

Plant genetics, organic farming and the future of food

di **Pamela Ronald**

University of Davis, California

The world faces an enormous challenge: food production needs to rise by 50 percent by 2030 in order to feed the growing population, which will expand from the current 7 billion to an estimated 9 or 10 billion—the equivalent of adding the population of two Chinas. But many pests and diseases cannot be controlled using conventional breeding methods, and subsistence farmers cannot afford most pesticides, which are often ineffective or harmful to the environment.

Yet many emerging agricultural catastrophes can almost certainly be avoided by application of scientific innovations. For example, the use of genetic engineering (GE), a modern form of plant breeding, has led to reduced insecticide use and enhanced productivity of farms large and small.

In spite of these benefits, GE is anathema to many people. Despite the broad scientific consensus that GE crops are safe to eat and safe for the environment, . in much of Europe, farmers are prohibited from growing genetically engineered crops. And “GMO-free” zones are expanding in Japan.

Opponents of GE crops typically profess a high degree of concern for human welfare and the environment. They want the same things that scientists, farmers, food security experts, and environmentalists want: ecologically-sound food production accessible throughout the growing global population. Yet, we are now in a position where the great strides that have been made towards sustainable agriculture, partially through deployment of new technologies, are imperiled by fear and misinformation.