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## FARM QUERY

### More milk yield in cattle

I have about 20 assorted cattle breeds in my farm and take good care of them. Some of the animals, though healthy, do not yield much milk. Is there any simple, natural remedy to make them yield more?

Sundaram Nair

Kerala

A farmer Mr. Mannubhai Vankar feeds his cattle with leaves of Hibiscus( in the form of powder) to increase milk yield . The leaves are shade dried and ground it into fine powder. About 125g powder is given orally to the animal for 7 days (or 150g for five days). The oral administration must be given for at least 15 days to achieve better milk yield. For details contact Mr. Mannubhai at Kaliya, Vankar and Bhariya Phadiya, Shahera Taluk, Godhara, Panchmahal district, Gujarat -389 210 Mobile : 9979564629.

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### Mealybug and its management

Mealybug insects are oval in shape and have a life cycle of four stages in female —. egg, larva I, larva II and adult. Initially the affected portion will be chlorotic, later changing to brown colour and dry.

Black colour

The insect excretes honey dew, and as a result the infested portion becomes shiny and moist and to this, secondary infection by sooty mould fungus, capnodium occurs resulting in black colour covering the affected parts.

Yellowing of leaves, malformation of affected portion due to toxin injection, stunted leaf growth and fruit tip, presence of red/black ants, honey dew excretion, are some of the symptoms to watch for.

#### Reproduction

Normally oviparous, eggs are laid just beneath the body or just at the posterior end of the abdomen . Each female is capable of laying about 400 to 500 eggs. Nymphs become adults in a month. Adult lives for about 30-60 days depending upon the environment and may move from one area to another till it finds a suitable place for feeding and reproduction. Normally they are seen beneath the stem, under surface of the leaves, in the leaf axils, flower buds and fruits and occasionally on the roots.

The insect is polyphagous. In addition they also attack a variety of weeds which serve as alternate hosts when main crop is not available.

#### Management

- Remove alternate weed hosts and destroy the infested parts of the plant,
- Take up the management at initial stage to get maximum control
- Wherever necessary, use botanical insecticides like neem derivatives such as azadirachtin 0.03 percent neem oil 2 percent NSKE 5 percent and fish oil rosin soap at 25g/litre of water.
- As a last resort use any recommended chemicals at the right dose for maximum control.

After fortnight check for newly emerging crawlers; if necessary, go for second spray.

S. Mohamed Jalaluddin,G. Ravi & T. Jayaraj

Tamil Nadu Rice ResearchInstitute, Aduthurai

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## FARMER'S NOTEBOOK

### The wells brim with water in drought-prone Gujarat

Till date about 25 check dams in Gujarat and Rajasthan, have been built



**Easy replicability: Bhanjibhai Mathukiya, Gujarat farmer standing in front of his checkdam.**

THE WELLS of Kalawad village in Junagadh district, Gujarat brim with water. The reason — construction of check dams by a peasant, Mr. Bhanjibhai Mathukiya.

Till a few years ago, the drought-prone village forced many of its farmers to abandon agriculture.

“Today, most of the wells brim with water and farmers are able to grow their crops without any fear of water shortage, thanks to the three check dams constructed by Mr. Bhanjibhai,” says Mr. Mahesh Patel, Chief Innovation Manager, Gujarat Grassroots Innovations Augmentation Network, (GIAN).

Semi circular arches

The farmer built the first dam across a small river running through the village.

It consists of a series of semicircular arches beneath to support the weight (similar to railway bridges to support the weight of a running train).

The dam not only costs less than conventional ones, but is also more stable and easy to construct. It resists maximum water pressure and force because of its unique design and structural strength.

For constructing the dam the farmer used locally available stones and placed them in the flowing water maintaining a little distance between two stones. Later, he filled the gap with river sand, stones and cement.

The total cost for building a dam worked to just Rs.10,000 including the labour cost. After completion of this, several villagers requested Mr. Bhanjibhai to build more check dams down stream.

## More dams

So, the farmer built two more dams in the neighbouring villages with the support of a local community. Till date the farmer has built about 25 check dams in Gujarat and Rajasthan.

Explaining the construction of his dam Mr. Bhanjibhai says:

“Barriers are constructed at the ends to arrest water overflow through the sides. Overflowing weakens the dam by constant erosion. The conventional dams made by the government in our region are gravity type, deriving their strength in their weight. They are massive and hence require a large quantity of concrete for their construction.

“To build a dam the expense could work out to anything between Rs. 50,000 to Rs. 1 lakh or more. But I spent only Rs. 10,000 for constructing one dam.

“As most of the rivers are not perennial, the check dam saves wastage of surplus water from running off. After the monsoon, water shortage makes it difficult to irrigate the crops.

## Water table

“The next major source for irrigation is the well. However, with the end of rainfall the underground level of water falls drastically.

The check dam prevents water from running off and also recharges the water table,” explains the farmer.

Presently the conventional dams in Gujarat are being constructed by the government with the help of the local farmers under the 40-60 schemes — 60 per cent of the cost of construction is borne by the government, with the farmers meeting the remaining 40 per cent.

Mr. Bhanjibhai's check dam model can be constructed easily by individuals or co-operative work without waiting for the government's help.

## Natural scientists

“In devising simple, low cost effective solutions for everyday problems, our country's rural innovators are simply backyard Edisons.

“With a plethora of new ideas, technologies and innovations, these natural scientists are creating a strong impact in our villages which if properly recognized can play an important role in shaping the world's economy.

“It would be great if the technology could be replicated on mass scale all over India and other countries for the benefit of rural agriculture,” says Mr. Mahesh Patel, Chief Innovation Manager, (GIAN) Gujarat Grassroots Innovations Augmentation Network. For more information readers can contact Mr. Bhanjibhai Mathukiya, Kalawad, Junagadh:

362130, Gujarat, mobile: 9825481528 and Mr. Mahesh Patel, Chief Innovation Manager at mahesh@gian.org and gian@gian.org, website:www.gian.org, phones : 079-26760398 and 26769686.

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## **Water-starved, paddy crop dying**

THENI: Paddy crop in thousands of acres in Cumbum Valley is withering owing to scorching heat and early stoppage of water from Periyar Dam.

Paddy crop in a part of Uthamapalayam and over 550 acres under the ayacut of Karungankattan Kulam, 700 acres under Vairavan Canal, 500 acres under Chinna Canal and a sizable area under 17 channels is in a bad condition, according to farmers. Veerapandi is the worst affected as the entire crop is dying.

Representatives of several farmers' associations want immediate release of water to protect the standing crop.

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## **Modern fish market planned**

TIRUCHI: The Tiruchi Corporation has planned to build a modern fish market complex with financial support from the Department of Fisheries.

The proposed complex is likely to come up on a 2.5-acre site along the Kuzhamani Road. The Department was ready to contribute up to Rs.2.5 crore for the project, Corporation officials said.

"We have tentatively identified the site and agreed to provide land to the Corporation. The state-of-the-art complex will include a cold storage and shops for wholesale and retail traders," Corporation Commissioner T.T.Balsamy told The Hindu. The site has been identified at Kasivilangi.

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## Steps sought to stabilise coconut oil prices

*No uniformity in price fluctuation*

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*Tamil Nadu accounts for 40% of total production*

*Call for intensive campaign to popularise coconut oil*

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KOCHI: A concerted effort by all coconut producing States in the southern parts of the country was the only way to stabilise the price of coconut oil which has been fluctuating in recent years.

Talking to The Hindu here on Wednesday, N. Ananthan, a former secretary of the Cochin Oil Merchants' Association, and the former CEO of the First Commodities Exchange of India Ltd., said that Kerala had lost its pre-eminent position as the biggest producer of coconuts in the country.

The total production of copra in the country was estimated at about 10 lakh tonnes a year, out of which 1 lakh tonnes was edible copra and the balance milling copra. Out of the total production of 10 lakh tonnes, Tamil Nadu's share was estimated to be about 40 per cent, followed by Kerala at 30 per cent and Karnataka and Andhra Pradesh accounting for 25 per cent and the rest 5 per cent.

Price fluctuations

Coconut oil prices are fluctuating during the season as well as off-season. He cited the following statistics : In 2006, the price touched the highest of the year in October at Rs.5,605 a quintal. But in October 2007, it touched the lowest of that year at Rs.4,400 a quintal.

In 2006, the lowest price was recorded in July at Rs.4,400 a quintal and in 2008, the highest price for that year was recorded in July at Rs.6,990 a quintal.

The highest price for 2007 was recorded in January at Rs.5,350 a quintal and the lowest price for 2008 was recorded in January at Rs.5,200 whereas the highest price for 2009 was recorded in January at Rs. 5,900 and the lowest in November, Rs. 4,350. In 2010 January beginning, it was Rs.5,050. The price touched at Rs.5,200 on February 8 and is now ruling between Rs.4,800 and Rs.4,900.

This causes hardship to the poor coconut farmers. Mr. Ananthan says it is unfortunate that the authorities concerned have not taken a serious view about this so far. "If futures prices are any indication of future prices to come, then prices are likely to decline further in the coming months and even touch the level of Rs.4,450 a quintal (that is copra MSP) and even below," he cautions.

Unlike rubber and pepper, futures trading in coconut oil does not come to the rescue of the poor coconut farmers.

At present, the futures trading in coconut oil is controlled by a handful of speculators, he said.

Periodical campaign by the authorities concerned by spending crores of rupees could not make any impact in the State so far in this regard, Mr. Ananthan said.

It requires intensive campaign by all concerned – not once in a while – for regaining its rightful place here and to help the coconut farmers in these days of hardship when prices of other essential commodities are skyrocketing.

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## **Tree species diversity, rivalry within species**



A tree responds in many dimensions in different ways, but with more similarity to others of the same species than to those of other species, tending to compete within species, allowing multiple species to share the landscape.

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## Turning solar energy to sugars

In natural photosynthesis, plants take in solar energy and carbon dioxide and then convert it to oxygen and sugars. The oxygen is released to the air and the sugars are dispersed throughout the plant — like that sweet corn we look for in the summer. Unfortunately, the allocation of light energy into products we use is not as efficient as we would like. Now engineering researchers at the University of Cincinnati are doing something about that.

The researchers are finding ways to take energy from the sun and carbon from the air to create new forms of biofuels, thanks to a semi-tropical frog species. Their results have just been published online in the journal *Nano Letters*. Research Assistant Professor David Wendell, student Jacob Todd and College of Engineering and Applied Science Dean Carlo Montemagno co-authored the paper.

### The focus

Their work focused on making a new artificial photosynthetic material which uses plant, bacterial, frog and fungal enzymes, trapped within a foam housing, to produce sugars from sunlight and carbon dioxide. Foam was chosen because it can effectively concentrate the reactants but allow very good light and air penetration, according to a University of Cincinnati press release.

The design was based on the foam nests of a semi-tropical frog called the Tungara frog, which creates very long-lived foams for its developing tadpoles. “The advantage for our system compared to plants and algae is that all of the captured solar energy is converted to sugars, whereas these organisms must divert a great deal of energy to other functions to maintain life and reproduce,” says Wendell. “Our foam also uses no soil, so food production would not be interrupted, and it can be used in highly enriched carbon dioxide environments, like the exhaust from coal-burning power plants, unlike many natural photosynthetic systems.”

He adds, “In natural plant systems, too much carbon dioxide shuts down photosynthesis, but ours does not have this limitation due to the bacterial-based photo-capture strategy.” There are many benefits to being able to create a plant-like foam. “You can convert the sugars into many different things, including ethanol and other biofuels,” Wendell explains. “And it removes carbon dioxide from the air, but maintains current arable land for food production.”

The next step for the team will be to try to make the technology feasible for large-scale applications like carbon capture at coal-burning power plants.



“This involves developing a strategy to extract both the lipid shell of the algae (used for biodiesel) and the cytoplasmic contents (the guts), and reusing these proteins in the foam,” says Wendell. “We are also looking into other short carbon molecules we can make by altering the enzyme cocktail in the foam.

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## **J&K: solar energy to light up 191 remote villages**

In a bid to save energy, Jammu and Kashmir government under its 'Green Campaign' will light up 191 remote and mountainous hamlets with solar energy.

“The state government will light up 191 remote villages and hilly hamlets in J&K with solar lights after lighting up border tehsil of Gurez in North Kashmir,” officials of Science and Technology Department told PTI.

In this direction, Ministry of New and Renewable Energy has agreed to provide 41,000 additional solar home lighting systems to 191 villages at a cost of Rs.54 crores under a project drawn by J&K Science and Technology Department, they said.

The beneficiaries are required to buy a small component of about Rs 750 whereas assistance of more than Rs 11,000 is available from central government, they said.

The solar plants will also be provided to Dargah Sharief Hazratbal in Srinagar, Mata Vaishno Devi in Reasi district, Ziarat Charar-e-Sharief in Budgam besides, Raj Bhavans and State Legislature Complexes at Jammu and Srinagar capital cities, the officials said.

The solar power plants would also come up at state's 22 health institutes, they said.

Situated close to Indo-Pak border in northern Kashmir's Kupwara district, mountain locked Gurez has shown the way in solar lighting in the state.

As many 27 remote and mountainous hamlets in Gurez have been provided with 3,726 solar home lighting systems till now. — PTI

## Corp Bank funds for organic farming in the state

*By Express News Service*

*18 Mar 2010 05:17:00 AM IST*

BANGALORE: Chairman and Managing Director of Corporation Bank JM Garg presented a cheque of Rs 6,53,000 to the President of Savayava Krishi Parivar Sanganagouda Patil to purchase a vehicle to promote marketing of organic farming products.

In the presence of Chief Minister Yeddyurappa, the Corporation Bank CMD said that the bank would continue to support the government's initiative to popularise and promote organic farming in the state. The Bank is extending its support by setting up farmers' training centres on organic farming in its institute at Chikmagalur and a new institute in Kodagu.

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## Forest land allotment goes hi-tech

Anupam Chakravarty Posted online: Thursday , Mar 18, 2010 at 0107 hrs



**Vadodara** : *In a first, Tribal Development dept uses 3-D satellite imagery from ISRO programme to allot land titles*

Forest land allotment in Gujarat is going a step further with the implementing agencies using satellite images. The state Tribal Development Department has used 3-D satellite imagery from ISRO's Bhuvan programme to allot land titles in Vijaynagar and Khedbrahma in Sabarkantha district, and Sagbara and Dediapada in Narmada district under the Forest Rights Act (FRA) of 2006.

T L Patel, Joint Director, Tribal Development Department said: "With satellite imagery, there won't be any doubt about the land settlements in these forest areas. We have the village-level maps to determine those who were cultivating the lands in these areas for the last 40 years."

Patel said Gujarat has become the first Indian state to employ satellite imagery along with groundwork to determine the original forest dwellers in the state's forests.

The effort has, however, not found the support of the tribal bodies. Organisations like Adivasi Mahasabha and Eklavya Sangathan have said that only cultivation agreements have been given to the holders of the land titles.

"The claims under the said Act have been filed by the tribals in thousands during the past several months, but the state government has conferred the so-called rights of cultivation and residence by issuing simple letters to the tribals. These letters have no locus standi in legal terms. The Government of Gujarat is openly cheating the tribals. These letters too have been given to only about eight per cent of the claimants under the Central Act (FRA-2006)," said Usha Garasia, president of the Eklavya Sangathan.

The TDD has, however, contested the claims saying that the government has given lands to the tribal farmers on several occasions.

Additional care have been taken by distributing cultivation and residential permits to avoid land mafia from entering the forest areas as farmers often sell or mortgage their lands.

"Gujarat comes third in the implementation of the Act. Earlier on three occasions, in 1972, 1982 and 1992, land titles were distributed. In 1992, 32,000 hectares of forestland were allotted and titles distributed to equal number of farmers

in the state. Therefore, now while checking the claims, we are more careful in giving land titles as the issue of maintaining a forest cover is also essential. There cannot be anything better than the satellite imageries with ground work to determine the land settlements,” said Patel.

Garasia, however, said that during the recent Garib Kalyan Mela, Chief Minister Narendra Modi issued letters containing so-called rights of cultivation to 14,202 tribal farmers stating that they can cultivate forestland.

In the past, between 1994 and 97, there were surveys conducted to determine the original claimants of the forestland. Sixty-four thousand families were found in the survey, but only 32,000 were given titles. “By indulging in such falsifications, the state government is violating the provision of FRA -2006 Section 8-(H)”, said Garasia.

She said it is stated in the Act that a certified copy of the record of forest rights and title under the Act, as specified in Annexure II & III to these rules, is to be provided to the concerned claimant and the Gram Sabha respectively.