

In this issue

Strengthening Climate Services

The World Meteorological Organisation and its partners formulated a Global framework in 2009, as a response to the demand for user driven climate services. As per the framework, at the national level, National Meteorological and Hydrological Services will serve as the nodal implementing agency for providing climate services. India Meteorological Department (IMD) is the NMHS entrusted with the responsibility. Since its establishment in 1875, IMD has come a long way, and is already at par with international standards in providing weather services. However, in the realm of climate services, IMD will need further strengthening.

Three scholars, from outside the Department, examine the functions of NMHS in India and what is required for IMD to transform from a world class weather-ready organisation to one that is climate smart.

The study also proposes the convergence of all knowledge resources on climate change, to holistically cover the entire spectrum of climate services, beyond a single department of the government. The General Article on **page 1274** in this issue is worth reading by all those who have interest in climate and wish to know more about the emerging subject of climate services.

Sunflower in Alluvial Soil

Meeting nutrient needs

Sunflower is a salinity resistant oil seed crop. The short duration crop is drought resistant and is generally grown in the dry months. However, the productivity of the crop in alluvial soils varies considerably depending on soil fertility. What is the best nutrient package to maintain soil health and to produce maximum yield of sunflower seeds per hectare in alluvial soils?

Researchers from the University of Calcutta and the Ramakrishna Mission Vivekananda University

examined ten different nutrient management strategies. This included no external inputs at all, only farm yard manure, only chemical fertilisers and only vermicompost. They also tried different combinations of these that included applying *Azotobacter*, phosphate solubilising bacteria, foliar spray of urea solution, and half the amount of recommended chemical fertiliser.

What is the best nutrient package that farmers in the Gangetic alluvial soils can use to increase the seed yield of sunflower, to maintain soil health and to halve expenses on chemical fertilisers? Go to the Research Communication on **page 1364** in this issue.

Agriculture in Uttarakhand

Sustainability and profitability

Uttarakhand, the Himalayan state, covers an area of more than 50,000 square kilometres. The hilly slopes are not conducive to agricultural activities. So only a little more than a fifth of the total area is under agriculture. In the last four decades, the population of the state has increased by 270% while agricultural productivity in most areas is declining. To save themselves from poverty, to make agriculture sustainable, the farmers in the area need a strategy. And that is what a General Article in this issue offers. Read on from on **page 1281**.

Tapping Wind Energy

Best locations in Karnataka

Karnataka has a total installed wind energy production capacity of 4.7 gigawatts. The target is to increase it by another 1.5 gigawatt in the next two years. What are the best places in Karnataka to set up wind farms?

Not in areas that already have wind farms, obviously. It should be an area that has the optimum wind speeds where wind farms can be productive. Presently, wind data is being recorded at 14 stations throughout

Karnataka from where we can know the wind speed at different heights. Not adequate to extrapolate to a state that covers more than 190,000 square kilometres.

IITM Pune developed a model to predict wind speeds at different heights at a three kilometre resolution covering Karnataka. They validated the model using the available observational data from the National Institute of Wind Energy. After error corrections, the model is now nearly 90% accurate.

Scientists from the Divecha Centre for Climate Change at IISc collaborated to put the model to use for finding the best locations for wind farms in Karnataka. What are the best locations in Karnataka? Turn to the Research Communication on **page 1347** in this issue.

Litchi Not Lethal

Science softens the stance

In the last litchi season, the fruit came under media focus as responsible for deaths due to hypoglycaemia. Though the fruit itself is sweet, litchi, it seems, contains phytochemicals such as hypoglycin A and methylenecyclopropyl-glycine, which have delayed action leading to extreme hypoglycaemia and acute encephalopathy syndrome.

Scientists at BARC and the Homi Bhabha National Institute noted that the amount of phytotoxins reported in the fruit is too low to be responsible for causing deaths. So they decided to test the claim. They fed litchi to mice. The doses were equivalent to nearly four kilograms of the fruit pulp per day for a person weighting sixty kilograms! Even then, the battery of tests that followed did not show any toxicity.

A Research Communication on **page 1292** in this issue challenges the claim that eating litchi causes acute encephalopathy syndrome.

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