinct species will also be presented, senior officials said.

The Union Ministry of Environment and Forests and Creative Museum Designers (CMD), wholly owned and controlled by the National Council of Science Museums (NCSM) under the Ministry of Culture, have prepared a joint strategy for the project.

The CMD will not only prepare a detailed project report, but will also offer expertise for development of concepts and themes, technical assistance in installing and commissioning of exhibits as also manpower training, senior officials explained.

## Mulberry's uses: from wine to cricket bat

**UAS-B DEVELOPS SEVERAL PRODUCTS FROM THE PLANT**

# MULBERRY'S USES FROM WINE TO CRICKET BAT

R.S. Satish Kumar

**BENGALURU:** The University of Agricultural Sciences, Bangalore, is coming out with a host of products from the luscious mulberry. For instance, mulberry fruit wine, for which the protocol has been standardised by the institute, will be available to wine lovers in six months.

Jam, juice and pickles using the fruit are being developed as part of a project to use unused resources in the sericulture sector to help farmers enhance their income.

The varsity's Incubation Centre for Use of Sericulture Waste at Chintamani has developed these technologies under the Rashtriya Krishi Vikas Yojana. "It is wrong to think that mulberry is associated only with silk. We are trying to demonstrate that it can be used for different purposes by putting every part of this plant to good use. The intention is to ensure that even with one acre of land, a sericulture farmer can get a good income," says the centre's principal investigator S. Chandrashekhar.

The centre is also trying to popularise green tea made from mulberry leaves by other companies. Efforts are also on to popularise recipes made with its leaves, such as curry, pakoda and parantha.



*The varsity's Incubation Centre for Use of Sericulture Waste has developed these technologies under the Rashtriya Krishi Vikas Yojana. —FILE PHOTO*

### ONE TREE MANY BENEFITS

-  **FRUIT:** can be used to make wine, jam, juice and pickles
-  **LEAVES:** green tea, curry, pakoda and parantha
-  **SHOOTS** - furniture, cricket bats, hockey sticks, badminton and tennis rackets, weaving of baskets
-  **BARK** - paper-making
-  **ROOT** - used as timber and to fashion decorative pieces

### OTHER USES OF SILKWORMS

- Silkworm pupa** - oil extracted from this is used in paints and soaps
- Silkworm droppings** - help generate 30 per cent more biogas; rich manure

### THE PROJECT AIMS TO HELP SERICULTURE FARMERS ENHANCE THEIR INCOME

The thick mulberry stem is being promoted as material that can be used to make cricket bats, light-weight furniture and as an alternative to bamboo for baskets. The roots can be used to fashion decorative pieces.

The mulberry fruit is rich in vitamin C, while its leaves, roots and shoots have medicinal properties.

In addition, oil is extracted from the silkworm pupa for use in paints and soaps. Studies have also shown that silkworm droppings yield 30 per cent more biogas than cow dung, Mr. Chandrashekhar said.

*UAS-B has developed various products from the plant to enhance sericulture farmers' income*

The University of Agricultural Sciences-Bangalore is coming out with a host of products from the luscious mulberry. For instance, mulberry fruit wine, for which the protocol has been standardised by the institute, will be available to wine-lovers in six months.

The pulpy fruit's jam, juice and pickles are being developed as part of a project to use unused resources in the sericulture sector to help farmers enhance their income.

The varsity's Incubation Centre for Use of Sericulture Waste at Chintamani has developed these technologies under the Rashtriya Krishi Vikasa Yojana. "It is wrong to think that mulberry is confined to just silk. We are trying to demonstrate that it can be used for different purposes by putting every part of this plant to good use. The intention is to ensure that even with one acre of land, a sericulture farmer can get a good income," says the centre's principal investigator S. Chandrashekhar.

The centre is also trying to popularise green tea made from mulberry leaves by other companies. Efforts are also on to popularise recipes made out of its leaves, such as curry, pakoda and parantha.

The thick mulberry stem is being promoted as material that can be used to make cricket bats, light-weight furniture and as an alternative to bamboo for baskets.

The roots can be used to fashion decorative pieces. This is in addition to making ornamental flowers from cocoons.

The pupa from the silkworm is being used for extracting oil to use in paints and soaps. Studies have also shown that silkworm droppings yield 30 per cent more biogas than cow dung, Mr. Chandrashekhar said.

The mulberry fruit is rich in vitamin C, while its leaves, roots and shoot have medicinal properties.



Chennai - INDIA

### Today's Weather



Partly Cloudy

Rain: 0

Humidity: 84

Wind: normal

### Tomorrow's Forecast

Monday, Nov 24

Max 30° | Min 25°  
Cloudy

Sunrise: 06:11

Sunset: 05:39

Barometer: 1013

Tuesday, Nov 25

Max 31° | Min 25°

### Extended Forecast for a week

Wednesday  
Nov 26



31° | 25°  
Cloudy

Thursday  
Nov 27



33° | 27°  
Partly Cloudy

Friday  
Nov 28



33° | 27°  
Sunny

Saturday  
Nov 29



34° | 27°  
Partly Cloudy

Sunday  
Nov 30



33° | 27°  
Partly Cloudy

## High-fruit diets can worsen depression

*Forcing your children to have too much fruit during adolescence can have negative consequences as a diet high in fructose, a sugar found naturally in fruits, may exacerbate their depressive behaviours, new research shows.*

The consumption of a diet high in fructose throughout adolescence can worsen depressive and anxiety-like behaviour and alter how the brain responds to stress, the findings showed.

"Our results offer new insights into the ways in which diet can alter brain health and may lead to important implications for adolescent nutrition and development," said lead author Constance Harrell of Emory University in Atlanta.

Fructose stimulates neural pathways that affect how the brain responds to stress, which can have important behavioural effects, including worsening symptoms of depression and anxiety, the researchers found.

Such effects are of particular concern during the teen years, which is a critical time for the development of the brain's stress response.

For the study, the researchers gave both adolescent and adult rats either a standard or a high-fructose diet.

After 10 weeks, the adolescent rats on the high-fructose diet had a different stress hormone response to an acute stressor, which was consistent with their depressed-like behaviour. A genetic pathway in the brain that plays a key role in regulating the way the brain responds to stress was also altered.

The findings were presented Neuroscience 2014, the annual meeting of the Society for Neuroscience at Washington DC.

## Making a beginning with vegetarianism

Big movements begin in a small way. And so it seems, as a section of Hyderabadis have signed up to go 'meatless' for three days, till November 25. In a city which swears by its kebabs, biryanis and haleems, a number of Hyderabadis have joined the movement: 'Pledge to Go Veg on World Meatless Day'.

"I have pledged to keep off non-vegetarian food for these days. One of my seniors at work asked us to try this out and I thought, why not?" shares Deekshith Reddy, who works for a home-solutions company. "I know this won't have a long-term impact, but it will help to make the balance right," he explains. But what does he mean by making the 'balance right'? "When you slaughter an animal, a lot of its body parts are dumped into water bodies, which, in turn, pollute the environment. You've got to start somewhere. Everything is interlinked, and this is just the first step," he says.

Pavan Galada, entrepreneur and a vegetarian, was instrumental in getting his colleagues to quit meat. "I managed to convince around 10-15 people at my workplace to follow my advice. I didn't force them, but just told them that killing animals isn't worth it. Plus, it is just for three days, and they said yes," he shares.

Some of our city folks have already given up eating non-vegetarian food. "It's been a few months since I turned vegetarian. I did a little research and found that it involves a lot of violence to put meat on the plate. Take chicken, for instance. Right from the time they hatch, they're confined in a small coop," shares KiritiRaju, a project manager.

He admits that he did try to get some of his friends to give up non-veg food, but without success. "Initially, they laugh. But once they see I'm serious, they'll give it a thought. I know these things take time. It's

like a domino effect — once they see someone quit, they may follow. My parents gave it up five years ago, and a lot of people around them kept converting to vegetarianism," he says.

And some of those who've given up meat swear by their new lifestyle. "I never used to think much about what I ate. I used to feel that animals are made for us to eat, but once I started researching I realised the benefits of vegetarianism. I decided to give up non-veg food," shares Sameer H, an MNC employee. And he believes this has made him a calmer, healthier person. "When all the toxins are flushed out of your body, you become a calmer person. I used to have respiratory problems, but once I turned to veganism, that stopped completely," says Sameer, who turned vegan two years ago.

Pavan can well imagine the scepticism associated with embracing vegetarianism. "For me, this is just one step towards spreading awareness about going vegetarian. Everyone has their own logic about choosing to be a vegetarian or non-vegetarian, but at least if we plant this seed of thought in their heads, they'll pledge to go vegetarian once a week. If 100 people choose to go meatless, maybe 70 of them will go back to non-veg food at the end of the three days, but 30 others will stop," he feels.

## Pumpkin seeds wondrous benefits

*Pumpkin may not be a favourite vegetable for many but its seeds have an abundance of amazing benefits that will do wonders for your health.*

### Healthy heart

Pumpkin seeds are high in magnesium, which is imperative for adequate physiological body function. This includes the proper pumping of your heart, as well as tooth and bone formation, DNA synthesis and bowel function. Magnesium is also a natural relaxant.

## **Sleep**

Being high in the amino acid tryptophan, pumpkin seeds help you to have a restful night's sleep. They're literally nature's sleeping pills.

## **Stabilising blood sugar**

Due to being high in protein, pumpkin seeds help to regulate your blood sugar levels. This has two particularly great potential benefits—weight loss and diabetes prevention. It's also said to help the latter by decreasing oxidative stress.

## **High in Omega-3**

Pumpkin seeds are one of the most notable plant-based sources of obtaining omega-3. This is a fatty acid that's essential to metabolism health, as well as brain and cognitive performance.

## **Energizing**

Pumpkin seeds are full of iron, which will give you a fantastic energy boost throughout the day. This is a great alternative to sugary snacks that will only give you energy for a short period of time before resulting in a sugar crash.

## **Lowers cholesterol**

In addition to omega-3, pumpkin seeds are also rich in mono-unsaturated fatty acids such as oleic acid. This helps to lower bad LDL cholesterol and therefore helps prevent stroke and coronary artery disease.

# DECCAN Chronicle

## 'Food crops' to be grown in space

**London:** A new EU-funded research project is set to attempt to grow food in space, which may lead to crops being cultivated on the Moon and Mars.

The 10-year project called Time Scale, led by researchers in Norway, will investigate how food plants grow in space and how the plants can help supply space travellers with food and air in the future, Sky News reported.

Researcher Ann-Iren Kittang Jost said that she envisions that they can form the basis for food cultivation on the Moon and Mars sometime in the future.

Jost added that these are just a few preliminary steps and she doesn't want to venture a guess regarding how long it will take before they can be used on a large scale.

Jost continued that they haven't decided which food plant to cultivate yet but have discussed about cherry tomatoes, lettuce or soybeans.

Astronauts need around 30kg of water, food and air each day and despite some recycling of water on the ISS, supplies must be delivered from earth at huge cost.

Jost said that the cultivation of more complex organisms in space conditions required far more research as there is no up or down in the microgravity of the space station.

She added that one of the big challenges is to administer exactly the right amount of water and nutrients to the plants in such little gravity because they have seen that a stationary film of air forms around a plant, so it just stands there breathing the same air.

## Berry special: Karonda recipes



### KARONDA CANDY WITH BAKED YOGHURT

My trips to Banaras had nothing to do with food or anything remotely related to it. It was just about experiencing the serenity and spiritual pulse of the place. Even before reaching the city, I had visualised the long stretches of the ghats on the banks of the Ganga, the famous temples, the evening aarti, lustrous silk sarees and the bustling bazaars of the holy city.

The streets were busy and crowded but with a nice old-world charm. The ghats were even more magnificent than I had expected, as were the temples and Sarnath. And not to my surprise, I spotted lots of tourists and locals enjoying the local delicacies like gol gappas and chaat, the famous Banarasi paan, lassi and thandai.

I saw people selling vegetables and fruits on carts and in small shops tucked in the busy old streets of the city. Most of the produce was quite common but a bright, berry-like fruit caught my attention. It resembled the Indian cherry. To be more precise, it was like a cross between the Indian cherry and fruits of the neem tree. When asked, the vendor mentioned that in the colloquial language, it is called karonda. The name sounded familiar and then I recalled that most of us have eaten it as an ingredient in Indian pickles and chutneys. But I had never seen it fresh and unprocessed.

Out of curiosity, I picked up a berry and bit into it. It had a sharp acidic taste with a hint of bitterness. It had already caught my attention, so the next step was to find out more about it. Results of the research:

- It is called carissa carandas, a species of flowering shrub in the dogbane family
- It grows in northern regions, Western Ghats, southern part of our country and has got culinary as well as medicinal applications.
- The berry has high acidic content, is a good source of iron and contains pectin.

The next step was to use the berry in my kitchen and bring out all the possibilities that it had to offer. Based on the flavour profile and the way it behaves with various cooking methods, we prepared innovative dishes such as karonda sorbet with sea salt and crushed pepper, baked yoghurt and glacéd karonda and carbonated karonda drink.

*The writer is a chef at Dramz Whisky Bar and Lounge, Qutub-Mehrauli*

## **KARONDA DRINK**

### **Ingredients**

1. Karonda 200 gm
2. Sugar 150 gm
3. Water 200 ml
4. Whey of probiotic yoghurt 2 tbsp
5. Fresh yeast 2 gm

### **Method**

- Wash and cut the karonda into halves and discard the seeds.
- Make the sugar syrup by boiling together sugar and water.
- Put the karonda in the simmering sugar syrup and simmer further for 30 minutes.
- Blend every thing together and strain the liquid.



- If required, add more water to thin down the consistency. The mixture has to have a fairly thin, water-like consistency but taste has to be slightly sweet. If the sweetness goes down, mix in a little bit more sugar.
- Cool the mixture and add the whey of probiotic yoghurt.
- Let the mixture ferment for 24 hours.
- Once 24 hours are over, strain the mixture once again and mix in the yeast to it.
- Ferment the mixture for another 10 hours and then strain and pour it in a sterilised airtight bottle. Keep the bottle at room temperature for 12 hours and then chill the bottle.
- The final yeast based fermentation will help the carbon dioxide to dissolve in the liquid.
- When the bottle is opened for consumption, it will have a nice fizz and refreshing taste.

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## **Karonda Sorbet with Himalayan Salt and Black Pepper**

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### **Ingredients**

1. Karonda 200 gm
2. White/crystal sugar 200 gm
3. Water 300 ml
4. Five freshly crushed black pepper
5. Himalayan salt 2 gm
6. Roasted cumin seeds, crushed to make powder one tbsp
7. Liquid glucose 50 ml

### **Method**

- Cut the karonda into half and take out the seeds. These seeds tend to impart a bitter flavour.
- In a pot, put water and sugar together and bring to boil.
- Add karonda to it and simmer till the berries start to disintegrate.
- Take it off the flame and blend it using a hand blender, and make a smooth puree out of every thing.
- Pass the puree through a sieve.

- Mix in crushed black peppercorn, roasted cumin powder and liquid glucose to it. Stir it properly to make sure that the liquid glucose dissolves in the karonda puree.
- Churn the mixture in a sorbet machine, scoop out and serve sprinkled with Himalayan salt. Or freeze the mixture overnight, so that it becomes rock hard. Scrape off nicely with a fork and serve sprinkled with Himalayan salt.

## Keep on running if you want to stay young

**Washington:** A new study had claimed that if you want to stay young, running might be the best way to do it.

The research by the University of Colorado Boulder and Humboldt State University shows that senior citizens who run several times a week for exercise expend about the same amount of energy walking as a typical 20-year-old.

Professor Justus Ortega, who led the study, said that the bottom line was that running keeps one younger, at least in terms of energy efficiency.

The study involved 30 healthy older volunteer adults (15 males and 15 females) with an average age of 69 who either regularly ran or walked for exercise. The volunteers all had been either walking or running at least three times a week for a minimum of 30 minutes per workout for at least six months.

Ortega said that they found older adults who regularly participated in highly aerobic activities - running in particular - had a lower metabolic cost of walking than older, sedentary adults and also lower than seniors who regularly walk for exercise. Though it was known for long that as people aged, their maximum aerobic capacity, or 'horsepower,' declined, and that was true for runners as well. What was new was that they found old runners maintained their fuel economy.

Associate Professor Rodger Kram said that walking for exercise has many positive health effects, like fending off heart disease, diabetes, weight gain and depression - it was just that walking efficiency did not seem to be one of them. Because no external biomechanical differences were found between the older walkers and runners, they suspected the higher efficiency of senior runners was coming from their muscle cells.

The study is published online in the journal PLOS ONE.

## Business Standard

### [Pomegranate farmers get respite from bacterial blight](#)

**Pune-based Swasti Agro has developed technology which fights prevention of bacterial blight disease**

Appa Thombre, 70, a pomegranate grower in Majalgaon of Beed district, suffered heavy losses in pomegranate farming due to [bacterial blight](#) (also known as Telya in local language) till last year. But, this year, he is able to control the disease and is getting good yield. Thombre is thankful to the treatment developed by Pune based [Swasti Agro](#) & Bioproducts. The treatment is based on the principle of building disease resistance into crops.

"We successfully tested this newly developed (under patenting) technology for prevention of the bacterial blight Telya disease over the last six months in nine districts and across 600 farms. It is a daunting problem for [pomegranate farmers](#) in India. India loses about Rs 10,000 crore in production of pomegranate and about Rs 2000 crore as export opportunity loss every year due to this disease. Hence, farmers are suffering heavy losses, and many of them have even uprooted the orchards," said Abhay Shendye, director, Swasti Agro & Bioproducts.

According to Shendye, India is the second largest exporter of pomegranate after Spain. Apart from pomegranate, Telya is a major roadblock in managing and controlling a devastating disease among mango and citrus. These diseases are mainly caused by Xanthomonas pathogens and were first noticed in India.

Speaking to Business Standard, Thombre said, "The treatment has benefited us and the disease is now almost under control. It is cost-effective. Over 50 farmers in this area are now using the treatment and are extremely satisfied about it." Thombre grows pomegranate over 18 acres of land.

Shendye added, "Conventional treatments focus on killing the pathogen whereas Swasti products build disease resistance in plants, and minimize the survival potential of the pathogen in nature. This alternate approach of disease prevention and/or early control was well received by the farmers, and provided them visually obvious disease control and meaningful economic gains."

The Department of Biotechnology has sanctioned grant of Rs 50 lakh for research to Swasti Agro & Bioproducts, which they expect to get in three phases. Also, the company has developed an android application Happy Crop which provides information about the disease and over 1,000 farmers are using it. The solution is 50 per cent cost-effective as compared to other solutions. Normally, a farmer spends Rs 16,000 per acre to prevent this disease while Shendye claims that a farmer will have spend only Rs 6,000 per acre.

# THE HINDU BusinessLine

## Call to preserve indigenous knowledge of fishermen

Seminar highlights importance of traditional knowledge

**Kochi, November 23:** A seminar on traditional fishing and indigenous knowledge has emphasised the need to preserve the technical knowledge of native fishermen for the sustainability of fisheries.

KS Purushan, Professor of Eminence, KUFOS, said indigenous technical knowledge (ITK) is very helpful in promoting eco-friendly fishing practices by observing various signs and signals in sea and sky. It demands skilled and strategic approach, season favoured fishing, conservative and sustainable practices, he said.

Purushan was speaking at a seminar at the Kerala University of Fisheries and Ocean Studies (KUFOS).

A competent traditional fisherman can make use of this ITK closely observing the various factors in the atmosphere, sky, oceanic medium and water turbulences.

He is able to judge how the water currents and tides would affect the fishing endeavour. Feeling the temperature of water in finger tips, some fishermen are able to predict the presence of fishes at times.

The ability to predict weather changes due to formation of clouds is an important indigenous technical knowledge for fishing.

An experienced traditional fisherman can predict, by observing the constellation and concentration of stars, the availability of fishes to follow during subsequent days.

The reddish hue seen in the horizon during certain evenings is believed to be a fore-runner for the availability fish such as mackerel, he said.

The seminar proposed that steps be taken to set up museum and art gallery to conserve and popularise the traditional wisdom. It also recommended including ITK as a course programme for fisheries students.

## **Challenges**

In another session on challenges faced by traditional fishermen, it was noted that the declining trend of fish catch is the main challenge for the fishing community.

The reasons put forth include climatic change, temperature variations, water pollution, and reclamation of water bodies and over-fishing. The inclusion of foreign trawlers in the Indian Exclusive Economic Zone was also found to be a threat to the coastal fishery resources.