

tee (IBC) and that its reports be forwarded to NIH. The committee recommended no stiffer penalties, however—no restrictions on his federal funding, nor any action against either Baylor or Texas A&M University, where two of Kit's collaborators work.

At the same time, the NIH committee agreed with officials of the U.S. Department of Agriculture (USDA), which has licensed the pseudorabies vaccine for commercial use. The com-

mittee called it "pure, safe, potent, and efficacious," demonstrating "no adverse reactions or adverse impacts on the environment."

In yet another incident involving a genetically engineered vaccine, researchers at Oregon State University announced results of field tests they have been conducting in New Zealand, with the full cooperation of the government and local scientists. Although the New Zealand tests were of

an experimental vaccine to protect against the relatively harmless Sindbis virus, its gene was carried in an engineered vaccinia virus, making it quite similar to the experimental rabies vaccine used to inoculate cattle in Argentina. The plans for the New Zealand test were announced a year ago and were reviewed by the researchers' IBC. The tests were, say the Oregon researchers, entirely successful.

—Jeffrey L. Fox

NEWS ANALYSIS

PUBLIC OPINION: SENSE VS. SENSIBILITY

On Halloween, the U.S. Congress Office of Technology Assessment (OTA), in collaboration with the polling outfit of Louis Harris and Associates, began sampling public attitudes about biotechnology. The effort is part of a major OTA study, due later this year and intended to give Congress a better grip on where the technology is going and what issues legislators need to consider.

Meanwhile, seemingly scandalous tales of genetically engineered vaccine tests have figured prominently in late-autumn headlines (see the accompanying article, "Three Recombinant Vaccine Tests Stir Debate"). At the same time, activists from the public interest community, including Barry Commoner, Ralph Nader, and Jeremy Rifkin, convened to ponder "Creating a Public Agenda for Biotechnology: Health, Food, and the Environment" at a meeting sponsored by the Boston-based Committee for Responsible Genetics (CRG).

Doubtless, the biotechnology industry—and, conceivably, even the average American—knows of Rifkin and his Foundation on Economic Trends. If Commoner and Nader are somewhat more familiar household names, they are comparative newcomers to the biotechnology scene. Nonetheless, they seem eager to match Rifkin in their accusations against the new industry. Indeed, at the November meeting they offered strong and dire warnings of biotechnology's future misdeeds, based mainly on their appraisals of other technology-based industries.

"The biotechnology industry is repeating step-for-step what happened in the petrochemical industry," Commoner declared. "It could, if allowed to go forward, become invulnerable to control." Nader, who appears less schooled than Commoner on the technical side of this new industry, expressed similar sentiments. Comparing biotechnology to other modern industrial revolutions, particular-

ly the nuclear power industry, Nader called the new technology worse because it is "mobile" and "decentralized," does not immediately "offend sensory perceptions," and because it poses the "number one challenge to democratic values." He also claimed that biotechnology's protagonists have "an academic-industrial interlock," giving them "an extraordinarily great lever on the public mind."

Many other members of the public interest community showed themselves eager to join Rifkin, Nader, and Commoner in their watchdog roles. Exactly where they want to go, or why, is not so clear. Is biotechnology to be blocked altogether, or can its "exploitative" tendencies be excised? Vaccines are quite appealing to many members of the public interest community, who recognize their value as a preventive, cost-effective means for tackling difficult disease problems in both industrialized and developing countries. They argue, however, that today's profit-minded companies are failing to supply that need, and will continue to fail unless invested with social consciences.

Such arguments imply a belief that not all biotechnology is to be shunned. Yet, the actions of Rifkin and the words of Commoner, who said "bioengineered organisms are inherently dangerous...evolutionary rejects," seem to suggest otherwise.

Indeed, the issue of genetically engineered vaccines is proving tricky for biotechnology's proponents and opponents alike. Even while they accuse the biotech industries of being reluctant to develop vaccines, critics claim that genetically engineered vaccines are being tested without meeting regulatory requirements. Several recent field tests of animal vaccines, including recent Argentine experiments with vaccinia virus-based vaccine against rabies, illustrate the deep misunderstandings that have developed on both sides of this issue.

Perhaps the biggest mistake made

by the experimenters in Argentina had nothing to do with experimental design. Rather, the fault lay in the way the Pan American Health Organization (PAHO) managed its dealings with the host country's government, which was not notified before the test was begun. "This is a huge center, with workers from all 35 countries belonging to PAHO studying diseases, such as rabies, brucellosis, and trichinosis," a PAHO official in Washington, D.C., says of his group's Argentine facilities. "In the past we have not asked special permission or given notice of particular field trials. But in retrospect, it would have been advisable. It was an error not to foresee the sensibilities of the government."

Sensibilities are unquestionably heightened on this issue. But meanwhile, back in the world of biotechnology watchdogs, even some activists are not sure what they should be doing to exploit them. Near the end of the Committee for Responsible Genetics-sponsored conference, for instance, an experienced labor organizer posed a very general question to participants: "What is it we want to win?" Assembling coalitions and taking action are more likely to succeed, he added, if goals are well defined. His comments, which betrayed some bewilderment with the technology, were quickly glossed over.

Aside from Rifkin, it seems, neither the social activists nor, for that matter, several keenly interested members of the U.S. Congress have figured out quite what they expect of biotechnology. Against this background, it could prove most interesting to learn what OTA and Lou Harris discovered when they went knocking on doors to ask the U.S. public: "Biotechnology: Trick or treat?"

—Jeffrey L. Fox

Beginning this month, Washington, D.C.-based writer Jeffrey L. Fox joins Bio/Technology as a contributing editor.