

Genetic Engineering in Hawaii

by: Paul Normann

The Genetic Engineering (GE) of seeds, and by extension the very foods upon which our lives depend, poses many ethical, environmental, and safety questions.

Genetic Engineering, also referred to as Genetic Manipulation (GM) or Genetic Modification of Organisms (GMO), "is the mechanical transfer of genetic material outside of natural reproductive methods and between genera, families, and kingdoms." (1) Genetic Engineering is **not** the selective breeding or cross breeding of plants that has been practiced by humans for thousands of years. Using Genetic Engineering, fish genes, for example, can and have been inserted into tomatoes. This does not happen naturally! It is the unnatural transfer of genes "across natural barriers that have separated species over millions of years of evolution". (2)

Genetic Engineering is not just theoretical in Hawaii. Hawaii has more experimental GE field crops than any other state in the U.S. Many of these crops, though traditionally human food crops, like corn, are posted explicitly in the fields as, *not fit for human consumption*. These are experimental crops which are being developed for animal feed, herbicide resistance, bio-fuels, bio-pharmaceuticals, or other products ill suited to human consumption. Nevertheless, these crops look just like their non-GE counterparts. *There is no way, without laboratory tests, to tell the difference between a GE plant, say an ear of corn, and a non-Genetically Engineered plant*. If a GE plant "escapes" or breeds with a non-GE variety, through wind, insects, animals, or even human neglect, it can easily get into the human food supply. This has happened already. Most recently, in 2006, it was discovered that a GE rice (LLRICE601 & LLRICE604) Bayer, Inc. was developing, had contaminated the entire U.S. conventional rice supply. The economic cost of this contamination is estimated at over one billion dollars. The health impacts of this contamination are unknown.

There have been very few, if any, independent long term studies on the Health effects of Genetically Engineered foods on humans. What little independent research that has been done urges caution and more research. We do not yet know, nor will we know for at least a generation, the full health effects of GE foods. Remember, it took decades before we began to recognize the serious health risks associated with cigarette smoking.

Let us be clear, Genetically Engineered foods are new and experimental foods that must be grown in fields clearly marked with signs stating, *not fit for human consumption*. The safety, for human consumption, of these GE foods, is not determined by some Government agency like the FDA or USDA but instead by the very companies who are developing and will, ultimately, profit from these new foods.

In addition to the many profound concerns about the safety of Genetically Engineered seeds and foods, there are the very real environmental risks of *genetic pollution*. Genetic Engineering is, in very simple terms, the mechanical creation of new life forms.

Once these new GE life forms have been released into the wild, they cannot be recalled. Are the Genetic Modifications we are making in the lab stable in the wild? What will happen as these new GE life forms interact with, breed with, and are consumed by the multitude of wild life forms whose genetic codes have developed over millions of years?

Hawaiians have strongly and consistently opposed the Genetic Engineering of Taro, the traditional staple food of Hawaii. Taro, in its many varieties, has fed and maintained the Hawaiians for a thousand plus years. Hawaiians also recognize Taro as a living relative called Haloa - the elder brother. Thus for Taro there are the additional and very real issues of Hawaiian tradition, culture, and religion. Do scientists, corporations, and universities, have the right to further trample upon Hawaiian tradition and culture by altering the genetic material of their ancestor, Taro?

Last year, Hawaiians and concerned citizens introduced a bill, intended to protect Taro, into the state legislature, which calls for a Ten-year moratorium on "Developing, Testing, Propagating, Cultivating, Growing, and Raising Genetically Modified Taro in the the State of Hawaii." This bill, a people's bill, passed in the Senate but was strongly resisted by the bio-tech industry and was killed by Rep. Cliff Tsuji in the house's Agriculture Committee. This year, the GMO Taro Moratorium bill has a final chance to make it out of Rep. Tsuji's committee and onto the house floor for a full vote.

Additionally last year, Kona Coffee farmers introduced a bill to, "Temporarily Prohibit the Growing of Genetically Modified Coffee for a Period of Five Years". Obviously, Kona Coffee farmers are very concerned about the economic impacts on their specialty coffee. Some fear that once GMO coffee is introduced, the bottom will fall out of the Kona coffee market and many farmers will be driven out of business.

The struggle against Genetic Engineering is not isolated to Hawaii or the U.S. Around the world farmers and ordinary citizens are standing up against big Agri-business corporations trying to patent the very foodstuffs upon which we all depend. In many countries the simple and traditional act of saving and sharing seed is now illegal, because the seeds produced from a Genetically Engineered plant are owned, not by the farmer who grew and collected them, but by the corporation that Genetically Modified and patented the seed(s) in question. In today's struggle for what India's Vandana Shiva calls "Seed Sovereignty" (bija swaraj), the the primary act of Civil Disobedience is the saving and sharing of seed.

For farmers, GE products can be a mixed blessing. They may indeed help control certain diseases or pests, however this comes with the increased financial burden of purchasing patented seeds and the various products that are need to make them "work successfully". Further, Genetic Engineering is focused on solving the many problems that have arisen as a result of the unsustainable, energy intensive farming practices of the last 60 years.

The Value of Genetic Engineering needs to be examined within the context of the

systemic failure of the green revolution in agriculture. Taro farming and other traditional farming methods may hold the key to feeding the world, sustainably, for the 21st century and beyond. However, we must begin by protecting Taro and our many other indigenous and heritage foods from Genetic Manipulation and privatization. Only then will we be able to learn what these plants and their traditional cultivation have to teach us as gardeners, farmers, and societies.

To learn more about Genetic Engineering in Hawaii, or to discuss your concerns, please come to the showing of "Islands at Risk: Genetic Engineering in Hawaii", on Saturday, March 15th, at 7 pm, at the Contemplative Education Center in Kapa'au. A Talk Story with Jerry Konanui, Hawaiian Taro Farmer, Activist, and Educator; Una Greenaway, Organic Kona Coffee Farmer; and Nancy Redfeather, Environmentalist and Organic Farmer. The event is free and open to the public. For directions please call, 889-0615.

(1) from the "Safe Seed Pledge" put out by the Safe Seed Initiative.

(2) p. 8, Smith, Jeffrey M., Genetic Roulette: the Documented Health Risks of Genetically Engineered Foods, Yes books, 2007.