Preparing the Ground for Biotech Tests

Companies are aggressively trying to shape public perception of biotechnology in the wake of controversy over early field tests of genetically engineered organisms

IN THE NEXT YEAR, the Wistar Institute of Philadelphia hopes to test outdoors a genetically engineered vaccine against rabies in South Carolina and Virginia. In preparation, it has added an unusual member to the project team that includes specialists in genetics, viruses, and molecular biology. It has hired top public relations firm Hill and Knowlton.

Wistar, as well as many companies that are pioneering the use of biotechnology to improve agriculture, are now acknowledging that they have to be just as savvy in public relations as in science to successfully pave the way for field testing of genetically altered organisms. Wistar is particularly aware of this need. Last year it was stung by what it regards as an unjustified public relations disaster when the Argentine government charged that the institute had improperly conducted field trials there.

In the wake of controversy during the past 2 years over various field tests of genetically engineered organisms, institutions like Wistar and companies, big and small, including Monsanto and Crop Genetics International, are aggressively trying to shape public perception about biotechnology, to polish their image, to boost their credibility and disseminate more information to the public well in advance of actually conducting the outdoor experiments.

Companies engaged in agriculture biotechnology "in general are doing a lot more in public relations regarding the introduction of this new technology. Biotech companies weren't thinking about that before," says Anne Hollander of the Conservation Foundation.

Margaret Mellon of the National Wildlife Federation compliments the companies' community outreach efforts. "In general, we like the idea of industries notifying the communities where they will be testing and holding public hearings. One of our tenets is that the public should be involved."

These elaborate efforts are paying off, company executives say. "The tests aren't news anymore," says David Glass, vice president of government and regulatory affairs for BioTechnica Agriculture, Inc., which conducted field tests in Wisconsin this year without incident. Indeed, in the past year, more than a dozen field tests of genetically engineered organisms—mainly involving plants, but some microbes as well—have been conducted without controversy.

What companies and others are striving hard to avoid is the public opposition and negative publicity surrounding previous field tests. The controversy delayed some experiments, causing losses in effort and money. It also tarnished the image of this new technology.

In 1986, many in the biotechnology community were astonished by the uproar in California over the first field test of a genetically engineered organism. Advanced Genetic Sciences of Oakland proposed spraying a small test plot of strawberry plants with altered microbes to prevent frost formation.

Michael Maloney/San Francisco Chronicle

Unfortunate Impression. *A photo that captured the first biotech field test and conveyed—erroneously—that the test by AGS was dangerous.*

The experiment won federal and state approval. But local citizens fiercely opposed the test, charging among other things that the experiment could change the global climate (it did not). Simultaneously, a similar experiment on potato plants proposed by a University of California scientist stirred up opposition in a community in the northern part of the state.

When Advanced Genetic Sciences (AGS) eventually went forward with the test in 1987, the historic occasion was captured in a photo that hit the front pages of many newspapers across the country and left an unfortunate impression. A company scientist was pictured dressed in a white "moonsuit," head to toe, while spraying the plants, which suggested that the test was dangerous, when, in fact, it was not. The tests were disrupted by vandalism. Subsequent monitoring has verified assertions by the company and federal officials that the experiment was safe.

The disputes over the AGS and university experiments did "tremendous p.r. damage," says Winston Brill, vice president of research and development at Agricetus.

Then about a year ago, a Montana State University researcher made national headlines when it was disclosed that he defied federal rules and inoculated trees with a genetically altered strain of bacteria designed to promote resistance to Dutch elm disease.

The Wistar Institute also made the news last year when the Argentine government charged that the institute had failed to notify government authorities before it tested its rabies vaccine there. Wistar authorities say the institute acted properly, pointing out that the test was conducted in collaboration with the Pan American Health Organization.

And, although company executives do not like to admit it for the record, many still worry that Jeremy Rifkin, avowed opponent of biotechnology, will continue to rile up the public against genetic engineering.

Researchers have a significant challenge in shaping general opinion about biotechnology because of the public perception of this new technology. According to a survey completed 2 years ago by Louis Harris & Associates for the congressional Office of Technology Assessment (OTA), which is the most recent poll on the subject, nearly half of the adult population nationally is very interested in science and technology, but only one in six Americans rates his or

her basic understanding of science and technology as very good.

The survey, which was the basis of the OTA report, "New Developments in Biotechnology: Public Perceptions of Biotechnology," showed that while people approved of the use of biotechnology to improve disease resistance in crops and production in livestock, a good many of them are at least somewhat apprehensive about possible dangers.

About half of those surveyed "believe that genetically engineered products are at least somewhat likely to represent a serious danger to people or the environment," the OTA report said. Nearly 60% said they think that products made by biotechnology are "likely" to pose a serious danger. Yet only a fifth of them said that they had heard of a specific danger associated with genetically engineered products; for example, 10% said they had heard of the possibility of genetic engineering creating "mutations/monsters." The perceived probability of danger, however, declined with the education of the person surveyed.

So now, companies, in particular, and some institutions are trying to beat any opposition to the punch with careful public relations planning. At the advice of p.r. specialists, scientists are shedding their lab coats to lunch with state and local officials and community "opinion leaders" to explain their field experiments. They are talking at town meetings with local citizens. They are adopting sophisticated media techniques, including the creation of videos, to get their message across.

Wistar has its work cut out. "We were sensitized by the Argentine fiasco," says Charles Rupprecht of Wistar, the lead scientist in the rabies vaccine project. "It's difficult to undo bad press. We thought, 'How do we turn this thing around?' "

As Wistar awaits federal approval to proceed with the South Carolina experiment, it is laying some of the ground work to carry out a public relations "blitz," as Rupprecht puts it, to tout the experiment. "The party that attracts more fanfare first sets the agenda," says Rupprecht. "We want to meet the needs and expectations of others before the doomsayers" of biotechnology do.

With the advice and help of Hill and Knowlton staff, which includes John Hussey, ex–press secretary to U.S. senator from South Carolina Fritz Hollings, Wistar has already developed a four-page position paper explaining the circumstances of the Argentine field test and a video to explain proposed field tests in South Carolina, and met with state and local officials. The Hill and Knowlton staff is "teaching us that there are certain ways to present things without jargon," Rupprecht says.

Biotechnica International, Inc., based in Cambridge, Massachusetts, is often cited by representatives of the federal government, environmental groups, and other companies for its extraordinary efforts in community outreach. This summer it conducted field tests in Pepin County, Wisconsin, without significant opposition, according to a local official, John Caturia.

In preparation, Biotechnica officials left little to chance in public relations. They met extensively with state, county, and local officials to explain that it wanted to test whether modified rhizobium would enhance nitrogen fixation in alfalfa and improve the yield. Caturia, a farmer and co-chairman of the town board of supervisors in Waterville, recalled in a telephone interview that one day, out of the blue, he got a letter from Biotechnica official David Glass informing him that they had purchased local land to conduct field tests. "I had no idea what the company was or what they planned to do. Most of us are farmers and we don't know much about biotechnology," he said.

Biotechnica officials "conducted themselves very openly," said Caturia, whose family has been in the area for five generations. The company held a public meeting at the local high school. It also set up an ad hoc citizens' review committee, which included Caturia, a local agricultural high school teacher, a local county extension agent, and two University of Wisconsin faculty members. The company disclosed all the same information to the citizens' committee, including proprietary data, that it submitted to the Environmental Protection Agency (EPA).

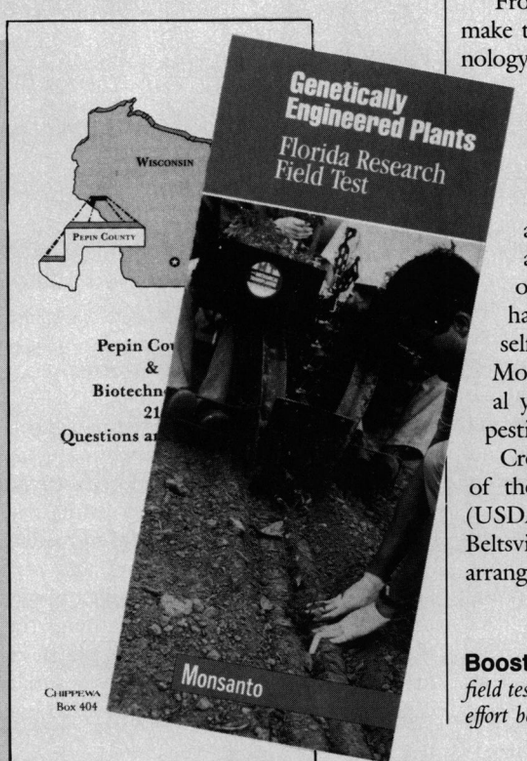
Last month, Biotechnica announced that it was suspending further testing in Wisconsin because this summer's data indicate the bacterial strains tested did not increase alfafa yield. But on the positive side, Caturia came away persuaded that biotechnology and Biotechnica offer benefits to farmers and the county. "We'd like to see industrial development here," Caturia said. Biotechnology means "making the plant work harder for us."

Crop Genetics International, a small, new biotechnology company, has also gone out of its way to promote a positive image. James Davis, the company's general counsel, says, "The message we wanted to get across was that our product was safe and that you're better off with it. It's much easier to say that we are making the environment safer with better pesticides, not just that we were at the frontiers of biotechnology."

This summer Crop Genetics conducted field tests of corn plants treated with an altered microbe that kills corn borers, which, according to the company, causes $400 million in crop losses annually. In the field tests, the corn plants were, in effect, vaccinated with a microbe modified to produce a naturally occurring toxin. The microbe only lives in the plant's vascular system, which, the company says, minimizes the risk of environmental hazard. The company, however, faces fresh questions about the safety of the field tests because recent monitoring data show that the altered bacteria have been found in beetles.

"From the beginning, the key was to make the public comfortable with biotechnology," Davis says. To establish its credibility, the company, which is based in Hanover, Maryland, close to Washington, D.C., wooed two former administrators of EPA, William Ruckelshaus and Douglas Costle, and, in addition, Eliot Richardson and Sol Linowitz, to sit on its board of directors. (Ruckelshaus and Costle have since stepped down.) Davis himself is a former special assistant to John Moore, a top EPA official who for several years has overseen the regulation of pesticides and toxic chemicals.

Crop Genetics also won the cooperation of the U.S. Department of Agriculture (USDA) to let the company use the federal Beltsville research facility as a test site, an arrangement that was intended to lend addi-



Boosting biotech. *Brochures that explain field tests are part of the aggressive public relations effort being conducted by companies.*

tional credibility to the experiment and the company. USDA even published a brochure to explain the test. The company "made a concerted effort" to meet with the established environmental groups in Washington, Davis said. It even went so far as to offer to meet Rifkin, but he declined.

Monsanto has been active in public relations too. With its own in-house staff and, in consultation with Hill and Knowlton, it has sponsored the creation of several videos to explain company experiments and agricultural biotechnology in general. It has conducted so many field tests now, that it has developed a brochure format to explain such tests, tailoring it a bit to describe the specific experiment.

Monsanto is also loosening up in disclosing data in advance of field testing. In one of its first proposals to field test a modified organism, the company withheld much of health and safety data from the public, asserting that they constituted confidential business information. It eventually reversed its position and disclosed the data.

Val Giddings of OTA says, "Monsanto is to be commended for increasing their efforts to be open."

Monsanto also has responded in a novel way to general concerns by the public and regulators that modified bacteria might drift off the test site. To improve monitoring, the company has engineered a "marker" microbe that fluoresces. The marker strain is currently being field tested.

Mellon of the National Wildlife Federation says, "These trips to localities are only going to be as useful as the information is available." So far, the track record for releasing information "has been good."

When asked about public relations' efforts by researchers, Jeremy Rifkin says, "The industry shouldn't feel very cocky." Since he began opposing field tests 5 years ago, there have only been five experiments with altered microbes, which, he says, "is not much. No floodgates have opened here." Rifkin, who lately has been focusing more on issues related to global climate and surrogate motherhood, says that he will continue to litigate against specific field experiments. And he warns that the first company that attempts to test an altered microbe on a commercial scale "will face years and years of battle in the courts and in Congress."

But Davis of Crop Genetics says, "The public acceptance of biotechnology will grow as companies do field tests. Industry will be judged on the collection of tests so it needs to present biotechnology as a safe and effective way of protecting crops. In the short term, there will have to be a concerted effort to educate the public."

■ MARJORIE SUN

Is Soviet Psychiatry Changing Its Ways?

U.S. delegation to visit Soviet hospitals; new openness may bolster Soviet bid to reenter World Psychiatric Association

THE QUESTION of Soviet abuse of psychiatry is drawing fresh attention these days with two recent developments. One is that Soviet officials have finally consented to allow a delegation of American psychiatrists to visit a number of alleged political prisoners hospitalized in the Soviet Union. The other, which may not be unrelated, is that the Soviets have made known their intention to reapply for membership in the World Psychiatric Association (WPA), from which they resigned, in face of threatened expulsion for political abuses of psychiatry, in 1983. Some Western psychiatrists have expressed strong opposition to readmission of the Soviets unless they furnish concrete evidence that abuses have been curtailed, however.

The State Department has been actively pursuing negotiations on a visit since last April. Several groups, including the AAAS and the American Psychiatric Association (APA), sent out feelers last year following hints of Soviet receptivity, but requests went unanswered. (The Soviets have made it clear they do not want to do business with the APA, which has been an international leader in pointing out psychiatric abuses.)

The delegation is to be headed by forensic psychiatrist Loren Roth of the University of Pittsburgh, who with Richard Schifter, assistant secretary of state for humanitarian affairs, arrived at an informal agreement with Soviet officials during a visit to the Soviet Union last summer. The arrangement was announced this month following a meeting in Washington between Secretary of State George Schultz and Soviet Foreign Minister Eduard Shevardnadze.

Plans are for a preliminary trip in November by Roth and officials from the State Department and the National Institute of Mental Health to lay the groundwork for a more extended visit by the delegation, which would occur some time before next spring. There is nothing yet in writing, but the Soviets have agreed to allow the psychiatrists to interview between 10 and 30 current and former patients, look at medical records, and talk to patients' family members. Locations of the visits are yet to be determined. The Soviets are also interested in having the delegation participate in seminars on forensic psychiatry.

Soviet motivations for approving the visit appear to be several. For one thing, failure to find evidence of current abuse could strengthen their bid to reenter the WPA. A State Department official says the "most egregious cases" are likely to be resolved by the time the delegation visits. He adds that the visit could strengthen the hand of the "glasnost/Gorbachev crowd" in undermining the conservative forces in psychiatry and in the bureaucratic struggle between the Health Ministry and the Ministry of Internal Affairs over control of special mental hospitals.

Last year the Soviets released more than 100 political prisoners from mental hospitals, and very few new detentions have occurred in the past year. There is no way of knowing how many remain in hospitals. The State Department has information on about 70 individuals who are believed to still be incarcerated for political or religious reasons. According to Helsinki Watch, the Soviets have disavowed knowledge of about 30 of them, say they have released 9, and claim that the remainder are genuinely mentally ill.

The big question is whether the Soviets, who continue to deny that psychiatry has been used for political purposes, are putting an end to these practices. Although progress has been made, many experts are still extremely skeptical about long-term intentions so long as the country's two top psychiatrists, Marat Vartanyan and Georgy Morozov, remain in power (see *Science*, 5 February, p. 551).

The current situation was discussed recently at a Washington meeting held by the International Association on the Political Use of Psychiatry, days after the Soviet All-Union Society of Neuropathologists and Psychiatrists, which is headed by Morozov, signaled its intent to reapply to the WPA. Members will vote on the application at the next world congress to be held in Athens on 9 to 11 October 1989.

Last year, with glasnost in the air, some observers believed it was only a matter of time before Vartanyan and Morozov would