In this issue

Mango Orchards
Capturing carbon

Trees vary widely in their ability to capture carbon. A study showed that the practice of conservation agriculture in mango orchards leads to carbon sequestration similar to that of forests. Considering that India has more than two million hectares under mango, perhaps mango orchards can be more 'fruitful' in capturing carbon than most other green cover.

However, there are differences in the carbon capture ability of different mango varieties. And there can be variations in their ability from region to region. Researchers from the Indian Institute of Horticultural Research, Bengaluru classified the states and union territories of India under ten broad regions and investigated carbon sequestration in orchards of the popular varieties grown there. They could thus generate an estimate of the total amount of carbon locked up in mango orchards in India – a whopping 200 million tonnes!

Such estimates on other fruit orchards are needed for reporting to the United Nations Framework Convention on Climate Change as per the Kyoto protocol. The Research Article on **page 2006** in this issue is a forerunner in this area of research.

C Sequestration in Arid Zones
Informing land use policies

More than 30 million hectares in the north western parts of India is arid. In this region, blessed with plenty of sunshine and cursed by inadequate water, co-cultivation of perennials (i.e. trees and grasses) with annual crops is more sustainable. But the race to raise more food has led to the adoption of millets and other food crops over large areas. Sole cropping tends to reduce soil organic carbon. In arid zones, inorganic carbon is the major form of carbon sequestered in soil. But the build up of soil inorganic carbon is directly proportional to soil organic carbon.

Researchers from the ICAR-CAZRI, Jodhpur estimated C sequestration in eight different land-use systems involving combinations of crops-trees-grasses. What are the relative values of carbon sequestered in the eight different land-use systems in arid zones? Read the Research Article on **page 2014** in this issue for making evidence-based policies on land use in arid zones.

P. C. Vaidya's Contributions
Upsurge in citations

Prahalad Chunnilal Vaidya, mathematician, physicist and educationist, had a scientifically productive life that ended in 2010, when he passed away at the age of 92. When A. A. Shashikumara and Rashmi Kumbar from the Central University of Gujarat set out to review his contributions to science, they were in for a surprise. Their search on Scopus and the Web of Science did not yield any results.

So they had to rely on Google Scholar and, by creating a Google Scholar profile for P. C. Vaidya, they listed 102 publications. In a General Article in this issue, they present an analysis of the scientific contributions of Vaidya – his collaborators, the journals, the publishers and their countries, the year-wise patterns of the publications and the burgeoning citations that he has been receiving from the 1970s. Read more on **page 1951**.

Shifting Sands of the Floodplains
Introducing instabilities in definition

Floods cause havoc. In the process of mitigating and managing such disasters, often, the ecological value of floodplains is not taken into account. Embankments and bunds change floodplains. What were once floodplains suddenly become available for 'development'.

The National Green Tribunal of India, the body mandated to ensure that floodplains are protected, is led astray by inconsistencies in the definition of floodplains, point out researchers from Jamia Millia Islamia, Delhi University, JNU and IIT Gandhinagar. In a General Article on **page 1958** they analyse the recent judgements of the Tribunal to highlight the importance of having a consistent definition.

Bio-inoculation of Seeds

It is now abundantly clear that microorganisms can help the germination and vigour of seedlings. But the relative merits of these plant growth-promoting bacteria and the concentrations of the microbes needed for optimum effects are still unclear.

Researchers from the Tamil Nadu Agricultural University examine the issue in a Research Communication on **page 2052** in this issue, using pigeonpea as a model.

150 Years of the Periodic Table

This issue of your favourite journal celebrates the International Year of the Periodic Table with a Special Section starting on **page 1962**.

C. N. R. Rao gives us a concise but comprehensive history of the periodic table. S. Krishna Prasad highlights the role that spectroscopy played in identifying the elements that occupied the missing spaces in the periodic table, Sourav Ghosh and G. Mugesh examine the elements that constitute life – about half of those in the periodic table – and point out that we know the roles of only 28 of them in life processes, and Indumati Rao ends the Special Section with a biography of Dmitri Mendeleev, the man who created the Table.

From physicists to chemists, biologists, geologists and historians, there are many who may want to preserve this issue.

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