



Environmentalism for the 21st Century Biotechnology / Genetic Engineering / Agriculture

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Beginning with the Natural Resources Defense Council's scare tactics about the use of the pesticide Alar on apples, the environmental movement has been very clever at inventing campaigns that make us afraid of our food. The public is given a fearful impression with images of Frankenstein foods, killer tomatoes, and terminator seeds. The same kinds of scare tactics are now being employed in the campaign against biotechnology and genetically modified foods.

The debate on biotechnology is about whether this science is, in the balance, positive or negative for human health and the environment.

Biotechnology includes advances in human and veterinary medicine, pest control, crop production and nutrition. Unlike some other aspects of biotechnology, genetic modification is a form of biological rather than chemical intervention. In other words, genetic engineering is an *organic* science. For this reason it is likely that genetic engineering will be of great benefit to organic farming in the scientific sense of the term.

The programs of genetic research and development now underway in labs and field stations around the world are entirely about benefiting society and the environment. Its purpose is to improve nutrition, to reduce the use of synthetic chemicals, to increase the productivity of our farmlands and forests, and to improve human health. Those who have adopted a zero-tolerance attitude towards genetic modification threaten to deny these many benefits by playing on fear of the unknown and fear of change.

From an environmental perspective there are three main areas of positive impact on ecosystems:

- Genetically modified crops will generally result in a reduction in the use of chemical pesticides. This will result in a dramatic reduction to the impact on non-target species.
- The ability to increase the productivity of food crops. GMOs will often result in increased yields due to pest resistance, drought resistance, more efficient metabolism, and other genetic traits. The higher the yield of food per unit of land, the less land must be cleared to grow our food.
- The development of herbicide tolerant varieties of food crops allows the adoption of low and zero tillage systems. This results in a considerable reduction in soil erosion, both conserving native soils and reducing the amount of chemical fertilizer inputs.

Every day 6 billion people wake up with real needs for food, energy and materials. The challenge for sustainability is to provide for our needs in ways that reduce negative impact on the environment, while also being socially acceptable and technically and economically feasible.

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