Jefferson wants to ease global hunger through biotechnology

PHOTOGRAPH BY ANDRÉ VIEIRA—POLARIS FOR NEWSWEEK

Juggling Two Worlds

Richard Jefferson is bringing together scientists from rich and poor countries to lower the cost of innovation

BY KAREN LOWRY MILLER

IT TAKES A PRETTY ODD MOLECULAR-biology student to spend hours each day juggling in a troupe, but that's only one of many ways Richard Jefferson has demonstrated his independence. (Like performers, "really great scientists have to expose themselves to the scorn of the world," he says.) As a graduate student at the University of Boulder, in Colorado, Jefferson was "my most difficult student ever," says former lab supervisor David Hirsh. While biologists in the 1980s were making one discovery in genetics after another, Jefferson obsessed over the bland study of research methods—and then promptly invented a technology scientists still use to mark when a gene is present in a cell.

In the two decades since, Jefferson has focused on a less obscure research problem: how to feed the hungry. His solution? Make the basic tools of biotechnology available to all, on the assumption that if farmers had access to the latest techniques they might be able to increase yields and make their crops hardier. In 1992, he founded CAMBIA, a nonprofit research center in Australia, where he has set up a Web site identifing and explaining more than 1 million agricultural biotech patents. The site now gets 10,000 hits a day.

There Jefferson developed a method for inserting genes into plants that gets around a thicket of patents, and he plans to make it widely available through his most radical move yet. Last month he launched the BIOS initiative to set up a protected commons in which scientists all over the world can collaborate on new ideas—much like what is happening now with open-source software. The thinking is that scientists in developed countries may have solutions to the kind of problems their counterparts in poor countries want to solve. "The idea that we should feed the world is paternalistic, patronizing silliness," says Jefferson. "The world can feed itself if we can lower the cost of innovation."

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Jefferson first became attuned to the needs of the developing world when he was in graduate school, where he and some friends drew up a mock business plan to harvest the ocean to feed the poor. He then held positions at the Plant Breeding Institute near Cambridge, England, and the United Nations, frequently traveling to Asia to instruct farmers in the latest biotech tools.

Jefferson's accomplishments have garnered recognition from the Schwab Foundation, which has named him one of its "social entrepreneurs"—people who demonstrate leadership and innovation in their work on social issues. Through the BIOS initiative, he is addressing the growing research gap between rich countries, which tend to focus on lifestyle issues like breeding low-carb wheat, and poor countries, which have more basic needs. Whereas rich countries spend $5.40 on R&D for every $100 in output, poor countries spend only 68 cents. "Agriculture R&D for the developing world could be lost without a concept like BIOS and open source," says Gary Toenniessen, director of Food Security for the Rockefeller Foundation, which has long backed CAMBIA and put up $1 million to get BIOS off the ground. "[Jefferson] is the closest thing to a genius I've run into."

BIOS's Web site, BioForge.net, is a clearinghouse for open innovation projects. The first challenge: to find a way for farmers to breed their own maize, suitable to their climate, without having to buy expensive seeds each year. "The scientists are out there," says Zakir Thomas, an Indian-government official who discovered BIOS while on sabbatical studying law in the United States. Now back in India, he has made it his "personal mission" to visit labs to spread the word. The ideas are already coming in. Richard Lanzara, founder of BioScience in New York City, thinks a method he patented for preventing cell receptors from becoming desensitized to drugs might make plants grow larger. "There's a funny group of rogue scientists out here laboring in obscurity who aren't part of the establishment," he says. If his work could help battle hunger, "I'd give it away." Saving the world might just catch on. •