In this issue

Isotopic characterization of dual monsoon precipitation

The word 'monsoon' is commonly used to describe the seasonal reversal of wind direction and the associated changes in precipitation patterns. Monsoon-derived rainfalls is a major characteristic of the climate of the Indian peninsula. Kerala, the south western state of India, receives the first monsoon showers every year and this rain is watched all over India as the onset of summer monsoon rains over the Indian peninsula. Kerala receives higher amount of rainfall than the national average and is one among a few highest monsoon rainfall regions in India. It is one of the few places in India which is under the influence of dual monsoon systems, i.e. the southwest and northeast monsoon. The agriculture in the region is mostly dependent on the timely onset, optimum strength and duration of the monsoon-derived rains. As a large share of exporting goods and spices of India is concentrated in Kerala, it forms a vital region for India's agro-economic development. Thus, the study on monsoon systems and its variations in this region is important for the country. Studies on the mechanism of monsoon and its variations may be helpful for the complex task of its prediction. Isotope hydrology is a proven and promising branch of science for hydrological applications. The isotopic composition of precipitation is being used all over the world to understand the vapour movement and various vapour sources contributing to precipitation of a region. C. U. Warrior *et al.* (**page 1487**) use the isotopic composition of precipitation in Kozhikode, a northern district in Kerala, to describe the dual monsoon system in this region. The study is successful in applying the isotope techniques for distinguishing the differences in the vapour sources and the mechanism of two monsoon-derived rainfalls in the region. The distinctive differences in isotopic composition of precipitation of the two monsoon-derived rainfalls in the region point to their differences in vapour sources and rainout histories before reaching the region. They also describe the characteristics of pre-monsoon rains received in this region. The study is important as the isotopic variations of seasonal precipitation are not much reported from south Indian stations.

Unique graft combination of tea, Cr-6017/UPASI-9

The practice of grafting to produce composite plants to attain disease resistance, drought tolerance and high yield/quality has been in use for a long time all around the world in many crops. In the case of tea, from the beginning of cultivation until about 50 years ago, seeds were the only source of propagation. In the absence of suitable mode of vegetative propagation, grafting was tried in the beginning of last century by certain tea-growing countries to propagate the selected clones primarily for the production of seeds and the rootstock has been either established in the field or grown up seedling in the nursery. During 1971, a unique method was developed for cleft grafting in tea using fresh cuttings as scion and root stock in south India for the first time. The main objective of this type of grafting is to develop composite plants comprising the shoot system of a clone with good quality or high yield and the root system of drought-tolerant clones to increase yield per unit area. The advantage of use of nursery grafting in tea comprising a quality clone Cr-6017 as a scion and a drought hardy high-yielding clone UPASI-9 was studied and their potential for large scale commercial propagation is outlined (**see page 1508**). This combination of nursery grafting offers tremendous potential for attaining high yield and production of good quality tea, the two underlining factors which determine the profitability and smooth running of the present day tea industry.

Retooling our technical education

V. G. Yadav and G. D. Yadav (**page 1442**) build a case for higher education as a vehicle of progress and empowerment and then argue that one of the reasons that India continues to trail other nations in national development is due to its seemingly outdated and unplanned technical education system. Several other problems afflict our universities; notable among which are the stifling bureaucracy and the lack of a research ethos, and these have been outlined in considerable detail in the article. Significantly, although the article predominantly focuses on the Indian higher education system, it also raises several issues and offers suggestions on improving the education system in its totality.

The authors then contrast the Indian university system with that of the United States and elaborate the blueprint for American dominance of the global academic and research landscape – as many as half of the top 20 universities of the world are in the United States. Following this, steps to accomplish a radical overhaul of our higher education system, with special emphasis on building research competency, have been outlined. This task is by no means trivial and would necessitate inputs from many players, including the Indian government and Indian industry. The success of this endeavour is vital to our nation's future success and will go a long way in solving some of the most pressing technological problems that are facing and will face India in the years ahead.