

Perspective

Animals and modifications that have been genetically engineered

Gowtham Buck*

Department of Agriculture, South Valley University, Qena, Egypt

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DESCRIPTION

Animals that have been genetically engineered for a variety of goals, such as manufacturing medications, boosting yields, or increasing disease resistance, are known as genetically modified animals. The great majority of genetically modified animals are still in the research stage, with only a tiny number nearing commercialization. The direct alteration of an organism's genes is known as genetic engineering. Traditional breeding, in which the genes of the organism are modified indirectly, is not genetic engineering. Scientists can precisely transfer beneficial genes from one animal species to another using this technology. Cattle, pigs, chickens, goats, sheep, dogs, cats, fish, rats, and mice have all been Genetically Altered (GE) safely in research investigations. More is known about genes and the qualities that they govern as scientists sequence the genomes of domestic animals. We can carefully transfer genes that govern favourable qualities into another animal's genome, resulting in the GE animal possessing that trait.

Adding, editing, or eliminating certain DNA sequences from an animal's genetic material in a way that does not occur naturally is referred to as genetic modification. Its goal is to change an animal's certain features or add a new trait, such as illness resistance or increased growth. DNA is an organism's genetic material, and it contains the instructions for all of the traits that an organism inherits. Changes in an animal's genetic make-up can thus be passed down to subsequent generations.

While genetic modification techniques have so far been applied to plants for agriculture and microorganisms to manufacture enzymes, the possible application of genetic modification techniques to animals is now being investigated. Several international organizations, including the FAO/WHO and the US Food and Drug Administration, have already developed safety standards for these animals and their derivatives.

Animals that have been genetically modified

Mosquitoes: Oxitec, a British company, has developed genetically edited male mosquitos with a "self-limiting gene." Because their progeny do not reach adulthood when released into the wild and mate with females, they do not contribute to the spread of the Zika virus. Other researchers are investigating the use of genetic alteration to combat malaria transmission.

Cows: Cows have been genetically altered in China and Argentina to produce milk with a comparable composition to that produced by humans. An Argentinian cow named Rosita Isa was born after embryos were modified to produce milk with proteins found in human milk but not in cow milk. However, a number of scientific, safety, and taste issues must be addressed before this may be used to replace "mother's milk" for infants.

Chickens: The Roslin Institute is developing GM chickens with an additional gene that prevents the spread of avian flu. The alteration, unlike a vaccination, protects the bird even if the virus mutates. Some farmers, on the other hand, think that enforcing proper farming techniques is preferable than breeding disease-free livestock.

Salmon: It is designed to achieve market size in 18 months, half the time it would take if it were natural. The fish, however, is not labelled as GM in stores. According to a recent poll, 90% of Canadians support clearer food labelling.

Animal genetic engineering holds the promise of improving public health and quality of life. Human health is improved, food output is improved, environmental impact is reduced, animal health and welfare is improved, and cutting-edge industrial applications are produced.

Scientific studies are progressively showing that animal genetic engineering can have detrimental consequences for food safety, animal health and welfare, and the environment. Second, many new applications of genetic engineering technology may end up entrenching the intensive animal farming model rather than providing genuine solutions to the major animal welfare, public health, and environmental issues it causes.

*Corresponding author. Gowtham Buck E-mail: gowbuck178@gmail.com