

In this issue

Exporting Rice

Managing virtual water

Rice production in India has been increasing and the country is now even exporting premium quality rice. Since rice cultivation consumes water, exporting rice virtually amounts to exporting water. And this is not wise when groundwater is getting depleted and the land is getting water stressed. Yet India cannot afford to overlook the trade advantages of rice exports.

A General Article in this issue suggests ways to side step this impasse. The article delineates the agro-climatic zones where rice for exports can be grown safely, sustainably. Shifting export-oriented cultivation to such zones can reduce water stress in areas where export-oriented rice cultivation is not sustainable. However, to do this, the government would need to convince farmers in water stressed regions to change cropping patterns in favour of less water guzzling crops. Financing this operation could, perhaps, come from the National Adaptation Fund for Climate Change, suggest the authors.

Given the rate at which groundwater is depleting, we cannot afford to sustain the status quo in rice exports unless discussions, decisions and action follow the article on **page 407**.

Transportation Technologies

For fresher fish products

Fish and fish products travel far from the shores where they are caught to consumers who are willing to pay for the chilling and freezing that it entails. So the technologies and cold chains are in place. Meanwhile, consumers have become discerning enough to appreciate the quality of freshness of fish. And, to meet this rising demand, new technologies and techniques for transporting live fish have evolved.

A review of the live fish transportation systems is presented in this issue by scientists from the ICAR-Central Institute of Fisheries Technology and the ICAR-Central Institute of Fisheries Education. They also analyse the factors that contribute to stress, which reduces the quality of the fish being transported, including the proxies for measuring such stress and suggests ways to overcome the problem.

The Review Article on **page 418** also argues that the market for live fish is large enough for the new technologies to be adopted by the fisheries and transport sectors.

Wheat Cultivation in the Nilgiris

Associated faunal diversity

Wheat requires cold weather and is, therefore, cultivated primarily in the central and northern parts of India as a winter crop. But it can also be grown in the colder high altitude locations in the south – the Nilgiris, Kodaikanal and Palani. The high humidity and low temperature conditions in the Nilgiris provide the right environment for selecting and breeding rust-resistant strains of wheat. So ICAR has a research station at Wellington.

Though wheat cultivation is possible all year round in the Nilgiris, the farmers there choose other crops because of raids by the Nilgiri Gaur, spotted munia, and common rose finch. But, if such pests can be deterred, wheat cultivation in the Nilgiris will support high biodiversity. A Research Article on **page 426** in this issue provides the details.

Honeybee Colony Development

Prevented by pesticide?

The Central Insecticide Board has registered thiamethoxam for managing aphids in mustard, a crop pollinated by honeybees. Though the application of the insecticide is primarily before flo-

wering, as an anti-feedant of sucking pests, bees are exposed to sub-lethal doses of the insecticide during pollination activities.

Thiamethoxam is structurally close to nicotine and acts as an agonist to the nicotinic acetylcholine receptors of the insect brain. Researchers from the Punjab Agricultural University hypothesised that, even at sub-lethal doses, the insecticide may impact memory in honeybees. A series of experiments done show that honeybees become not only less sensitive to sucrose but also suffer negative consequences on both long-term as well as short-term memories due to even small amounts of the insecticide. This, they say, has implications in bee colony development.

Farmers and bee keepers, if not the insecticide registration committee members, need to read the Research Article on **page 451** in this issue.

Mosaic of Mouza Plans

Global Navigation Satellite System

Mouza maps were created with definite territorial boundaries, measured and subdivided for administrative and revenue purposes. With the availability of satellite images and global navigation systems, high definition, high precision digital cadastral plans became feasible. To prepare land-use maps of large areas, often a mosaic of individual images needs to be composited, which calls for geo-referencing and various error correction strategies.

A case study of the precise mosaicking of the mouza plans of the Kasta East Coal Block of the West Bengal Power Development Corporation Limited and the preparation of a cadastral map is presented in a Research Article on **page 467** in this issue.

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