

Genetic allows scientists to identify specific gene sequences

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Genetic Engineering in Food Production: Is it Safe, Wise, and Moral? Over the past couple of decades much debate has been going on about the use of advanced technology in the field of biology. Ever since the first gene was cloned in 1973, genetic engineers have been pursuing at break-neck speed the unlimited possibilities promised by biotechnology (Davidson 1993). Their excitement, which has generated billions of investment dollars for the industry, is understandable. Bioengineering allows scientists to identify specific gene sequences responsible for particular characteristics and then to transfer the genes — and the specific trait — into entirely different species. One of the more current and controversial issue in the field of biotechnology is the use of bioengineering in food production.

Scientists are experimenting with many different plants, but the genetic engineering of the tomato, dubbed Flavr Savr has been the most highly publicized project by far. The new tomato is supposed to boast more flavor and be tastier due to its longer staying time on the vine, thereby giving it more time to accumulate sweetness; yet, it will not rot or spoil because of its new genetic makeup. (Davidson 1993).

With this advanced technology scientists argue that it could offer the greatest hope in the aid to stop hunger in Third World countries. This new technology could be used to make bulk levels of food production more efficient and less costly. However, despite all of its advantages in creating better crops, many people are very skeptical about its safetiness and possible long-term health effects. Moreover, the social issue lies deep in the realm of ethical and moral concerns. Do people really want to eat meat that is leaner and tastier but contains genes from humans? Or, would individuals <https://assignbuster.com/genetic-allows-scientists-to-identify-specific-gene-sequences/>

(like vegetarians) be able to eat certain vegetables that may contain genes from animals? Personally, I would not support the use of genetic engineering in food production based on moral and ethical reasons: I do not think that scientists should be able to use their knowledge and social prestige in society to be able to play the role of God in creating new or better living things even if their justification is for the purpose of serving mankind. Although we still have much to learn about genes, recently developed techniques have already given rise to a new technology of molecular genetics.

Genetic engineering, also known as gene splicing/manipulation and recombinant DNA technology is a set of techniques for reconstructing, or deliberately manipulating, the genetic material of an organism. Operating at the molecular level, this process involves the addition, deletion, or reorganization of pieces of an organism's DNA (known as genes) in order to alter that organism's protein production (Arms et al. 1994). The use and applications of genetic engineering range from medical and pharmaceutical to industrial crops and food products. Its applications, today or in the future, include creating improved strains of crops and farm animals (Arms et al. 1994). All of these applications rely on the ability to transplant genes into a cell's makeup, or genome. The new gene may come from another organism, of the same species, or it may contain DNA produced in the laboratory. One example, the new Flavr Savr tomato, developed by Calgene, a biotechnology company based in Davis, California, was subjected to years of scrutiny before the FDA (Food and Drug Administration) agreed that it was safe to

eat. They found, copied, and rebuilt a gene that lets these tomatoes stay on the vine without softening and spoiling.

That means that the fruit can develop more of the sugars and acids that make a home-grown tomato taste so sweet and rich. Conventional tomatoes sold in the stores are often hard and flavorless because they are picked while green and firm enough to transport, then 'ripened' by spraying with ethylene (Wood 1995). This turns the tomato red but does nothing to develop a riper flavor. Ethylene, a colorless, odorless gas that once kicks in, so do all the problems of perishability (Wood 1995). Since tomatoes have a softening gene, it produces RNA (Ribonucleic Acid) to help manufacture a protein that causes rotting.

To stop the tomatoes going soft too soon, the researchers devised a