

## Dual-impact research of concern and genetically modified crops

The article 'Regulating the dual-use and dual-impact life science research: influenza virus versus biotech crops' by Gupta<sup>1</sup> makes an interesting reading. He quotes Wolinetz<sup>2</sup>, who defined dual use research of concern (DURC) in life sciences as research that is intended for legitimate beneficial purposes, but also carries a risk of being misused for malicious purposes. He further coins the term dual impact research of concern (DIRC) to specifically connote research which makes use of recombinant DNA (rDNA) or genetic engineering (GE) technology and is intended for beneficial purposes, but is likely to pose a threat to other living systems and the environment, as is perceived in case of genetically modified (GM) crops. It is envisaged that there are two main areas of research which may fall in the domain of DURC/DIRC. These are: (i) research on human genome, human diseases, pathogens and drug development in the field of medicine and (ii) development of transgenic plants leading to commercialization of GM crops for food, feed, edible vaccines, molecular farming/pharming, etc. Pro-

ducts of both these areas of research fall within the jurisdiction of Indian regulatory bodies, including the Review Committee for Genetic Manipulation (RCGM) and Genetic Engineering Appraisal Committee (GEAC). Gupta laments that while the Government regulatory bodies are soft on GE products of biomedical research, the impact created by various civil societies and NGOs prevents commercialization of ready GE products like *Bt* brinjal. The comparing of *Bt* cotton and *Bt* brinjal scenario in India, with the readily granted permission to publish some cutting-edge studies involving GE and transmission of H5N1 influenza virus to ferrets by the US Government on the recommendation by the federal National Science Advisory Board for Biosecurity<sup>3</sup> is a subtle and technical issue. In my opinion Gupta's line of argument is technically correct, but it shall not cut ice with the opponents of GE crops. As long as the existing political leadership (opposition included) and the civil groups prevail, only those GE products which bail out the human race from a do-or-die situation can be commercial-

ized. Which NGO, for example, questions commercial recombinant (GE) insulin? So far as the media is concerned, sane voices can be heard here or there. In its recent cover story, *India Today*<sup>4</sup> highlighted that in the present-day Indian context 'green tape' of the Ministry of Environment and Forests is a greater hurdle in development instead of the proverbial red tape.

1. Gupta, P. K., *Curr. Sci.*, 2012, **103**, 995–1002.
2. Wolinetz, C. D., *Science*, 2012, **336**, 1525–1527.
3. Cohen, J., *Science*, 2012, **335**, 512.
4. <http://indiatoday.intoday.in/story/india-today-editor-in-chief-aroon-purie-on-pmo-environment-ministry-green-projects/1/223545.html>

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## Do 'workshops' serve the purpose?

Every fortnight or so, we come across circulars for various workshops in biological sciences. The Government is generously funding such workshops across the country to offer training to science teachers in colleges and research scholars. The objective of imparting the necessary practical skills to them is that, it could be implemented by them in their respective teaching and research process, which would be reaped by the student community and eventually lead to improvement in the quality of science research in the nation. Every institute, whether big or small, has the desire to conduct workshops even though it lacks the required infrastructure and expertise.

I have attended a few workshops even in institutes of high repute, but the practical knowledge I gained from them is minimum, in spite of the huge amount of money spent by the Government upon an individual candidate. Many workshops offer fancy bags and provide good hospitality, but the course materials are of substandard quality and predominantly downloaded ones.

Most of the sessions are theory-based and the resource persons may not be experts in providing hands-on training. Sometimes the organizers themselves are highly incompetent, but conduct workshops for getting promotion/administrative positions.

The organizers have to think twice before organizing any workshop – whether it would fulfil the objective of the course completely and whether they possess the required infrastructure and expertise for the same. Only then will the participants benefit. The Government funding agencies must also look into the potential of the institute/organizer before funding a workshop.

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