



"The gene is now in the hands of breeders and farmers," says Ronald. "I feel as if my child has grown up and developed his own successful life."

Ronald's work on rice has earned wide praise from fellow scientists. "Pam has focused her research on important traits in one of the world's most important crops," says Kent Bradford, UC Davis professor and academic director of the Seed Biology Center. "Her research will mean the difference between malnutrition and health or even life and death for many small farmers and their families."

Ronald's work is so significant that the U.S. Department of Agriculture recently awarded her the Discovery Award, which recognizes outstanding researchers who address key agricultural problems. Her discovery may become even more important in the future. "Global changes in weather conditions and more flooding will make it difficult for rice farmers to plant and care for their rice fields," says Peggy Lemaux, faculty member in the Department of Plant and Microbial Biology at the University of California at Berkeley. "Flood-tolerant rice will provide a margin of safety in providing adequate food."

But of course, not everyone is happy.

A Firestorm of Protest

Genetic engineering has many critics. A diverse but vocal collection of organizations, including the Sierra Club and Greenpeace, believe genetically engineered plants could spell ecological disaster. Some people just don't like the idea of fooling around with natural organisms. Opponents have written anti-GE books with titles such as *Killer Foods*, *Genetic Roulette*, and *Pandora's Picnic Basket*.

Ronald is familiar with the criticism, but thinks it is based on misconception. The sort of genetic engineering that she practices is basically a high-tech form of plant breeding, which has been going on for the past 12,000 years.

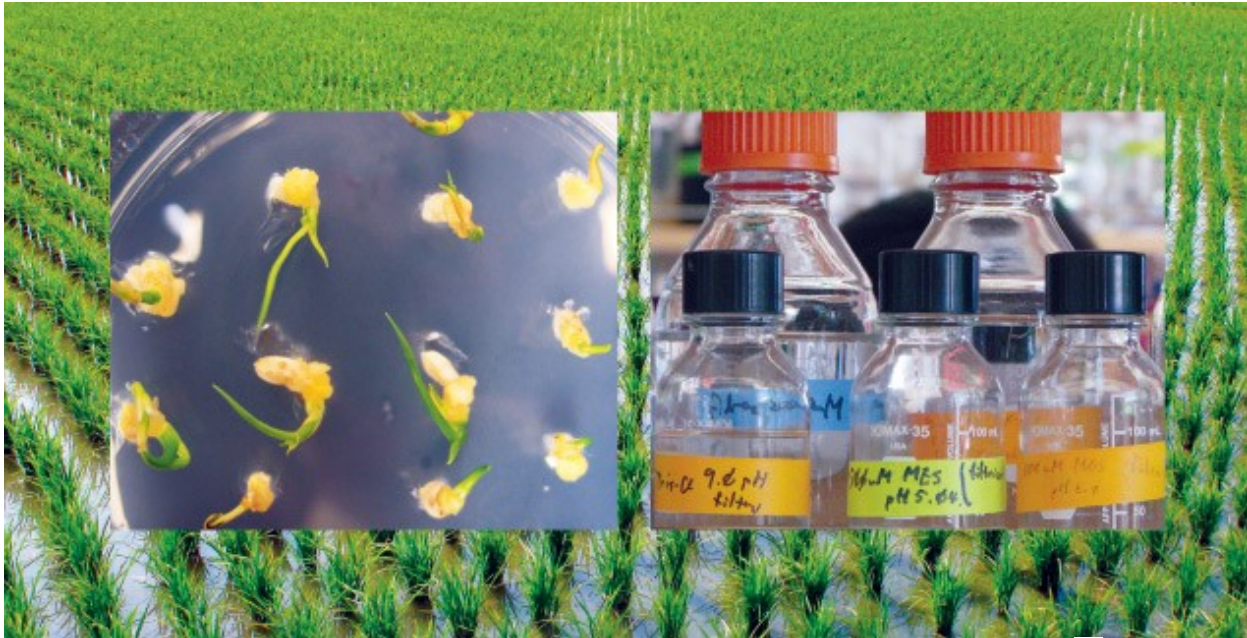
"Nothing we eat is found in the natural world," says Ronald. "People manipulate their environment and their food to make it better tasting and provide more yields. It's called domestication. It's a romantic notion that seed is picked from the wild and planted on the farm, but that's just not the case."

"Some people worry that genetically engineered crops will cross-pollinate nearby species and



Gene genie: Pamela Ronald '82 got hooked on plants at Reed.

invade pristine ecosystems and destroy native populations," she acknowledges. "Others fear that genetically engineered foods are unsafe or unhealthy to eat. So far, those concerns are driven more by technological anxiety than by science. There is broad consensus in the scientific community that the process of genetic engineering poses no more risk than that of conventional breeding. This has been documented by numerous peer-reviewed studies and summarized in a report by the National Academy of Sciences."



[TABLE OF CONTENTS](#) > [GRAINS OF TRUTH](#)

< [BACK](#) | [1](#) | [2](#) | [3](#) | [4](#) | [NEXT](#) >

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