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THE HINDU

Progressive farmer to inaugurate Dasara



Puttaiah is growing crops in an organic way.

Progressive farmer Puttaiah alias Kariyaiah from H.D. Kote taluk in Mysuru will inaugurate this year's Dasara festivities.

Puttaiah, a Dalit farmer, owns 40 acres. He cultivates ragi, maize, oil seeds, apart from horticulture crops such as coconut, banana, and chikko. He also cultivates sericulture and is engaged in dairying, poultry, sheep rearing and fisheries. He has installed a bio-gas plant using the waste generated from agriculture and allied activities.

The farmer is growing crops in an organic way.

Mr. Puttaiah has been the president of the H.D. Kote Horticulture Cooperative Society for the last 10 years and has won the Sreshta Krishika award for 2014-15.

Mr. Puttaiah's is a joint family having more than 40 members. He and his five brothers are living together with their children. Though eight members

of the family have successfully completed graduation in different disciplines, none of them had sought jobs in government or in private companies and all of them are engaged in agriculture and allied activities.

Mr. Puttaiah will inaugurate the Dasara on October 13 atop the Chamundi Hills.

He told *The Hindu* that he would broach the farmers' problems with Chief Minister Siddaramaiah on the day of inauguration or subsequent days. He would appeal to the Chief Minister to take steps to ensure better prices for crops. Mr. Puttaiah said that he would draw the attention of the Chief Minister over the low minimum support price for crops, as it did not meet the farmers' input costs.

Farming initiatives suffer for want of KAU regional centre

Kozhikode is home to a large number of farmers' collectives and organic farming enthusiasts. The Kerala Agricultural University (KAU), however, has only a lowly information-cum-sales centre in the district despite long-pending demand by various farming communities to set up at least a regional research centre here.

This is in stark contrast to other districts such as Thrissur, which has as many as 60 institutions, including major research centres, and Thiruvananthapuram that flaunts a dozen of them in different parts of the district. The only centre in Kozhikode functions at a small rented facility at Vellimadukunnu here. It neither has sufficient storage space for diverse products developed and disbursed by the university nor even a proper nursery to display saplings and other planting materials.

This is when there is an ever increasing demand from farmers for products, including high-yielding seeds and organic pest controls and fertilizers. The centre puts up for sale seeds, saplings and pest control devices brought from various KAU research centres.

“We are sold out in just a few days of bringing them and we are unable to stock up enough for want of space,” says a staff member of the centre. “We are unable to meet even half of our demand,” he says.

Kozhikode should have had an agriculture research and training centre under the university at least 25 years ago, says P. Rajendran, Associate Director of Research at the KAU Regional Agriculture Research Station (RARS) at Ambalavayal in Wayanad. “I would only blame the people of Kozhikode for this, because they should have pressed for it through their political leadership,” said Dr. Rajendran.

According to him, at least a facilitation centre with enough storage space and a training centre should have come up in the district by now. The production of a number of items, including value-added products from vegetables are in excess at the Anakkayam and Ambalavayal regional centres. “At least a better sales centre in Kozhikode would have scripted a different story for KAU,” says Dr. Rajendran.

According to Corporation councillor P. Kishanchand, who had brought the issue to the council’s notice earlier, a meeting attended by the Agriculture Minister and the university Vice Chancellor had earlier decided to hand over five acres of land under the Agriculture Department at Vengeri in Kozhikode for the centre. “But nothing happened after that,” said the councillor.

The future is farm fresh





Future Farms ventures into professional tropical hydroponics and comes up with new products. Sujatha Shankar Kumar takes a look

Why not make every rooftop a mini farm and every resident an urban farmer? This is the question on Sriram Gopal's mind, who started off as a regular hobbyist, and is now a commercial farmer. His concern Future Farms, constantly gets inquiries on hydroponics — growing plants without soil and using automated watering systems.



Within minutes of my arrival at their set-up at Kottivakkam, I sample dry basil, cinnamon basil, large leaf Italian basil and curry leaf, and their

flavours and fragrances linger for a long time. Chinese kale grows in nutrient-rich water and spinach sprout in sponge substrate. Edible fish as well as ornamental species like Japanese *Koi* and *Pacu* are harvested in tanks with circulating water.



Sriram's entrepreneur father, Gopalakrishnan, pioneered indigenous photographic printing and film processing technology in Chennai in the 1970s. In later years, he had a debilitating spinal cord injury. By 2011, Sriram was running a product development company and eager to get his father tinkering around again, he continually proposed projects.

One day, friend and chef, Muhammad Ali, unhappy with the use of pesticides in agriculture, shared with them a video on hydroponics. Soon after, Sriram and his father went and bought a variety of materials. "They started building systems all over our home," says Sriram's wife Preeta, who encouraged them to pursue it further. Gopalakrishnan started a greenhouse in his old factory in Kottivakkam, which soon turned into a full-time facility.

Gopalakrishnan had once made the smallest film processor and also set up his own lab, where he produced quality prints, proving that his product was just as good as Fuji or Kodak. History repeats itself at the 20,000 sq.ft.

facility of Future Farms. While they import scientific instrumentation, the actual systems are built in-house with local materials, and the product lines are developed by Gopalakrishnan.

The 2,000 sq.ft. shade house is a vibrant showroom. The ‘mother-ship’ is their flagship hydro-vertical farm system of 1,500 plants on 1,000 sq.ft., using a nutrient film technique. Driponics runs on a hybrid deep water culture technology — no water pump is needed to circulate the water, just air.

Employing aquaponics, fish are harvested and the waste is used to feed plants to grow. Plant accessories include tiny to large net pots, coco peat for base and clay pellets termed ‘leca’. “Soon, we hope to water 100 plants with just 300 watt power — that’s the amount of energy a tube light needs,” says Sriram.

His passion for innovation, energy conservation and being outdoors, is what led him all along. The quick growth seen in the year-and-a-half since its inception was unexpected, says Preeta. They have on board a free-thinking core team of 16 people from various backgrounds. They have projects in Bhutan and Karnataka and receive calls from as far as South Africa and UAE.

They are working with the Horticultural Department of Tamil Nadu; in aquaponics, they are involved with the Rajiv Gandhi Centre for aquaculture, with its Tilapia fish centre in Vijayawada.

Future Farm products are on par with EU standards. Hydroponics requires special nutrients, which they import from France. Systems are lightweight and earth-free, thereby reducing pesticides.

Compared to a regular terrace garden, hydroponics uses 80 per cent less water. Preeta says, “It is a good option for residential projects and for people who like trying new things and working with their hands, even if you start with a 100 sq.ft. space.” As of now, Future Farms facilitates people to build

their own farms and terrace gardens. “By putting a poly-house on the roof, there is a 20 per cent increase in cooling efficiency and you get extra oxygen from the plants”, says Sriram. Products range from Rs. 2, 000 onwards and hydroponics can be a wonderful hobby for seniors, as it does not require bending or handling of heavy machinery.

Attending expos has given Sriram a greater insight into future markets. More than anything, he finds that working around plants benefits health and gives an increased sense of well-being. “People do not buy our products. They buy into the vision.”

More details at: www.futurefarms.in

The writer is a city-based writer and visualiser. She studied furniture design at NID and is a graduate of The School of the Art Institute of Chicago.

Environment Minister Prakash Javadekar announces India's INDCs

Environment Minister Prakash Javadekar speaking at the press conference on India's INDCs.



"The INDCs announced by India are comprehensive, progressive and ambitious," he said.

What are India’s Intended Nationally Determined Contributions (INDCs) on climate change going to look like? This question has been the subject of much speculation in the past weeks.

Environment Minister Prakash Javadekar on Friday addressed a press conference on India's INDCs.

Here are the eight goals:

- To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.

- To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.

- To reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level.

- To achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).

- To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.

- To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.

- To mobilise domestic and new and additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.

- To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

Live updates here:

12: 55 pm: India to save 3.59 Billion tonnes of carbon emissions by developing carbon sinks, a huge contribution by us, says Mr. Javadekar

12: 48 pm: I am positive that we will become a part of the solution, we will produce results: Mr. Javadekar

12: 40 pm: India is taking a huge step in increasing installed capacity share of non-fossil based electricity by 33 per cent, the Minister says.

12: 30 pm: India's contributions represent the utmost ambitious action in the current state of development:

12: 06 pm: It was decided in COP20 that mitigation is only part of the answer: Mr. Javadekar

12: 03 pm: The INDCs announced by India are comprehensive, progressive and ambitious: Prakash Javadekar

Wooing youth to agriculture

Seminar highlights importance of technology adoption

Highlighting the importance of farming, the ICAR-Indian Institute of Spices Research (ICAR-IISR) conducted a seminar to create awareness about the opportunities and attractiveness of agriculture as a profession among the youth. The seminar intended to showcase agriculture as an attractive profession among the youth through technology adoption, enterprise diversification, and resource use planning, despite various challenges due to socio-economic factors, including profitability in agricultural pursuits.

The seminar was organised in connection with Swasraya Bharat - 2015 being jointly organised by the Swadeshi Science Movement Kerala (SSMK) and the ICAR- IISR. Homey Cheriyan, Director, Directorate of Arecanut and Spices Development at IISR, inaugurated the seminar.

– Special Correspondent

Start-up village project launched

For sustainable growth model in dairy, poultry, allied sectors

Therambil Ramakrishnan, MLA, launches the Startup Village Project at Pullazhi Kole, Olari, in Thrissur on Thursday.

The Kerala Veterinary and Animal Sciences University (KVASU) launched the first phase of the Startup Village Project at Pullazhi Kole, Olari, on Thursday.

The project aims at creating a sustainable development model in dairy, poultry and allied sectors.

Speaking after inaugurating the project, Therambil Ramakrishnan, MLA, pointed out that the start-up would facilitate a unique model of development so as to produce livestock, agriculture and allied products in an integrated manner.

“It is high time that we thought of achieving self-sufficiency in production of milk, egg, meat and other food products in the State. Our production system should consider environmental and climatic factors for developing a sustainable development model. The start-up will be a model for other States too,” he added.

The Directorate of Entrepreneurship of the university is implementing the project with the support from the Thrissur Urban Development Authority and the Pullazhi Kole Co-operative Society.

Thrissur Urban Development Authority chairman K. Radhakrishnan, during the presidential address, suggested that beneficiaries should concentrate on quality products. T.P. Sethumadhavan, Director of Entrepreneurship, KVASU, and Gopinathan, president, Pullazhi kole Cooperative Society, addressed the gathering.

In order to promote poultry production, beneficiaries will be provided with crossbred layers and poultry feed in the coming months.

Fodder cultivation

Fodder cultivation will be promoted in a big way under the project. Based on the stakeholder demand and technology innovation and dissemination process, appropriate inputs will be distributed.

A scientific seminar on fodder cultivation and animal health were held as part of the function.

Botanical garden is MBGIPS now



R. Prakashkumar (right), Director of the Malabar Botanical Garden and Institute for Plant Science, explains the features of the proposed aquatic biopark to Chief Minister Oommen Chandy in the city on Thursday.— K. Ragesh

Chief Minister Oommen Chandy on Thursday declared upgraded the Malabar Botanical Garden at Olavanna in Kozhikode as the institute for plant sciences.

The facility under the Kerala State Council for Science, Technology and Environment (KSCSTE) will now be known as Malabar Botanical Garden and Institute for Plant Science (MBGIPS), said Mr. Chandy. He also laid the

foundation stone for the proposed Malabar aquatic biopark on the institute premises.

Help for students

The Chief Minister, who also unveiled a model of the proposed aquatic biopark at the function, said Rs.3 crore had been allocated in the last budget for the upgraded institute, which will be beneficial for students as well as researchers.

Funds sanctioned

Mr. Chandy also sanctioned Rs.50 lakh for improving the narrow road to the institute from the city.

An ecosystem service centre meant to reintroduce different varieties of rare plants in their natural environment through diverse methods will be another important facility to be developed at the institute, which is spread over 40 acres.

Attractions

An aquatic plant conservatory, a protected area for lower group plants, systematic garden based on taxonomic classification, quarter for Rare Endangered and Threatened (RET) plant species, herbal garden, Gymnosperm section and Hortus Valley, where almost all the 700 plants mentioned in the *Hortus Malabaricus* are arranged together, are some of the attractions of the MBGIPS.

Various developmental, research and extension programmes are also being carried out in this institution. It serves the dual cause of ecological conservation and plant research, said R. Prakashkumar, director of the institute.

Agriculture Minister K.P. Mohanan presided over the function. M.K. Raghavan, MP, and P.T.A Raheem, MLA, among others were present.

Malabar Botanical Garden will now be known as Malabar Botanical Garden and Institute for Plant Science

A ray of hope for coconut farmers



The first set of dwarf coconut saplings nurtured at the Coconut Development Board's farm in Tirupur is ready for sale.

The Coconut Development Board is all set for hybridisation at its farm situated near Udumalpet, to come out with pest resistant varieties.

The attack by pests such as red palm weevil and rhinoceros beetle has been one of the biggest factors that reduce the yield.

“We plan to come out with ‘dwarf X tall’ variety by hybridisation of tall varieties such as Chittur Tall and West Coast Tall with dwarf varieties such as Malaysian orange, Malaysian green, Malaysian yellow and Chavakkad orange,” R. Deepthi, manager at the Board's farm said.

The Board has started planting 6,000 mother saplings of the said dwarf and tall varieties in the farm.

According to Ms. Deepthi, the hybrid varieties will be able to give nuts meant for tender coconut, raw coconut and copra.

Once the hybrid varieties are developed, it would be sold at subsidised rates to farmers. “We plan to give away at Rs. 150 per seedling,” she said.

In another significant step, the first set of 15,000 dwarf coconut saplings produced at the Board’s farm is ready for sale.

‘Aquaculture beckons huge foreign investment’

Commissioner of Fisheries, Ram Shankar Naik, has said several countries, including Japan, China and the US, were keen on investing in aquaculture owing to its high potential in the State.

“As the State has a 974-km coastline and scope for increasing production of shrimp, shellfish and other exotic species, international traders are coming forward to invest in farming, processing and export units,” Mr. Naik said. He also asked Fisheries Department officials to help farmers prevent diseases to produce quality shrimp.

Mr. Naik was inaugurating a State-level workshop on ‘shrimp disease surveillance and capacity building measures’ for Fisheries officials here on Thursday. Officials of the Rajiv Gandhi Centre for Aquaculture (RGCA), Chennai; National Centre for Sustainable Aquaculture (NaCSA), Kakinada, and the Central Aquaculture Pathology Lab (CAPL), Sirkali, spoke of disease surveillance and remedial measures on the occasion. Marine Products Export Development Authority (MPEDA) Deputy Director S. Kandan chaired the workshop.

RGCA All India Project Director Y.C. Thampi Sam Raj said of the total \$ 5.51 bn. aqua exports from India, aqua products worth \$ 3.5 bn. are from cultured scampi and 80 per cent of shrimp production arrived from Andhra Pradesh during 2014-15 financial year. “There is scope to increase production if farmers follow better management practices. To improve quality, surveillance teams, comprising members of MPEDA and NaCSA, will collect samples to screen diseases in all coastal districts and alert farmers to prevalence of viruses,” he added. Dr. Kandan said White Spot Syndrome Virus (WSSV) and Enterocytozoon Hepatopenaei (EHP)

infection were high in L. Vannamei species in coastal districts. Owing to EHP, farmers will suffer loss, as shrimp loses weight,” he added.

RGCA Deputy PD Jaideep Kumar; NaCSA CEO K. Shanmuka Rao; L. Vannamei Multiplication Centre, Visakhapatnam, Project Manager H. Dinesh Kumar; Assistant Project Managers (APMs) V.N. Biju and Remany; Aquatic Quarantine Officer A.K. Panda and CAPL Assistant Technical Manager Karthick Kannan gave power-point presentations on various diseases prevalent in shrimp as well as prevention methods.

As AP has a 974-km coastline and scope for increasing production of shrimp, shellfish and other exotic species, international traders keen to invest in processing and export units.

Ram Shankar Naik, Commissioner of Fisheries

State-level workshop on shrimp disease surveillance held

Benefits of cattle rearing

Cattle rearing was profitable as it adds subsidiary income to family. Care should be taken to develop country cows as their milk and ghee had better medicinal value, said Dr. Suresh Pathak of Vadodara at a valedictory program of Self-Help Groups of Sirsi, Siddapur and Yellapur taluks held at Sonda Swarnawalli recently.

STATE-LEVEL HISTORY CONVENTION AT SIRSI

The second State-level history convention will be held on October 10 at Vidyadhiraj Kalakshetra, Rayarpeth, Sirsi. Historian Dr. S.K. Joshi will preside over the convention. Writer Nadoja Kamala Hampana will inaugurate the convention at 10 a.m.

Birds of a feather, bonded by nature

One of the pictures to be displayed at a photo exhibition of birds of Kerala and the Western Ghats at the Durbar Hall Art Gallery in Kochi on Saturday.

What do a retired banker, an electrical engineer, a specialist in emergency medicine and a teacher of sociology have in common? They are birds of the same feather, bonded by a passion for nature.

For all of them, nature is full of wonder and inspires them to spend time to closely scrutinise their surroundings. The result of several years of their efforts will be on show at the Durbar Hall Art Gallery, where a photo exhibition of birds of Kerala and the Western Ghats begins on Saturday.



Sangeetha Balakrishnan, an electrical engineer, says she was pleasantly surprised to discover that there were about 50 species of birds around her home in Malappuram, where she developed her fervour for birding.

Sabarish B. Nair, a specialist in emergency medicine and critical care at a hospital in the city, says his tryst with birds and nature began with a friend who took him along on birding trips. The hobby grew on him, prompting him to spend time watching birds and taking their pictures.

“Nature never disappoints you”, he says about the surprises that have been thrown up during the last six years of his birding life. He recalls that a picture he took casually a few years ago turned out to be a rare sighting of an Egyptian vulture. The bird has not been sighted since, he says, remembering how he grew curious about crows chasing a bird he did not identify but took the picture of.

K.G. Dilip, who teaches Sociology at the Sree Sankaracharya University of Sanskrit, Kalady, says he was drawn to birding by Kerala’s pioneering birder and environmentalist K.K. Neelakantan alias Induchoodan.

K.K. Sudhakaran, an electrical engineer, says his hobby went back several years during which he has identified several species of birds that are regular visitors. He regularly captures them through videos.

Sustainable harvesting

The Forest Department seeks to promote sustainable harvesting of the leaves of Arogyapacha to ensure a steady supply of raw material to Oushadhi for production of Jeevani.

The department has chalked out plans to identify and map the moist, evergreen forest areas most suited for cultivation of the medicinal plant.

While some of the identified areas will be earmarked for gene pool conservation, the remaining patches will be used for commercial cultivation using vegetative and seed propagation methods.

The tribals will be assured of a steady income, both from cultivating the plant and supplying the harvested leaves to Oushadhi.

The harvesting of leaves is to be monitored by Forest Eco Development Committees.

The Forest Department has also mooted a proposal to equip the Kani trust to take up commercial production of a semi processed health drink using the leaves and fruit of Arogyapacha. Combined with honey or other syrups, the product could be marketed as an anti- fatigue drink for pilgrims undergoing the arduous trek to the Sabarimala hill shrine, says Dr. Rajasekharan.



Diet diary: Healing herbs that help you fight dengue, fever

Many healing herbs have been found to ease complications and recovery. Among these are papaya leaf, Giloe and Tulsi.



With the city in the grip of viral fevers and infections, seeking the benefits of traditional healing herbs is a growing trend. Many of them have been found to ease complications and recovery. Among these are papaya leaf, Giloe and Tulsi.

Anecdotal evidence suggests that the extract of raw papaya leaf helps to boost platelets, also known as thrombocytes and relieve symptoms. Recent studies have shown the effect of papaya leaf juice in curing dengue fever. It seems that this bitter green juice is promising without posing any serious ill-effects. Interestingly, papaya leaf has also been found to possess powerful anti-malarial and anti-cancer properties.

A study showed that papaya leaf consists of over 50 active ingredients found to kill fungi, worms, parasites, bacteria, and many forms of cancer cells. Papaya leaves also contain important nutrients that support the immune system, including vitamins A, C, and E. Papain is an important enzyme in papaya leaves that breaks down proteins naturally and aids digestion.

For dengue fever, it is suggested that the papaya juice is extracted by crushing and sieving fresh leaves of papaya. One leaf of papaya gives about one tablespoon of juice. Two tablespoons of papaya leaf juice are given to dengue patients three times per day after a six-hour interval.

Giloe, also known as Guduchi, (a plant which protects from diseases), enjoys the reputation of being one of the most famous medicinal plants used in the treatment of a large number of ailments. Giloe too has been reported to help treat dengue in early stages without any side-effects. It has been reported to increase the platelets in a significant manner and lower the body temperature. Giloe, known as Rasayana plant in Ayurveda, has been

reported to enhance resistance and promote longevity. Tulsi, the ‘queen of herbs’, has been regarded as one of the holiest and most cherished herbs by virtue of its health-promoting and healing properties.

Among its innumerable benefits, Tulsi reduces stress, enhances endurance, increases oxygen utilization, boosts the immune system, slows aging, reduces inflammation, prevents gastric ulcers, protects against radiation, lowers fevers, cholesterol and high blood pressure, protects teeth and gums, fights bacterial, viral and fungal infections, improves digestion and provides a rich supply of anti-oxidants and other nutrients. Tulsi offers remarkable preventive and curative potential with respect to many stress-related degenerative disorders, such as, cancer, heart disease, arthritis, diabetes, hepatitis and neurological dementia.

Author is a clinical nutritionist and founder of <http://www.theweightmonitor.com> and Whole Foods India.

Same BMI, better health: Still fat but a whole lot fitter

An intervention in a Pune school, conducted over a five-year period, had a remarkable impact on students struggling with their expanding waistlines.



Researchers introduced fitness tests, dietary changes, made sports a scoring subject and banned hawkers from selling fast food.

Some simple steps introduced in a school, to help the rising number of students struggling with their weight, ended up making them a whole lot fitter.

In a first-of-its-kind study, researchers at Symbiosis school in Pune and KEM hospital tried to find out whether these steps — fitness tests, diet

control, grading sports as an academic subject and banning hawkers from selling food items outside the school —helped overweight students in any way.

While the students' body mass index (BMI) didn't change much, these steps helped them reduce their waist circumference and get fitter.

Multiple changes were introduced in the 'culture' of a school and maintained over a five-year period, between 2006 and 2011, to improve the children's fitness and health. Researchers found that at the end of the five-year intervention, the students were still fat, but they were much fitter.

Published online in the October issue of the British Medical Journal (BMJ)'s Archives of Diseases in Childhood, researchers Dr Sheela Bhave, Dr Rajiv Yeravdekar and others have shown that schools need to step up the number of physical education classes and expose students to a variety of fitness tests to ensure children are fit.

In several Indian cities, over 10 per cent of school children are overweight or obese. Factors including a strong emphasis on academic performance (children often attend extra tuition classes outside school), a perception that physical exercise is unimportant, and the popularity of energy-dense foods, contribute to this problem.

At Symbiosis school in Pune, researchers provided intervention to 400 children, who were in Std III and IV in 2005-06. They were assessed over a period of five years, till they reached Std VIII and Std IX, in 2010-2011.

“We increased the number of physical education classes from two to five a week, made it a scoring subject, removed hawkers selling fast food near the school and made school meals a lot healthier,” said Dr Rajiv Yeravdekar, dean of Faculty of Health Sciences, Symbiosis International University, and a researcher in the study.

Researchers also analysed the changes among overweight students over a five-year period in another school in Nashik, where no such intervention was provided.

After five years, students at the Pune school — where interventions were provided — were found to be fitter than their counterparts in Nashik in

activities like running, long jumps, sit-ups and push-ups, explained lead researcher Dr Bhave, from the paediatrics department of KEM Hospital and Research Centre. These children reported that they spent less time watching TV and more time playing sports. They also ate fruits more often.

“The intervention did not help reduce the body mass index (BMI) or the prevalence of obesity — as children today have greater access to fast food. However, the waist circumference was significantly lower in children of the Pune school than the ones in the Nashik school. This study proved that it was possible to achieve multiple changes promoting good health in an academically competitive school,” added Bhave.

He added that the parents of the students as well as their teachers seemed to focus more on their academic achievements than their health.

“We realised that parents were more concerned about children’s academic performances than their health and fitness. It took time to implement changes in their physical activities and motivate them to participate. In comparison, dietary improvements were made fairly easily. We hoped that teachers would pass on healthy lifestyle information to the children, but this was unrealistic. They were too busy with academic priorities, upon which they are judged,” said Bhave.

The tests required minimal equipment and were developed by Agashe College of Physical Education in Pune. They were designed to test endurance, cardiovascular fitness, muscular strength and flexibility. They comprised a 9-min walk or run, sit-ups, push-ups, a sit-and-reach test, a shuttle run and a standing long jump.

Other steps included introducing daily pranayam sessions and adding physical education marks to academic reports. Parents received regular fitness reports and opportunities to discuss these individually with nutritionists and doctors.

Dietary changes were made where at least one fruit and two portions of vegetables were served at every school lunch, and children were encouraged to eat the fruit first. Soya flour, brown bread, vegetable-stuffed rotis, sprouts, salad, millets and yogurt were incorporated into tasty ‘child-friendly’ lunch recipes. Vegetables were chopped or pureed so that children could not remove them from dishes.

“For students who brought their own lunches, we provided similar guidelines to their parents,” said Yeravdekar.

While the study highlighted the need for standardised fitness tests suitable for Indian children, it showed that introducing multiple changes in diet and physical activity at schools can indeed improve fitness levels.

THE TIMES OF INDIA

First aquatic biopark project of the country inaugurated in Kozhikode



A model of the first aquatic biopark of the country that was inaugurated in Kozhikode.

KOZHIKODE: Chief minister Oommen Chandy laid the foundation stone for the proposed Malabar Aquatic Biopark project which will host the largest collection of aquatic plants in the country at the Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS) at Olavanna on Thursday.

The aquatic biopark, the first such facility in the country, will come up in 15 acres of wetland at the botanical garden in a phased manner. The chief minister also declared the institute as a constituent R&D institution under the Kerala state council for science technology and environment (KSCSTE). He

said that the government has earmarked Rs three crore for development of research facilities at the institute. Oommen Chandy added that the government would provide young research fellowships worth Rs 3 lakh each to ten students in the field of biodiversity.

The aquatic biopark will feature various model ecosystems including mangrove vegetation, marshy lands and fresh water systems. The Malabar botanical garden already has a collection of 403 aquatic plants. Also, the project involves setting up a national level conservatory for rare and endemic aquatic plants. A circular pond spread over 5.5 acres will be developed in the centre of the wetland. An open-air auditorium will also come up in the middle of the water body. The botanical garden will also be upgraded as the Lead Garden in aquatic biodiversity in the country.

A novel ecosystem service facility project under which rare, threatened and endangered (RET) plants propagated through tissue culture will be reintroduced back into their natural ecosystems was launched at the function which was presided over by agriculture minister K P Mohanan. The RETTI scheme (Rural Empowerment through Technology Intervention) project implemented in collaboration with Kerala State Youth Welfare Board (KSYWB) was also inaugurated at the function. "We will be setting up a conservatory and there will be a centre for eco education intended to create awareness among visitors including students and researchers on the underutilized and valuable aquatic resources of the country. There will be boating services and walkways through the water bodies which will enable visitors to see various water plants from close quarters," Dr. R Prakashkumar, Director of MBGIPS who presented report on MBGIPS said.

Kozhikode MP, M K Raghavan, P T A Rahim MLA, KSYWB vice chairman, P S Prashanth spoke at the function

TNAU scientists warn pomegranate farmers of nematodes

Pomegranate cultivators in the region have been encountering issues like yellowing of leaves, stunting and less productivity of fruit.

The department of nematology of the Tamil Nadu Agricultural University on research has identified a root knot nematode to be the cause of the problem.

According to scientists of the department K Poornima, S Ramakrishnan and S Subrmaniam, the root knot nematode identified in the pomegranate crops has not been documented in Tamil Nadu before. "So, it could have spread from other states during the transport of saplings," said a press release issued by TNAU.

At present, the area under pomegranate is increasing steadily in Coimbatore, Erode, Dindigul and Tirunelveli districts of Tamil Nadu due to its monetary returns and import value.

TNAU scientists assayed soil and root samples of the pomegranate trees in the region and have then confirmed the presence of the root knot nematode.

Based on the analysis done by the scientists of the nematology department, pomegranate growers are advised to subject their soil and root samples for nematode analysis by sending the samples to the department of nematology, Tamil Nadu Agricultural University.

Meanwhile, farmers have also been advised to apply farmyard manure 20tonnes/ha, neemcake 250g/tree followed by bioagent *Paecilomyces lilacinus* 25g/plant to manage nematode problem in pomegranate and to increase crop productivity.

None will be spared for supplying spurious pesticides to cotton farmers: Badal

Punjab chief minister Parkash Singh Badal assured that anyone found guilty of supplying spurious pesticides to cotton cultivators in the state would not be spared at any cost. Badal was talking to newsmen after holding a rally on the occasion Gurta Gaddi Diwas (anointment day) of the second Sikh master Guru Angad Dev in Khadoor Sahib on Friday.

The CM said he had already asked the special secretary (agriculture) to submit a detailed report on the contentious matter. He said that he had already ordered an inquiry to fix responsibility of the erring officials and dealers involved in the sale of spurious pesticides by a special investigation team (SIT) of police comprising three inspector generals of police (IGPs) under the direct supervision of additional director general of police (crime).

Commenting on Punjab Jodo campaign of the Aam Aadmi Party (AAP), Badal replied that infighting amongst the AAP leaders in the state had exposed the face of the new party. He alleged that AAP had no concrete programme or ideology, adding that its leaders were misleading people with hollow slogans.

Despite farmer bodies' protests in Punjab, Badal said the state government would lift every single grain of paddy in a smooth and hassle-free manner during the ongoing kharif marketing season. "We are worried about the interests of farmers and every effort has been made to safeguard them at any cost," he said.

TN farmers urged to destroy nematode-infested guava trees



The Tamil Nadu Agricultural University (TNAU) has intensified research on root knot nematode in guava.

The nematode, which is said to have affected young trees in and around Dindigul, the hub for guava cultivation in this part of TN has been identified as *Meloidogyne enterolobii*, a species not encountered in India so far.

Farm varsity researchers perceive that this nematode might have spread from other countries through saplings.

Urging guava growers to avoid nematode-affected saplings, the researchers said that this unseen root knot nematode associated with guava is capable of killing the tress within three months after the onset of symptoms such as yellowing, shredding of leaves, drying of branches, reduced vigour, less productivity etc.

While cautioning growers, experts advised them to remove and destroy nematode affected trees, apply farm yard manure, neem cake.

TN sugar mills conclude a tough season

Sugar mills in Tamil Nadu have just concluded one of the toughest sugar seasons (October-September) with output at a record low and unviable sugar prices.

According to the South Indian Sugar Mills Association – Tamil Nadu estimates, the sugar production was pegged at 12 lakh tonnes (lt) in 2014-15. But, as of August-end, the output in the private and co-operative sugar mills was about 11.3 lt. The output is less than half, just 40 per cent, of the installed production capacity of about 30 lt.

Low yield

Apart from the drop in output due to a sustained drought in the last two years, the percentage of sugar recovery has also been hit. The average sugar recovery has dropped further to 8.6 per cent compared with 9 per cent in 2013-14 which was also a water-deficient year.

Sugarcane planting for 2015-16 is similar to that of last year but the industry expects a small increase in sugar output as recovery will be better due to improved water availability. Both the South-West Monsoon and pre-monsoon rains are better than last year. According to industry estimates the output will be about 13.5 lt.

Unviable prices

Last season sugar prices ranged at about ₹2,300 a quintal – lower than cost of production estimated at about ₹3,200. Farmers too have been hit hard as cash-strapped sugar mills have not paid the government-fixed price for sugarcane.

According to RV Giri, General Secretary, Tamil Nadu wing of Consortium of Indian Farmers Associations, farmers too are facing losses as mills delay payments. Even the State Advised Price of ₹2,650 a tonne of cane is inadequate to meet the cost of production. The State government will have to support sugarcane payments as mills are hit by low sugar prices. Despite repeated requests to the government, there has not been any response. Farmers will launch an agitation seeking government support on sugarcane payments, he said.

Price resolution

Sugar mills in Tamil Nadu are hoping that the State adopts a pragmatic stance on sugarcane pricing. Even last year the mills had categorically stated that they will pay farmers just the Fair and Remunerative Pricing, a statutory price of ₹2,200 a tonne of cane, set by the Centre.

Given the low sugar prices, even the FRP will be unviable in the current season, they say. Industry representatives pointed out that Tamil Nadu has not supported the industry in sugarcane payments as has been done in other States. Contrarily, the State Government had levied a VAT of 5 per cent on sugar last year which had made the industry uncompetitive as compared with neighbouring States. Also, it had also not supported the ethanol-blended fuel programme which would have given mills additional revenue.

Sugar mills in Tamil Nadu generally start the crushing season after the North-East monsoon and the ‘pongal’ harvest festival in January. They are hoping that the sugarcane pricing issue will be resolved by then.

Lanka, Vietnam seek greater bilateral trade in tea, coffee sectors

World’s leading tea producers Sri Lanka and Vietnam sought a greater bilateral trade with India in the fast growing tea and coffee sectors.

Today, there is a need for India and Vietnam to join hands and increase trade between the two countries in the fast growing tea and coffee sectors, Vietnam’s Minister of Agriculture and Rural Development Vu Van Tam told reporters after inaugurating “3rd World Tea & Coffee Expo 2015” here.

Vietnam is a leading tea producer in Asia and exporting their product to Europe and Africa.

Business delegation

The Vietnamese tea industry has both large-scale companies and approximately 60 per cent of the tea produced in Vietnam is cut-tear-curl black tea, 35 per cent is green, and 5 per cent is other speciality varieties such as lotus or jasmine tea. In view of the tremendous scope in these sectors, we have come with a business delegation of 20 leading companies from Vietnam to be part this niche expo which offers a unique networking

platform with Indian and international companies in the hot beverage sector, Tam said.

Step in right direction

Echoing similar sentiments, Saroja Sirisena, Consul General of Sri Lanka said, India and Sri Lanka can combine their natural advantages to increase their share in the world tea markets. Several leading tea companies from Sri Lanka's presence at the expo is a step in the right direction."

Today, India produces 1000 million kg of tea and exports around 200 million kg, while the rest is consumed in the country. India's per capita consumption of tea is 600 grams per person per day, Sentinel Exhibitions Asia Director, Priti M Kapadia said.

Similarly, the country produces 4 lakh tonnes of coffee and exports 3 lakh tonnes in the overseas markets, Kapadia said.

Ready-to-drink market

Internationally, the ready-to-drink tea and coffee market is growing annually at 11 per cent and likely to touch \$125 billion by 2017 with the highest growth coming from the Asia-Pacific region, she said.

The three-day trade fair is India's only International show dedicated to the tea and coffee sectors and provides the perfect environment for the hot beverage industry to meet face-to-face and develop real business opportunities, a statement issued here said.

"The expo will emphasise the prospects of the hot beverage sector by showcasing exotic products and technological innovations in this important sector," Kapadia said.

Karnataka targets 2,000 hectares under oil palm

The Karnataka government wants to bring 2,000 hectares of additional area under oil palm cultivation during 2015-16, according to HS Shiva Kumar, Additional Director of Horticulture (Oil Palm Development Programme), Karnataka.

He told *BusinessLine* that the commercial cultivation of oil palm began in Karnataka during 90s. At present, around 10,000 farmers in 23 districts have taken up oil palm cultivation on an area of around 11,000 hectares. Karnataka is producing around 13,000 tonnes of fresh fruit bunches (FFBs). These bunches are being processed to produce about 2,240 tonnes of crude palm oil.



Of the additional 2,000 hectares targeted for oil palm cultivation during 2015-16, the department has targeted 260 hectares each in Davangere, Ballari and Haveri districts; 160 hectares in Hassan; 115 hectares in Mysuru; 105 hectares each in Gadag, Bidar and Kodagu districts; 95 hectares in Mandya; 80 hectares each in Koppal and Bagalkot; 55 hectares each in Shivamogga, Chamrajanagar and Belagavi districts; 50 hectares in Raichur; 30 hectares each in Vijayapura, Chikmagalur and Udupi; 25 hectares each in Dakshina Kannada and Yadgiri districts; and 20 hectares in Dharwad district.

Govt assistance

He said that both State and Central governments are providing financial support for oil palm cultivation in the ratio of 50:50. To encourage farmers to take up oil palm cultivation, the State and Central governments have allocated ₹5.59 crore for 2015-16.

He said that the oil palm growers are being extended cultivation assistance for the first four years of gestation period at the rate of ₹4,000 per hectare a year. The farmers who take up oil palm area expansion are being given the

planting material assistance at the rate of 85 per cent of the cost of seedlings with a maximum limit of ₹8,000 per hectare.

On the area expansion, Shiva Kumar said the project is being implemented through public-private partnership mode. Five companies have been allotted specific districts for overall oil palm developmental activities in the State.

Business Standard

[India announces new climate change targets](#)

Subject to finance & tech from rich countries through an ambitious, fair Paris deal



The government has pledged to reduce its greenhouse gas [emissions](#) intensity — the ratio between a country's gross emissions to its gross domestic product at a particular point — by 33-35 per cent by 2030, compared to 2005 levels. For this, India has to ensure about 40 per cent of its electricity comes from non-[fossil fuel](#) sources.

India will also increase its forest cover to create an additional carbon sink of 2.5-3 billion tonnes of carbon dioxide equivalent.

These targets (called the intended nationally determined contribution, or INDC) were presented to the United Nations Framework Convention on [Climate Change](#) for the global Paris summit on Thursday. Prakash Javadekar, Union environment and forests minister, released these to the media in Delhi on Friday.

The government has said till 2030, these emission intensity-reduction targets and adaptation to climate change will require about \$2.5 trillion, as well as an array of technologies.

It committed to mobilise new funds from developed countries and said it would work to build an international architecture for diffusion of cutting-edge technologies, as well as collaborative research and development in this regard.

India, in its submission, said, “The successful implementation of [INDC](#) is contingent upon an ambitious global agreement, including additional means of implementation to be provided by developed countries, [technology](#) transfer and capacity building, following articles 3.1 and 4.7 of the convention.”

INDIA'S DEVELOPMENT CHALLENGE

■ In 2014 ■ To be achieved in 2030 along with expensive emission intensity reduction targets

Population (bn)	Urban population(mn)	GDP at 2011-12 prices (in \$ trn)
1.2	377(2011)	1.69
1.5	609	6.31
Per capita GDP in \$ (nominal)		
1,408	4,205	
Electricity demand (TWh)		
776 (2012)	2,499	

Source: Union environment, forests and climate change ministry, presentation on INDCs, October 2, 2015

Article 3.1 refers to the principle of equity and common but differentiated responsibility, as well as the need for developed countries to take the lead in combating climate change. Article 4.7 of the convention says, “The extent to which developing countries

will effectively implement their commitments under the convention will depend on the effective implementation by developed countries of their commitments related to financial resources and transfer of technology and will take fully into account the fact that economic and social development and poverty-eradication are the first and overriding priorities of developing countries.”

Javadekar said while a large proportion of funding would come from domestic sources, developed countries were obliged to provide funding and technology. “We were not part of the problem but we want to be part of the solution,” he said, adding on several emission metrics, India was and would

remain well below developed-world levels, though it had a huge development deficit to bridge in the coming decade and a half.



Officials involved in the preparation of the INDC said the caveats were similar to those of other developing countries, to safeguard against the possibility of an adverse outcome at Paris.

In conclusion, the INDC noted, “Through this INDC, India has shown its

commitment to combat climate change and these actions are important contributions to the global effort. However, our efforts to avoid emissions during our development process are also tied to the availability and level of international financing and technology transfer, as India still faces complex developmental challenges.”

Not relenting to pressure from some developed countries to undertake sector-specific targets, India has explicitly stated, “It is clarified that India’s INDC do not bind it to any sector-specific mitigation obligation or action, including in the agriculture sector. India’s goal is to reduce overall emission intensity and improve the energy efficiency of its economy over time and, at the same time, protect the vulnerable sectors of the economy and our society.”

In 2010, India had committed that by 2020, it would reduce the emissions intensity of its economy 20-25 per cent compared to 2005 levels. In its 38-page document to the UN climate convention, the Union government has said India will undertake the emission intensity reduction and the changing of energy mix by 2030, “being sanguine about the unencumbered availability of clean technologies and financial resource from around the world”. It adds India will “mobilise domestic and new and additional funds from developed countries to implement the mitigation and adaptation actions in view of the resource required and the resource gap”.

In another section of the document, it lists an array of existing and future technologies India will need to move towards a low carbon-development route.

The INDC begins by listing a wide array of activities India has already undertaken to reduce emissions and adapt to climate change, including the ambitious target of setting up 175 Gw of solar and wind power capacity by 2022 and an enhanced energy-efficiency mission across industrial sectors. It also promises to increase the share of renewable energy in the energy mix, though it doesn't explicitly mention 300-350 Gw of solar and wind power capacity will be required to achieve non-fossil fuel power capacity of 40 per cent, a projection the government has made to arrive at the INDC. The INDC also mentions the initiatives the government will launch, including introduction of new, more efficient and cleaner technologies in thermal power generation, reduction of emissions from the transportation sector, promotion of energy efficiency in industry, transportation, buildings and appliances, and reduction of emissions from waste.

INTENDED NATIONALLY DETERMINED CONTRIBUTION

1. Reduction of carbon emissions intensity by 30-35% below 2005 levels by 2030

Effect: India will avoid 3.59 bn tonnes of CO₂ equivalent emissions over business as usual

2. To get around 40 % of the installed power capacity from non-fossil fuel-based energy sources by 2030. Currently, it is around 30 %

Effect : 175 Gw of renewable power capacity by 2020 and 300 - 350 Gw by 2030. A 33% jump in non-fossil fuel sources in 15 years

3. Creation of total carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030

Effect: Addition of 680-817 million tonnes of carbon sink

4. Mobilisation of additional funds, both domestic and from developed countries, to implement adaptation and mitigation goals

Effect: \$2.5 trn required for INDC implementation at 2014-2015 prices