In this issue

Research on Fertilizers
Bibliometric stock taking

As per the Web of Science, the first two decades of this century produced more than 22,000 articles, conference proceedings, reviews and book chapters related to research on fertilisers. The data dug up by researchers at the ICAR-Indian Agricultural Research Institute show that research output steadily increased from about 400 to nearly 2300 in those two decades.

A General Article on **page 1140** in this issue takes a look at the leaders among the nearly 55,000 authors, the countries which contribute the most, the most popular among more than 3000 publication sources, the most cited publications and, most importantly, the most researched topics.

In the brief roundup of 21st century research on fertilisers, the authors highlight the low amounts of research done in areas which support policy and decision making related to fertilisers. They also point out the problem of diversion of subsidised fertilisers to industrial use.

Huntington's Chorea
A cellular perspective

Huntington's chorea, uncontrolled movements that overshoot intention, making voluntary movements look like some choreography, afflicts but a small percentage of people – but large enough in absolute numbers, in the context of the present world population.

Though the condition was well described by the end of the 19th century, it was only towards the end of last century that the gene responsible for the autosomal recessive inheritance of the disease was identified. Now, in this issue of *Current Science*, you will read a review of what we know about the cellular processes involved in the development of the pathology related to the disease.

The gene that codes for the Huntingtin protein has repeats of the base sequence, CAG. This translates into a stretch of glutamine amino acids in the protein. In normal cases, these repeats are less than 37. But, in cases where it is more than 40, the symptoms of Huntington's start showing up. The protein, found in the cytoplasm, interacts with proteins, especially those that act as chaperones. Thus, the mutant protein leads to the malfunctioning of mitochondrial processes and induces stress in the endoplasmic reticulum. In the brain, this leads to over excitation of dopamine receptors, and the medium spiny neurons in the striatum start degenerating, and the caudate and putamen suffer from atrophy.

Besides the cellular processes, the review article throws light on the prevalence, detection, diagnosis, management and potential and emerging treatment options for Huntington's chorea. Read on from **page 1151**.

Indian Banyan Tree
Radiocarbon dating

In the Siddhwari sacred grove, about eight kilometres from the Narora Atomic Power Station, there lives a banyan tree which has a circumference of more than ten metres at breast height. Two primary stems reinforced by roots and four large roots further away from the primary stems prop up the branches that spread out the crown of the tree to cover more than 400 square metres, making it the tenth largest banyan tree recorded. The people there believe that the tree is about 500 years old.

Arti Garg from the Botanical Survey of India collaborated with researchers in Romania and South Africa to estimate the age of the tree. Using an increment borer, they extracted a sample of about 34 centimetres from the tree. They processed the sample for radiocarbon investigations using accelerator mass spectrometry.

What was the age determined by the scientists? Does it corroborate the local belief or refute it? Find out by reading the Research Article on **page 1175** in this issue.

Potential of Pine Needles
Energy, agriculture, economy

The Bhowali region, Uttarakhand has pine forests that shed nearly four tonnes of pine needles per hectare per year. Besides smothering the forest floor, inhibiting the growth of other plants and reducing water percolation, the pine needles pose the risk of feeding forest fires.

To reduce forest fires and to improve water percolation in the region, pine needles can be converted into an energy source. The waste-to-wealth transformation can be achieved by briquetting the pine needles or by producing bio-oil and gas, or by converting them to biochar for soil amendment. The processes, of course, produce greenhouse gases. Which is the best option, economically viable and ecologically least harmful?

Researchers from the ICAR-Central Institute of Agricultural Engineering and the G.B. Pant University of Agriculture and Technology address the question in a Research Communication on **page 1210** in this issue.

Establishing energy centres to make use of the abundant pine needles will not only reduce the risk of forest fires but will also improve the economy. Are agro-entrepreneurs in the pine forest regions of the Himalayan belt listening?

K. P. Madhu
Science Writing Consultant
scienceandmediaworkshops@gmail.com