such as competitive effects and weediness, were given little consideration. Conclusions in the reports stating "no significant risk," were based on little or no empirical evidence.

Huttner et al. apparently believe that genetic engineering is merely a new tool for plant breeders and that experience derived for modifying plants with non-recombinant techniques is sufficient to assure us that transgenic plants are inherently safe and not in need of "costly and time consuming government review." Thus, the authors recommend extending the current system of voluntary compliance and limited government review now operating for classically bred crops, to transgenic crops.

We disagree. Genetic engineering is a powerful new technology that permits the creation of crop varieties blending the characteristics of totally unrelated organisms. We believe that predicting the environmental impact of these plants is not necessarily analogous with classically bred crops, where characteristics of closely related plants, having a common evolutionary history, have been merged. Experience with transgenic plants may prove the analogy to be valid, but shouldn't we first do the experiments, make the observations, and gather and analyze the data before drawing our conclusions?

One might get the impression from this article that APHIS's regulatory approach has been burdensome to the plant biotechnology industry and has delayed product development. From interviews we conducted with industry representatives, we found general satisfaction with APHIS's procedures (probably because they cause the industry little difficulty). A primary player in the plant biotech industry stated at a recent meeting that "there is not a single plant biotechnology product that has been delayed by the regulatory process."[2] We have never heard any researchers state that they have been discouraged from developing safe and effective plant transformation vector systems because of APHIS's interpretation of the Federal Plant Pest Act, as the authors state in their conclusion. We have never read any article suggesting that ballistic transformation techniques have been developed as a poor second choice to possible biological vectors because of APHIS regulatory oversight. If the authors contend that this has been a significant impediment to the advance of plant biotechnology, more evidence to support this view is warranted.

Finally, we agree that the application of biotechnology has promise for agriculture but that it is best to proceed cautiously until the safety of plant-environment interactions is demonstrated beyond the limited question of plant pest risk arising from transformation donors.

[1]Wrubel, R.P., Krimsky, S., and R.E. Wetzler. 1992. Field Testing Transgenic Plants: An Analysis of the U.S. Department of Agriculture's Environmental Assessments. *Bioscience* **42**:280-289.

[2]Salquist, R.H. 1991. Commercializing Agricultural Biotechnology. Pages 132-137 in: J.F. MacDonald, Agricultural Biotechnology at the Crossroads: Biological, Social, and Institutional Concerns. NABC Report 3, National Agricultural Biotechnology Council, Ithaca, NY.

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**To the editor:**

It was with a sense of *déjà vu* that I read "Revising Oversight of Genetically Modified Plants" by Huttner et al. (September, **10**:967). I had thought publication of my letter (Helser, T.L. and C.A. Ryder, 1988, *Bio/Technology* **6**:325) and having the IUPAC rule in 1989 on the misuse of the rDNA abbreviation[1] would have settled the issue, but apparently not. The authors' first sentence is particularly instructive. They state: "Since 1987, the U.S. Department of Agriculture (USDA) has required that propsed field experiments involving rDNA-modified plants undergo . . . ." The fact that they felt compelled to define "USDA," but not "rDNA," implies that some might confuse the USDA with some other agency, but everyone understands that these plants have been modified by "the genes for ribosomal RNA."[2] Their questionable grammar aside, this interpretation may not have been the authors' intent, but demonstrates how confusing incorrect abbreviations can be.

Again, may I suggest that "rt" be used to abbreviate "recombinant"[3] when and if an abbreviation is necessary? An otherwise lucid and interesting article is made less so by allowing lab jargon into publication without critical review.

[1]Hill, J.W. 1991. Personal communication.

[2]King, R.C. and W.D. Stansfield. 1985. *A Dictionary of Genetics*, 3rd ed., Oxford U. Press, NY, p. 328.

[3]King, R.C. 1986. *Nature* **322**:780.

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## Errata

The following errors appeared in "Revising Oversight of Genetically Modified Plants," by Susanne L. Huttner et al. (September **10**:967). George Bruening's name was spelled incorrectly. The proper spelling is shown here. Roger Beachy's job title was omitted. He is head of the plant biology division at the Scripps Research Institute.

## Pharm Contamination

**To the editor:**

As a research veterinarian, I most enjoyed the article "Whole Animals for Wholesale Protein Production" (John Hodgson, *Bio/Technology* **10**:863-866, August). However, a major consideration in this scheme was left out of the discussion. That item is the consideration of microbiological contamination of products coming from animals. Specifically, BSE (bovine spongiaform encephalopathy) agent is found in cattle, and a very similar agent is found in sheep. The agent is still not well characterized and cannot be "killed" by any conventional method. Human effects are potentially real.

In any animal "pharm" system, one runs the risk of this contamination with existing or to-be-discovered agents such as slow viruses. The industry needs to address these concerns before opponents of transgenics address the issue for us.

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