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 Genetic engineering example

 The early phases of genetic engineering are commonly started at the end of the nineteenth century. The field of genetic engineering developed with the production of patents. For this purpose experiments were performed to produce better quality agricultural products (Daniell, Kumar, & Dufourmantel, 2005). Specifically, the development of hydrogenation of vegetable oils bestowed the extensive consumption of soybean oil.

The genetic engineering processes have tremendously changed the trends in the agricultural industry. The mass media keeps informing us with shocking news articles about genetically improved foods and seeds. Production of purple tomatoes and carrots that help in the prevention of osteoporosis has modernized the agricultural field. The studies and researches performed in 2008 have shown that scientists have produced such carrots and the tests were performed on mice and volunteers. The results showed that humans absorbed 42% more supplementary calcium from the produced carrots than from the normal ones. The purpose of the research was to reduce osteoporosis-related problems in patients. Generally, the gene encodes a kind of tag that conveys a message to the protein where it ought to go. Eliminating the tag let the carrier store in the cells of the edible part of the plant. This results in greater calcium amounts in the cells (Council, 1987).

Major traits or features of an organism that have been produced by particular genetic alteration using genetic engineering methods, defined by the Convention on Biological Diversity (CBD) is its modification and adapted characteristics. Researchers have relied greatly on favorite classical organisms such as the fruit fly, Drosophila melanogaster and bacterium Escherichia coli for manipulation and genetic engineering processes. Their acceptance for manipulation and alteration is another feature to be used in genetic engineering processes. Their body and genetic structure is scientifically known which made them favorable organisms for genetic engineering. Inside the lab atmosphere, bacteria are usually transmuted with an array of DNA using plasmid vectors (Sorek et al., 2007). These naturally arising DNA fragments are round in shape. These DNA molecules can reproduce inside the body of a bacterium without using a bacterial chromosome. Plasmid vectors are used in processes of genetic engineering such as cloning, manipulation of genes and transfer of genes.

The transmission of genes among plant species by the result of genetic engineering has improved crop production. Beneficial traits have been produced in a wide variety by using recombinant DNA techniques. Genetic engineering is also beneficial for the sources other than the plants from which genetic material can be acquired for the high production of agricultural products.

# Works Cited

Council, N. R. (1987). Gene transfer methods applicable to agricultural organisms. In *Agricultural Biotechnology: Strategies for National Competitiveness*. National Academies Press (US).

Daniell, H., Kumar, S., & Dufourmantel, N. (2005). Breakthrough in chloroplast genetic engineering of agronomically important crops. *Trends in Biotechnology*, *23*(5), 238–245.

Sorek, R., Zhu, Y., Creevey, C. J., Francino, M. P., Bork, P., & Rubin, E. M. (2007). Genome-wide experimental determination of barriers to horizontal gene transfer. *Science*, *318*(5855), 1449–1452.