

AGRICULTURAL BIOTECHNOLOGY AND PUBLIC PERCEPTIONS

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Much of the debate concerning the acceptability of agricultural biotechnology can be traced to the fact that food is viewed as an entitlement in most of the developed world. In the United States (U.S.), Europe, and other parts of the world, food is abundant. This abundant food supply is increasingly taken for granted, and treated cavalierly by consumers and government. On any given day, the U.S. has less than forty-five days of food supplies, and these supplies are viewed as a "surplus". In contrast, two hundred years of oil supplies are viewed as a "strategic reserve".

All of us involved in agriculture must assume some responsibility for allowing such attitudes to persist. We have failed to raise public awareness about the economic significance of an adequate, safe, and affordable food supply. This failure to raise public awareness can be traced to two main problems. First, the economic benefit of improving nutrition, and food safety is very difficult to measure. How does one place a value on the improved nutritional content of food, or on food that is safer to eat? Second, there is the problem of how food safety issues are reported. A few people dying from food poisoning is newsworthy, while preventing millions from ever running such a risk is not.

In the case of agricultural biotechnology the record is even worse. Policy proposals based on "junk science" have gone unchallenged. A good example of how poor science has affected biotechnology products can be found in the area of food labeling. Food labeling should provide accurate information, based on scientific facts, not prejudice. In the past, the blood supply was labeled "Caucasian" or "Colored", not because of any differences in the quality of the blood, but simply because of social prejudice. This analogy carries through to food labeling. Labeling foods differently, simply because they are genetically engineered, is just another expression of another prejudice. Overwhelming scientific evidence suggests that genetically engineered food is no different from non-engineered food.

There are some 8,000 food products which are derived from soybeans that end up in the hands of consumers. Should we attempt to label each one individually because genetically modified soybeans may have been used as a raw material? And who should be responsible for such a task? Should we also label dairy products and milk derivatives, produced by cows fed with atrazine

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treated corn? How do we judge what is safe and what is not? What rules do we use to guide us if not those of science? It is socially undesirable to impose unreasonable costs on the consumer from labels with no informational content.

Labeling, of course, can be quite useful, and is desirable when valuable, accurate information is communicated to the consumer. Genetically engineered cotton has been engineered to produce natural blue fiber. If appropriately labeled, the non-use of chemical dyes can be communicated to consumers. Consumers allergic to dyes stand to benefit from the provision of this information. Genetically engineered tomatoes provide another example. Engineered tomatoes offer an extended shelf life. If appropriately labeled, such information is also of benefit to the consumer. In such cases, labeling is voluntary not mandatory. It is used to communicate factual information about services embodied in the product, and it is of economic value to the consumer.

Over the last few years we have surveyed the public about its attitudes towards agricultural biotechnology. I remain skeptical about the value of this exercise. Anyone involved in market research is aware that how a question is asked is as important as what the question is about. For example, if one frames the question as,

We have learned how to use genetics in order to produce a tastier fruit with longer shelf life. Would you be interested?

the most likely answer will be "yes". But if one asks,

We have learned how to manipulate plant genomes and we have transposed a gene to make the fruit tastier and longer lasting. Would you buy it?

the most likely answer will be "no thank you". This will especially be the case as the question is hypothetical and provides no additional information on which to make an informed choice.

Ultimately, the success of agricultural biotechnology will be decided in the market place. Past experience indicates that consumers can effectively sort through misinformation, and decide about the real value of new goods and services. When color TVs were introduced there were warnings about potential risks from "mutations". With microwave ovens there were warnings about risks of "abnormalities" from radiation. The widespread adoption of both technologies suggests that when scare tactics lack solid scientific evidence they tend to be short-lived. This will, no doubt, prove true for agricultural biotechnology as well.

The biotechnology industry must continue to create technology that enhances our ability to produce affordable, safe, high quality food. At the same time, the pressure on natural resources should be minimized. The government must also do its part. It must ensure the efficacy, quality, and safety of new products, while resisting the temptation to engage in social engineering. Questions of whether new products are desirable, or needed, are best answered by consumers in the market place, rather than by governments.

Agricultural biotechnology is still in its infancy. Its real impact on the world's capacity to produce safe food to feed an expanding population, or its impact on natural resources, will not be fully felt for many years. When history has been completed, and the economic and social impacts of biotechnology have been fully accounted for, scare tactics and social prejudice will not even occupy a footnote.