



Figure 1. *a*, Normal sandalwood seedling. *b*, Severely infected sandalwood seedling (black structure in the background is the pipe used for drip irrigation). *c*, Portion of the stem in which the disease has gradually spread. *d*, Stem showing characteristic little leaf-like appearance.

plantations have to be managed and monitored by regular weeding and also preventing any growth of collateral hosts that may be a source of sandal spike infestation. As spike disease can infect sandalwood during any stage of its growth⁴, practices to protect the plantation from sandal spike disease should be given priority. A clear understanding would ensure survival of the planted materials and assure anticipated yield to the growers and the stakeholders.

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Soil carbon sequestration through mulberry based agro-forestry system in temperate region

Temperate climatic condition of Kashmir is well suited for bivoltine sericulture. The sericulture in Kashmir valley sustains on tree type of mulberry. These plants are available on roadside (Figure 1), river bund and the borders of agricultural fields as they can grow under diverse climatic conditions¹. The present trend is towards establishing intensive tree type of mulberry plantations, which will serve as a source of leaf for the rearers and will have positive effect on the environment. Soil is an important factor

for successful adoption of mulberry cultivation, which determines the quality of leaf, thus in turn affecting the quality of silk produced. More so, continuous use and dependence on chemical inputs also adversely affect soil health. Therefore, refinement is needed to define greener ways to improve soil health and minimize the usage of chemical fertilizers². Planting trees will have a positive impact on the ecosystem. Temperate fruit trees serve as effective carbon pools³. Mulberry presents alluring prospects in terms

of soil carbon sequestration. The plant lives up to 45–50 years. It can be grown under any set of environment and soil. The plant can be vegetatively propagated, is hardy and biomass production is high. The leaves left after silkworm rearing are returned back to the soil in autumn, thereby returning the nutrients back into the soil. Improved soil management practices could offset a quarter of global emissions from fossil fuel use. In the present scenario, we need to urgently take steps to increase adaptive



Figure 1. Roadside plantation of mulberry.

capability of plants through non-conventional approaches to mitigate climate change impact. This would require increased adaptation study, capacity building, development activities and changes

in land-use management⁴. Policies and incentives should be evolved that would give confidence to the farmers for sequestering carbon in the soil and thus improving soil health. Making best use of the available tools like biotechnology, microbiology and remote sensing, a more meaningful database can be created. For soil scientists especially, this is in fact a challenge as well as a chance to exploit the potential of such agroforestry systems. A re-look at the existing systems, awareness, efficient land-use modelling and policies will govern the success of such system.

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Retirement age of university teachers and scientists in Central Government

Central Universities, including the various Indian Institutes of Technology and Indian Institute of Science for many decades had 60 years as the retirement age for their teachers. The same was the case for research organizations like CSIR, DAE and DORD. At the end of 1990s, the Ministry of Human Resource Development (MHRD) extended the retirement age of teachers to 62. The reason cited was the shortage of teachers. In 2007, the then Cabinet Minister of Human Resource Development the late Arjun Singh, by a Government order, enhanced the retirement age to 65, without any parameter to judge how far the existing teachers were motivated to discharge their duties efficiently. Again this time the argument put forth was to save expenditure caused mainly by two factors: enhanced salaries for the fresh recruits according to the new Pay Commission's norm and pension for the retiring teachers. All these events were eagerly watched by our pure research organizations and in the aspiring competition, they were correctly impatient to call themselves as teachers. The beginning

of this was by DAE. Now it has come to light that CSIR is also vigorously falling in line in establishing an Academy of Scientific and Innovative Research (AC-SIR) to offer postgraduate degrees. The Ministry of Defence also did not lag behind. The e-mails from scientists, which I occasionally receive, show that they have already started using the title 'Professor'. In a recent editorial, Balaram¹ has rightly mentioned about the 'rise of a professoriate which does not profess'. Offering postgraduate degrees from a university and from institutes (erstwhile training schools turned into national institutes) is not the same. A serious relook is desired from the concerned ministries of the Government of India. Autonomy is good, but it should not be without any rider. Some of my past M Tech students who worked in Max Planck Institute, Germany, were awarded PhD degrees from the German Universities on the research carried out in the Institute. Such a system prevailed here too, but due to some reason our research organizations are trying to insulate themselves from the university system.

Maybe one of the reasons is the apprehension that their scientists while submitting their PhD theses like normal university PhD scholars do get a much wider scrutiny?

Another associated aspect that has emerged is the temptation to serve an organization till the age of 70 years. If I am correct, a Fellow of any of our national science academies can avail this facility.

I suggest that the MHRD should revert to the retirement age of 60 years for the teachers. Moreover, our young teachers need to be groomed for taking up a bigger role in future. A more global and rational view must be welcomed by all academicians.

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