

From the Editors in Chief

***Environmental Biosafety Research* (EBR): a new journal to fill a unique scientific niche**

Environmental applications of genetically modified organisms (GMOs) have received unprecedented inspection and evaluation. In recent decades, public valuation of the environment has increased, and public perceptions of the environmental impacts of agricultural technologies have changed. Agricultural technologies, which at one time escaped broad public consideration, now receive intense public scrutiny because of their potential adverse environmental effects. For instance, pesticides, sub-soil drainage, fertilizers, and the Green Revolution have been examined with increasing intensity, and GMOs are the most recent agricultural technology to attract public criticism in their evolving attitudes toward the environment. However, the breadth of the ongoing public discourse concerning GMOs is unprecedented in scope and timing. This is the first time that human health, environmental, and socio-economic considerations have been brought to bear in evaluating a technological innovation prior to commercialization.

For nearly all innovative biological technologies, thoughtful scientists have been acutely aware that application of these discoveries could have detrimental effects on humans or the environment, and have called for careful application of these new technologies. In the 1960s and 1970s, molecular biologists were in the forefront of asking the pertinent safety questions in their field, and seeking answers to these questions resulted in the NIH Guidelines for safe laboratory practice and safe cloning in *Escherichia coli* (Wright, 1994). Here improved knowledge made it possible to implement safe laboratory practices, and thus to benefit from the many medical and food processing innovations of genetic engineering. In the 1970s and 1980s, ecological scientists called for environmental safety evaluations for releases of GMOs into the environment (Sharples, 1983; Gillett et al., 1986; Tiedje et al., 1989). Improved understanding of GMOs intended for deliberate release plays a key role in making it possible to benefit more fully from GMOs, while mitigating or avoiding potential negative effects. Science-based assessment of GMOs is universally recognized as the essential foundation of national and international evaluation of GMO-based innovation, and this is the basis of the enormous challenge to the scientific community involved.

This prospective, interdisciplinary feature of the GMO discussion makes research in this area particularly interesting, but it has become increasingly difficult to follow new developments across this broad and actively growing domain. Although researchers will continue to publish in specialized journals, the principal objective of *Environmental Biosafety Research* (EBR) is to provide a common interdisciplinary ground for publication of results that are pertinent to the environmental safety and risk – in the broadest sense – of biotechnological innovations. This includes biological and socio-economic evaluations of environmental effects, and environmentally mediated effects on human health.

Our hope is that results published in EBR will help provide answers to current and future questions about the environmental effects of GMOs. Even when the current phase of debate has reached some scientific consensus, there will be a need for continued focus on biosafety research for at least two reasons. The currently available GMOs are modified for relatively simple traits, both genetically and phenotypically. When far more complex traits, such as resistance to salinity or drought, or modifications of entire metabolic pathways, are ready for evaluation, the scientific biosafety issues will likely be correspondingly complex. Also, public involvement in the decision-making process for commercial release of GMOs may deepen or spread to other environmental applications of biological technologies. This would raise new challenges to provide the solid scientific results necessary to satisfy the analysis called for by the public – and scientists as well – which we believe is a positive

social good. EBR will be attentive to these possibilities, and expects to adapt to the shifting demands for scientific knowledge to support the decision making process regarding the use of any biological discovery in uncontained environments.

EBR begins its life as the official journal of a new learned society, the International Society for Biosafety Research (ISBR). These twin projects were conceived during 2000 at the 6th International Biosafety Symposium held in Saskatchewan, and their birth will be recognized at the 7th International Biosafety Symposium at Beijing on October 11–16, 2002. The linkage with the ISBR will guarantee that EBR will be able to publish forward-looking research with the necessary independence. Another essential element necessary for the success of EBR is active participation by the scientific community. We look forward with great anticipation to our intertwined development with ISBR and will take great pleasure in meeting you, as a member of ISBR, as a reader of our articles, and most importantly as an author who believes that appropriate use of biological innovation requires the highest standards of research.

Mark Tepfer
David A. Andow
Klaus Ammann

REFERENCES

- Gillett JW, Stern AM, Harwell MA, Levin SA, Alexander M, Andow DA** (1986) Potential impacts of environmental release of biotechnology products: assessment, regulation, and research needs. *Environ. Manage.* **10**: 433–563
- Sharples FE** (1983) Spread of organisms with novel genotypes: thoughts for an ecological perspective. *Recomb. DNA Tech. Bull.* **6**: 43–56
- Tiedje JM, Colwell RK, Grossman YL, Hodson RE, Lenski RE, Mack RN, Regal PJ** (1989) The planned introduction of genetically engineered organisms: ecological considerations and recommendations. *Ecology* **70**: 298–315
- Wright S** (1994) *Molecular politics: developing American and British regulatory policy for genetic engineering, 1972–1982*. Chicago: University of Chicago Press