

# GMO food animals should be judged by product, not process, scientists say

November 24 2015, by Pat Bailey

---

In a world with a burgeoning demand for meat, milk and eggs, regulatory policies around the use of biotechnologies in agriculture need to be based on the safety and attributes of those foods rather than on the methods used to produce them, says a UC Davis animal scientist.

In a review paper titled "Animal agriculture and the importance of agnostic governance of biotechnology," Alison Van Eenennaam, a UC Davis geneticist, makes the case for a new approach to regulating food products from animals developed using modern biotechnologies. The paper appears online today, Nov. 23, in the open-access journal *Agriculture and Food Security*.

Various forms of biotechnology including artificial insemination, genetic markers for breeding, molecular diagnostics and vaccines, have already benefited food-animal production through improved genetics, nutrition and health, says Van Eenennaam.

She suggests, however, that efforts to develop even healthier and more productive food animals through genetic engineering are being thwarted by complex national and international regulations that are being triggered by the use of modern biotechnologies in the breeding process, rather than by an evaluation of potential risks and benefits posed by the resulting animals themselves.

"Globally, more than 20 percent of animal protein is lost as a result of disease," says Van Eenennaam. "Efforts are underway to use

recombinant DNA technology and related genetic engineering methods to specifically develop food animals that are resistant to some of these major diseases. However, domestic and international regulations have, until now, prevented any such animals from being approved for sale and consumption."

[It should be noted that on Nov. 19, just days before publication of this paper, the U.S. Food and Drug administration approved for commercialization a type of genetically engineered salmon, making it the first GMO (genetically modified organism) food animal to gain such approval. Van Eenennaam said that the regulatory evaluation process of this fast-growing fish took almost two decades and cost tens of millions of dollars, and yet fast-growing, conventionally bred salmon undergo no regulatory oversight despite posing similar risks.]

## **GMO food animal regulation**

At the international level, an agreement called the Cartagena Protocol on Biosafety to the Convention on Biological Diversity is the main source of regulation for products of [genetic engineering](#).

Because the Cartagena Protocol's objective is "the conservation and sustainable use of biological diversity," it sets rules limiting the trade and transport of living modified plants and animals that might adversely affect biodiversity or human health. The protocol narrowly defines modified organisms to be only those produced by modern technology. However, plants and animals can be modified through other methods and not face regulatory limitations.

## **Sleeping sickness case study**

Human African trypanosomiasis, or sleeping sickness, is a widespread

and often fatal tropical disease caused by blood parasites and transmitted by tsetse flies. Some 60 million people in 36 African countries are at risk of contracting the disease, and a related animal form of the disease causes \$1 billion annually in livestock losses in Africa.

Sleeping sickness offers a prime example of regulatory inconsistencies, according to Van Eenennaam

A variety of techniques are being used to prevent the disease, including insecticide applications, release of irradiation-induced sterile insects, drug treatments for livestock, and recombinant DNA technology.

"Despite the fact that all of these approaches are associated with potential harms and potential benefits, only those that involve the use of modern biotechnology through recombinant DNA are subject to exceptional regulatory requirements," Van Eenennaam says.

## **GMO plants adopted by 18 million farmers globally**

In contrast to the difficulties experienced in gaining approval for genetically engineered animals, [genetically engineered plants](#), first developed in 1983, moved into the commercial market in less than a decade and many GMO crops are now grown and consumed globally.

"Given the current and growing global need for animal-based food, it is becoming increasingly evident that new varieties of genetically improved livestock need to be evaluated according to their potential risks and benefits, not according to what specific breeding method was used to produce them," Van Eenennaam says.

**More information:** Alison L. Van Eenennaam et al. Animal agriculture and the importance of agnostic governance of biotechnology, *Agriculture & Food Security* (2015). [DOI: 10.1186/s40066-015-0043-3](https://doi.org/10.1186/s40066-015-0043-3)

Provided by UC Davis

Citation: GMO food animals should be judged by product, not process, scientists say (2015, November 24) retrieved 26 April 2024 from <https://phys.org/news/2015-11-gmo-food-animals-product-scientists.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.