Temporary lecturers

In several government and aided colleges in India, temporary lecturers are paid a paltry sum per month as honorarium, that is insufficient in terms of inflationary trends existing and the ever-increasing cost of living. In most of the cases, these temporary lecturers are Ph D holders, and by the time they take up such assignments they would have already been married and started a family. It is atrocious that these lecturers have to maintain their families with such low salaries. Their job being 'temporary' in nature, is not a justifying explanation for such low salaries. Nowadays, even kindergarten teachers are better paid than temporary lecturers of Government and aided colleges. It is painful to note that these temporary lecturers work for several years (sometimes for more than 7 years) with the same low salaries. At the end of the day the only benefit that they get is teaching experience which might help them in case of any recruitment for permanent positions. We have the Minimum Wages Act to protect daily workers, coolies and other labourers in the unorganized sector, from any kind of exploitation. However, many labourers still receive wages that are far less than those prescribed by the Government through the Act. However, for temporary lecturers there is no such protection from any law. With the latest Sixth Pay Commission's recommendations under consideration of the Government, it would be a justice done to the temporary lecturers if a fair and decent consolidated pay is fixed per month for them. In the case of private colleges and universities, most of them take fresh postgraduates as lecturers (who may not have NET certificates) and pay low salaries, though they advertise that they follow AICTE norms and pay UGC scales. These salaries are paltry when compared with the capitation fee that runs into several lakhs taken by private engineering, medical and other colleges and universities. In line with AICTE we should have some standards adopted and followed by all our Government colleges and universities. These standards, addition to 'NAAC' accreditation, could be on par with 'ISO' standards.

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Standard of science

Apart from the honours and titles conferred on people who do good research (which cannot be bestowed on everyone doing reasonably original and standard research), the best way to judge the quality of research is to look for publications in standard journals. Publication of research results is a service done to the society, considering the fact that public money is used for a majority of our research endeavours. Extending this argument, it is imperative that publications are made in well-circulated journals, rather than in obscure ones. Renowned journals have excellent editorial policies and expert referees, so that almost always only good papers get published in them. Hence, publishing in these journals is not easy. But then the bar has been lowered in our country by spawning several 'cottage-industry journals', which publish anything that is in typed form. Of late, such publications have become a menace in procedures such as selection of candidates for a job, promotions and even considering a research proposal for funding. It becomes the job of the reviewer to discern true publications from bogus ones. I suggest that some recognized body such as the UGC list the standard journals in each field that are being published from India, to make the task of the reviewers easy. This would be similar to its website listing fake universities and colleges.

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Approaching issues of quality in *Bt*-cotton seed

Transgenic technology promises a boost in agricultural productivity by improving a specific trait through incorporation of alien genes into plant species. Herbicide resistance and insect pest tolerance have been the most targetted economic traits for improvement through this technology. Among 51 transgenic events for insect resistance, 35 events represent *Bt*, where insect resistance gene from *Bacillus thuringiensis* is introduced. Among the 11 crops genetically modified in India (cotton, corn, brinjal, cabbage, groundnut, mustard, okra, pigeon pea, rice and tomato), *Bt*-cotton is the first transgenic approved by the Government for commercial cultivation. The increasing trend in the area under *Bt*-cotton for the last five years indicates the higher productive capacity which the technology can offer. As a consequence, demand for *Bt* seeds is also on the rise, which in turn puts before researchers a major challenge of ensuring supply of good-quality seeds. The foremost issue with respect to quality seed is the seed purity which, at the world level, is addressed by techniques for detecting adventitious presence of GM seeds within non-GM seeds. Adventitious presence is the contamination of conventional seeds with GM seeds through pollen-mediated gene flow or volunteer plants appearing from previous sown crop. This is important in international seed trade due to its influence on biosafety as well as quarantine. Other issues related to purity are the accurate identification of a specific transgene and its quantification, since large number of

Bt cry genes and events are prevalent in the seed market. Detection kits based on PCR and ELISA are available for *Bt* genes, which have strengths and weaknesses. PCR is a powerful and sensitive test, but can yield false results due to inadvertent mixtures, DNA decay, poor technique, etc. It will fail to detect *Bt*-cotton seeds if the transgene is for herbicide tolerance and hence, for each transgene, a PCR protocol is needed. The protein-based ELISA tests provide quantitative detection in addition to qualitative, but may fail to detect a true *Bt* variety if it has tissue-specific expression in the plant only and not in the seed. This may not be an issue at present, since all the available hybrids have constitutively expressing 35S promoter in them along with the *Bt* gene. No single test should be considered definitive and a decision should be based on several test results. Seed quality control system in India works under the Seeds Act, 1966 and has always recognized that a 100% purity is not possible, which is why standards/thresholds have been set by the Indian Minimum Seed Certification Standards. The Government of India has fixed a standard of 90% for *Bt* purity, which needs to be tested from a sample size of ten seeds, which appears to be too small. Once the Seed Bill, 2004 is operational all seeds, including transgenics sold will be regulated after a compulsory registration. Under the generation system of seed multiplication, field and seed standard will have to be reviewed and determined for *Bt*-cotton separately. During foundation seed production, the parental line of *Bt*-hybrid will have to be tested for stability in *Bt* expression before certification. The genetic purity of *Bt*-hybrids by the Grow Out Test will have to include *Bt* purity testing in addition to varietal purity. It is reported that significant variation for Cry1Ac expression exists in different *Bt*-cotton hybrids, despite having a common gene-insertion event. Intra-plant and in-seasonal variability in Cry1Ac expression levels has also been observed in *Bt*-cotton. Hence the Grow Out Test can be confronted with the issue of threshold level for *Bt* expression in the hybrid. It has also been reported that high amount of variability exists for Cry1AC expression in different plant parts, with highest level in the leaves of seedlings followed by squares, bolls, rinds and flowers[1] which also raises another issue on selecting ideal plant parts as well as stages to be examined for cry protein expression. Transgene effect on seed composition (protein and oil) may also affect seed quality of *Bt*-hybrids, which can be assessed only by comparing them with their non-*Bt* counterparts differing solely in *Bt* gene. These may have pronounced effect when *Bt* varieties in addition to *Bt*-hybrids enter the seed market, where farmers save and re-sow the seeds and seed storability becomes important. Thus considering the seed as a carrier of new technologies, an authentic seed quality testing system based on scientific studies is the need of the hour in *Bt*-cotton.

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Lower recession rate of Gangotri glacier during 1971–2004

Kireet Kumar *et al.*[1] suggested that the recession of Gangotri glacier has slowed down since 1971. The authors have estimated the total recession during 1935–1971 as 954.14 m. These data contradict the most authentic recession data of Gangotri glacier collected meticulously by the Geological Survey of India (GSI) over the last many decades[2] (Table 1). Vohra[3] reported that the Gangotri glacier receded by only 600 m during 1935–76 and Tewari[4], in his survey of September 1967, recorded that the glacier has receded around 600 m since Auden's survey in 1935. All these past data indicate that the recession of the glacier during 1935–71 (36 years) was around 624 m, with an average rate of 17.33 m/yr. This shows that Kireet Kumar *et al.* have overestimated the recession of Gangotri glacier during 1935–71 by 330 m. The reference cited by the authors suggests that they used information provided by Vohra[3] to occupy the 1971 snout position. However, this article did not mention the positional details of the 1971 glacier termini, but showed the 1975 snout position in the sketch. This suggests that authors have made some error in occupying the 1971 snout position to re-estimate the recession of Gangotri glacier during 1935–71. Authors may try to occupy the 1956 and 1967 snout positions as loca-

Table 1. Recession rate of Gangotri glacier at different time periods since 1842. Source C. P. Vohra[2]

Period of observation	No. of years	Ice cave retreat (m/yr)
1842–1935	93	7.35
1935–1956	21	10.16
July 1956–March 1962	5.6	18.75
March 1962–September 1971	9.5	32.21
1971–1975	4	28.87
1975–1977	2	36.50
1977–1990	13	28.80
1935–1996*	61	18.8
*(Ravisankar and Srivastava[7])		

Table 2. Estimation of glacier recession based on Vohra[2] and Kireet Kumar *et al.*[1]

Period	No. of years	Total retreat (m)	Recession rate (m/yr)
1935–1971	36	624	17.33
1971–2004	33	895	27.12
1935–2004	69	1519	22.0