THE HINDU

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**Scientists must collaborate with cultivators for better results**

‘What is the use of a seed which germinates but does not reproduce'

**Mounting challenges: Mr. Nagarajan, Lalgudi, in his lime farm.**

“If there is a profession in which losses are tolerated, it is only agriculture. Once a farmer, always a farmer. He finds it difficult to change professions. Even if he does, it may be for short time and he comes back to it,” says Mr. P. Nagarajan, of Lalgudi, Tiruchi, Tamil Nadu.

Mr. Nagarajan grows lime in 2 acres and in the remaining 7 acres he is cultivating paddy and some banana crops.

Annual income

“I get nearly a lakh of rupees from my lime garden a year,” he says, and adds, “I use only locally available plant and animal wastes to make my own bio pest repellents. Personally I am able to save more than 70 per cent of expense on inputs for growing my crops."

The farmer plucks, grades and markets the fruits for a nearby market every morning. Today when the world is talking about climate change and rising temperature, a farmer's role becomes important in containing the rising temperature.

Easy steps

“Digging a few fish ponds, planting some trees along the field bunds are some easy and proven steps to reduce the temperature.

“In addition, these give additional revenue to a farmer. If every farmer in our country does this then up you can imagine how the temperature rise can be contained” he reasons.

Nothing goes waste in his fields. All the dried leaves, twigs, fallen branches are left untouched and over time they disappear into the soil enriching it. “Farming cannot be done against nature. It has to be with nature, a true farmer understands this well,” he says.

More exposure

“Today we are exposed to the benefits of the natural system of farming and are aware of the harmful effects of chemicals used to grow crops, and try our best to minimise or stop using chemicals. In fact, for those who say that organic methods cannot guarantee a good yield, I request them to visit my farm and see for themselves,” he says.

What is his opinion on Bt varieties which have been in the news recently?

“The role of science in increasing crop production by inventing and introducing several new varieties, tackling infestations etc cannot be overemphasised. But in the name of science and discovery, today we are forced to accept certain varieties. What is surprising is why are we not consulted in the beginning?” he asks. Increasing production and food security is just not possible only with scientists and researchers alone.

Farmers and fields are the basic requirements for testing and recording the feedback of any new variety. Seeds by nature must be able to reproduce.

A single grain of paddy or wheat or any crop must give rise to of plenty of seeds of the same variety. The seeds are collected and used for future use.

Cannot be reused

“This has been ourpractice from time immemorial. But today we understand that Bt seeds can only be sown and their seeds cannot be reproduced. It is sterility according to me. “What is the use of a seed which can only germinate but not result in reproduction?” he questions.

The farmer says: “Today crores of rupees are being spent in the name of agricultural research in India. But problems are rampant among farmers regarding marketing and increasing input prices.

“Even after 60 years, problems in agriculture have not been solved. This is because the Government is not sensitized to our problems. They do not know what type of problems we face and how to tackle them.”

No proven data

Though Bt is claimed as a next step in scientific advancements to increase crop productivity, absence of proven data or field trials makes it difficult for farmers to accept it, according to Mr. Nagarajan.

“In many instances scientists have taken our guidance and ideas for a particular problem or pest infestation. In Delta districts today about 50 seed companies disturb us at regular intervals to use their new seeds.

“And seeds don't come cheap or free, for a kg of seed we spend about Rs1,500. Once sown and harvested we have to buy the seeds from the company again for a higher price as we cannot gather or use the seeds from the new varieties.

“Till now no Government ever attempted to study a farmer's livelihood. But we continue our work against many challenges, because for many of us our fields are our Taj Mahal, a symbol of love, and we are prepared to safeguard and fight to protect ourselves from commercial exploitation,” he emphasises.

For more information readers can contact Mr. Nagarajan, double street, Ariyur post, Lalgudi, Tiruchi, Tamil Nadu, phone: 0431-2625132.

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**New project to identify best approaches in agriculture**

The International Food Policy Research Institute (IFPRI) launched a new project, Global Futures for Agriculture, to improve agricultural productivity and environmental sustainability in developing countries. Focused on evaluating promising technologies, investments, and policy reforms, the effort is supported with major funding from the Bill and Melinda Gates Foundation.

Preserving resources

High global food prices in 2008 underscored the importance of research to help achieve the goals of feeding the world's burgeoning population while protecting critical natural resources.

“Sustainable agricultural growth in developing countries is challenged as never before — by climate change, increasingly volatile food and energy markets, natural resource exploitation, and a growing population with aspirations for a better standard of living.

“This research will prove invaluable to setting priorities for meeting these challenges and, ultimately, improving the lives of the world's poorest people,” said Mark Rosegrant, Director of Environment and Production Technology at IFPRI.

The project will enable researchers to develop an enhanced version of IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT), a state-of-the-art economic model that projects the future production, consumption, and trade of key agricultural commodities, and can assess the effects of climate change, water availability and other major trends.

Improvements to the IMPACT model will make it possible to more effectively evaluate potential research expenditures and their impact on the world's most important crops, forests, and livestock.

More focus

The research will focus on regions most vulnerable to global changes in the next 30 to 50 years, with special attention on the rural poor and smallholder farmers.

Additionally, it will consider how these trends affect developing countries' progress towards achieving the Millennium Development Goals of reducing hunger, malnutrition, and poverty.

For more information readers can email Michael Rubinstein at m.rubinstein@cgiar.org and visit website at www.ifpri.org

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# Over 83,500 hectares covered under pulses in Nagapattinam

*DAP fertilizers being distributed with a subsidy*

**Spot study:Nanda Kishore, Agriculture Secretary, inspects pulses at a farm at Erukkur in Nagapattinam on Wednesday. Kosalaraman, Agricultural Commissioner, is also seen.**

NAGAPATTINAM: A joint appraisal of pulses crop cultivation was conducted by Nanda Kishore, Agricultural Secretary and Kosalaraman, Commissioner for Agriculture, at Erukkur and Ulluthukuppai villages here on Wednesday.

Mr. Nanda Kishore stated that over 7.5 lakh hectares of cultivable area was under pulses production. Over 83,500 hectares was under pulses crop in Nagapattinam.

Further, under the National Agriculture Development Programme, DAP fertilizers were being distributed at a subsidy, Mr.Kishore said. A subsidy of Rs.200 per hectare was available under the NADP and as per the earlier statistics provided by the agricultural department over 12,000 hectares was covered under the DAP in Nagapattinam.

On an earlier inspection, a demonstration of DAP spraying was conducted here at Pandaaravadai under the supervision of Mr. Kosalaraman, Agricultural Commissioner.

A combined harvester costing Rs.22.75 lakh with a subsidy of Rs.4 lakh and a mini-tractor costing Rs.2.69 lakh at a subsidy of Rs.1.25 lakh, cono-weeders and agricultural inputs were distributed to farmers.

R.V. Karunakaran, Joint Director of Agriculture, Adhithan, Department of Agricultural Engineering, were among those present.

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### Tea exports drop in volume

KOLKATA: Tea exports in 2009 were 11.6 million kg less but earnings have increased amid a shrinking world market that is struggling to emerge from the downturn.

Crop was lower in the world's largest tea producing country, India, but the losses of the first-half were made-up in good measure after September.

Exports are estimated at 191.49 million kg according to Union Commerce Ministry sources as compared to 203.1 million kg between January and December 2008. However, the unit price of Indian tea increased by nearly 16 per cent to touch Rs. 136.64 a kg against 117 a kg. a year before. Earnings are estimated at Rs. 2,616 crore as compared to Rs. 2,392 crore.

Tea Board Chairman Basudeb Banerjee told The Hindu that exports were expected to be flat but prices had shown a fair increase.

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### “No measures to step up food grain productivity in budget”

*Discussion on budget organised*

**M.R. Sivaraman, former Union Revenue Secretary, with Chozha Naachiar Rajasekar, president, Tamil Chamber of Commerce, at a meeting organised by the Tamil Chamber of Commerce in Chennai on Wednesday.**

CHENNAI: The Union budget for 2010-11, which has raised allocations for agriculture, has not stated measures to step up food grain productivity, M.R. Sivaraman, former Revenue Secretary to the Government of India said on Wednesday.

Participating in a discussion on the budget under the auspices of the Tamil Chamber of Commerce, Mr. Sivaraman pointed out that productivity of paddy had not increased in the last ten years while that of wheat had increased only marginally.

“The per-hectare yield of agriculture in India is the lowest in the world,” he said.

The per capita availability of pulses had dropped from 510 gram per person to 430 gram per person in the last two decades. A food grain crisis was imminent unless concrete measures were launched to boost agricultural productivity. However, as a policy document, the budget makes no outline of this, he said.

Mr. Sivaraman also called for administrative reforms to ensure that the support measures and schemes implemented for farmers reached the beneficiaries. The budget too had acknowledged the gaps between policy and implementation in its reference to the “weakness in Government”, he said.

R. Periasami, Commissioner of Customs (Air) said the trade sector only stood to benefit from the reliefs and simplification of procedures provided by the budget.

K. Vaitheeswaran, tax consultant, said the move towards bringing more services under the Service Tax net would drive many transactions underground.

In the case of a sector like the film industry, a Service Tax levy could even trigger litigation as the stated legal position in the State was that a film copyright was classed under goods and exempted from VAT, he said.

Joseph Dominic, former Chief Commissioner of Customs, said the budget which reflected a substantial revenue mobilisation effort was more a “tax collector's budget than a tax payer's budget.”

Chozha Naachiar Rajasekar, Chamber president also spoke.

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### Vegetable prices tumble

*More produce in market owing to good yield in neighbouring States*

**Buying increases, thanks to a decline in prices.**

CHENNAI: The cost of staple vegetables has dropped significantly over the past few days at the Koyambedu wholesale market. This is bound to come as a big relief to households as the prices have come down to this level after nearly eight months.

Vendors at the market said many of the vegetables that were sold for Rs.20 a kg last month now cost half that price. The cost of tomatoes has fallen by more than half in the wholesale market and on Tuesday were being sold for Rs.3-4 a kg.

The market receives 450 lorry loads of fresh produce as against its daily demand of 350-400 loads. Of this, 60-70 trucks bring in tomatoes, whereas the demand is only 50 loads.

S. Chandran, a member of Koyambedu Periyar Market Licensed Merchants' Association, said more produce are coming to the market owing to a good yield in the neighbouring States of Andhra Pradesh and Karnataka.

Seasonal

Usually, the prices of vegetables come down in March in view of increased production following the monsoon rains. However, this year the decline has been relatively steep. Over the past one week, though the sales have gone up by 30 per cent the vendors have made less profit, he said.

Onions that were priced above Rs.25 per kg last month now cost Rs.10-12. Brinjals are sold for Rs.6-10 a kg according to the variety. Similarly, potatoes cost Rs.6 a kg in the wholesale market. Some of the other vegetables priced within Rs.10 a kg are beetroot, cabbage, snake gourd, cauliflower and ladies finger.

V.R. Soundararajan, member of Koyambedu Market Management Committee, said the cost of a bunch of greens that was Rs.8 has come down to Rs.3. Similarly, a bunch of coriander is priced at Rs.2.

To go up

A few vegetables such as beans (Rs.16/kg) and yam (Rs.20) were relatively expensive. The prices would go up during peak summer months when the arrivals would decrease, he said.

The drop in wholesale prices had its impact on the retail market. There was not much price difference between the produce sold at most of the neighbourhood grocery stores and super markets. For instance, tomatoes that were sold for Rs.6-Rs.10 per kg according to its variety in grocery stores were priced between Rs.8 to Rs.10 per kg in super markets.

N. Sreelatha was one among the many customers filling their bags with vegetables at a Kilpauk vegetable market. “I used to think twice to buy an adequate amount of vegetables until a few days ago. As they are pocket-friendly now, I am purchasing more to stock for a week,” she said.

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### Lack of rainfall hits paddy crop

Scorched for water:Affected paddy field at Melapassalai near Manamadurai in Sivaganga district.

SIVAGANGA: Hundreds of acres of paddy raised in Manamadurai, Ilayankudi and Thiruppuvanam blocks in Sivaganga district have been badly hit due to lack of rainfall.

Though several parts of the district have been classified as rainfed areas, most of the areas of Manamadurai and Thiruppuvanam are classified under system irrigation.

They are fed by the Vaigai.

As usual, around 55,000 acres were brought under paddy cultivation in Manamadurai, Ilayankudi and Thiruppuvanam blocks during the last season [October-January] expecting good rainfall as well as discharge of the share of water from the Vaigai dam to Sivaganga district.

Though the pattern of growth was reportedly good until the second week of December, the failure of rainfall in the last stage of the crop resulted in the downfall since then.

Now, the farmers, who should have been busy harvesting by this period, are looking for the help of the government to come to their rescue.

“I have spent Rs.25,000 for raising paddy in my 2.5 acres of land holding. The failure of rainfall has dented my hope of having a good yield. The paddy crop could have been saved if it received one spell in the last week of December,” said V. Karuppaiah (40) of Melapasalai near Manamadurai.

Cross section of farmers felt that inspite of fervent demand, the officials concerned failed to act at the appropriate time to open the Vaigai dam to irrigate the paddy fields to save the crop.

M. Archunan, district secretary, Communist Party of India (Marxist), said that several farmers including him raised the demand at several forums seeking release of water from the Vaigai dam in December, when the storage level was satisfactory. If it was released in the last week of December, farmers might have tasted the fruit of hard work.

There were reports that only those who had pumpset connection were able to have a relatively good harvest of the crop.

Reports also revealed that as a last resort to save the crop several farmers spent around Rs.5,000 per acre to get water supply from those who had pumpsets.

When contacted V. Ravikulasekara Pandian, Joint Director of Agriculture (in-charge) and S.M.S. Natarajan, Agricultural Officer, said that the yield record had revealed that 8,500 acres in Ilayankudi and Manamadurai blocks were recorded zero to below normal yield.

Erratic and scattered rainfall was stated as the main reason for the crop loss. Though the district had received its credit from the Vaigai, it could not get the second release due to poor storage.

Mr. Archunan demanded that the government should announce Rs.25,000 per acre as compensation for the crop loss faced by the farmers.

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### Farm Query

## Casuarina tree planting

Where can I get authentic information on casuarina and other tree seedlings in Tamil Nadu? Is it true that casuarina grows in any soil type?

K. Vinita Bhaskaran

Pollachi, Tamil Nadu

For details and booklet, you can contact the Dean, Forest College and Research Institute, Tamil Nadu Agricultural University, Mettupalayam- 641 301, Tamil Nadu, email: deanformtp@tnau.ac.in, phone: 04254 - 222010. Casuarina trees can be planted either within the field, around it as border fencing, in wastelands, barren and non-forest lands. The main reasons for the growing popularity of casuarina is the ready buyback market and assured price which are slowly gaining momentum.

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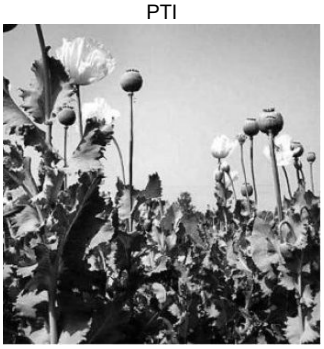
### How genes interact in a plant for a crucial step

PTI



The most important decision for a plant is setting up the root/shoot axis, during the early embryonic stages. Now, it is shown how genes interact in complex ways to establish organs on the axis, useful for farming applications.

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### Soluble fibre boosts immune system

In an experiment, laboratory mice consumed low-fat diets that were identical except that they contained either soluble or insoluble fibre. After six weeks on the diet, the animals had distinctly different responses when the scientists induced illness by introducing a substance (lipopolysaccharide) that causes the body to mimic a bacterial infection.

“Two hours after lipopolysaccharide injection, the mice fed soluble fibre were only half as sick as the other group, and they recovered 50 per cent sooner. And the differences between the groups continued to be pronounced all the way out to 24 hours,” said Christina Sherry, who worked on the study.

The new University of Illinois study touts the benefits of soluble fibre. It reduces the inflammation associated with obesity-related diseases and strengthens the immune system.

“Soluble fibre changes the personality of immune cells — they go from being pro-inflammatory, angry cells to anti-inflammatory, healing cells that help us recover faster from infection," said Gregory Freund, a professor in the University of Illinois' College of Medicine. This happens because soluble fibre causes increased production of an anti-inflammatory protein called interleukin-4, he said.

Now Freund has a new question: Could soluble fibre offset some of the negative effects of a high-fat diet, essentially immunizing obese persons against the harmful effects of fat?

Scientists have long known that obesity is linked to inflammatory conditions, such as diabetes and heart disease.

Yet, in a recent study, the University of Illinois scientists demonstrated that fat tissue produces hormones that appear to compensate for this inflammation. “There are significant anti-inflammatory components in fat tissue and, if they were strategically unleashed, they could potentially protect obese people from further inflammatory insults, such as a heart attack or stroke. In obese animals, you can see the body compensating in an effort to protect itself,” he said.

Not all fat is bad, the researcher noted. The Mediterranean diet, which receives high marks for its health benefits, includes such foods as olive oil; salmon, tuna, sardines, and trout, which contain important omega-3 and -6 fatty acids; and plant sources of fat, such as flaxseed.

“Now we'd like to find a way to keep some of the anti-inflammatory, positive effects that develop over time with a high-fat diet while reducing that diet's negative effects, such as high blood glucose and high triglycerides. It's possible that supplementing a high-fat diet with soluble fibre could do that, even delaying the onset of diabetes,” he said.

This study is one of the first to provide two valuable lessons, said Sherry. The first, already noted, is that soluble fibre has direct anti-inflammatory effects and builds up the immune system. The second is that the amount of soluble fibre necessary to achieve these health benefits is a reasonable, not a pharmacological, amount, according to a University of Illinois press release.

Good sources of soluble fibre are oat bran, barley, nuts, seeds, lentils, citrus fruits, apples, strawberries, and carrots. Insoluble fibre, found in whole wheat and whole-grain products, wheat bran, and leafy vegetables, is also valuable for providing bulk and helping food move through the digestive system, but doesn't boost the immune system. — Our Bureau

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## Global warming will affect rainfall patterns

Analysis of global model warming projections finds that ocean temperature patterns in the tropics and subtropics will change in ways that will lead to significant changes in rainfall patterns.

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#### Decaying process

How do worms form in decaying matter? Where do they come from? How can one prevent their growth?

NAJUMA IBRAHIM Kottayam, Kerala

Worms which are seen crawling in dead matter are in fact maggots or the larvae of flies. When a human being or an animal dies, its body starts emitting foul smell due to putrefaction of tissues.

Flies are soon attracted to the smell which start showing up within 2-3 hours of death. By 12 hours or so, the body will be more or less engulfed with flies. Son after one can see the body covered by tiny white dots which are nothing but the eggs laid by flies.

How soon the eggs will hatch, depends on the type of flies in question but within few hours, maggots can be seen crawling beneath the flesh.

When the maggots hatch the first thing they do is burrow under the skin, leaving tiny holes, like pock marks all over the body. The maggots burrow down deep and eat all of the inner flesh.

There are thousands of maggots which eat away entire flesh in few hours. Soon after the flesh is finished, they start appearing on the skin — what we see as worms. One can control the appearing of maggots by spraying strong disinfectant all over the body or by embalming. Embalming is the process by which a dead body can be preserved temporarily for some time.

In this process a liquid, generally, formaldehyde or/and ethanol is injected in to the body through the arteries. In ancient times Egyptians used to preserve dead bodies by mummifying them. Mummifying (see picture above) is different from embalming where body fluid and soft tissues were taken out and the cavities thus formed were filled up by disinfected material.  S.P.S. JAINNew Delhi



## Europe gets its first GM food: Potato

**Express news service** Posted online: Thursday , Mar 04, 2010 at 0844 hrs

**New Delhi :** The European Union, where genetically modified food crops face stiff opposition on grounds of health and environmental risk, has approved the cultivation of GM potato — the first genetically modified food crop to get a go-ahead there.

The announcement was made by the European Commission on Tuesday. “The Commission adopted two decisions concerning the Genetically Modified Amflora potato: the first authorises the cultivation of Amflora in the EU for industrial use, and the second relates to the use of Amflora’s starch by-products as feed,” a press release issued by the Commission said.

The potato approved by the EU has been genetically modified to produce starch composed almost exclusively of amylopectin. It will have starch content of 98 per cent, which is around 20 per cent higher than what potatoes normally have. This has industrial usage, like in paper, textile and adhesives units.

Though the approval for cultivation of Amflora potato, which is developed by private German company BASF, has been given for industrial use and its by products for feed purposes, the fact that potato is a food crop holds significance. The approval comes despite stiff resistance from several other EU countries like Italy and Greece.

In the backdrop of the debate over commercial cultivation of Bt-brinjal in India, the EU decision holds significance as the potato belongs to the broad category of non-tuber bearing Solanum species, to which brinjal also belongs.

The EU decision came after Sweden granted approval for GM Amflora potato in 2004 for its industrial use, which was contested by several other EU countries on the basis of molecular characterisation, allergenicity, toxicity, an inadequate monitoring plan and the detection method of the product.

These objections were later rejected by the European Food and Safety Agency, which concluded that GM potato was unlikely to have an adverse effect on human and animal health or on the environment in context of its proposed uses.

The EU’s decision would now mean that it is now for Swedish authorities, which had approved it first in 2004 and sent it to EU for final decision given the common market, have 30 days to issue the final consent to the company.

In fact, given the divergent position of various member countries on the issue of GM crops in EU, the European Commission also announced to allow more flexibility to its member countries regarding their choice of cultivating GM crops in their territories.