

Media Background

Genetically Modified (GM) Pig: "Enviropig"

2012-04-2



What was GM Pig?

- Enviropig™ is the trademark industry name for the pig that was genetically engineered (also called genetically modified) to excrete less phosphorus in its feces.
- Scientists inserted a transgene sequence that includes an *E-coli* bacteria phytase gene and a mouse promoter gene sequence. The pig was genetically engineered to produce the enzyme phytase in its salivary glands, to enable more effective digestion of phytate which is the form of phosphorus found in pig feed ingredients like corn and soybeans.
- The goal of the GM pig was to provide intensive livestock operations (factory farms) with a product to reduce the amount of polluting phosphorus they produce. Phosphorus from animal manure is a nutrient for plants that becomes a pollutant if there is too much of it for crops to absorb, and the excess runs off into streams and lakes.

The GM Pig Technology was Unnecessary

- Like other GM technologies, the GM pig was unnecessary because there were multiple pre-existing, financially viable solutions to the problem at hand.
- The technology was designed to reduce the amount of phosphorus coming from the pigs themselves but a number of solutions already existed including:
 1. Reducing the number of pigs raised in one place,
 2. Changing pig feed ingredients and/or adding a phytase supplement,
 3. Trucking liquid manure longer distances, dry composting manure, or expanding the area of land for spreading manure.

Status of the GM Pig

- In late March 2012, the regional newspaper the *Ontario Farmer* reported that the University of Guelph is ending its breeding program of the GM pigs and will no longer maintain an active herd for research. This effectively closes the GM pig project after sustained public pressure and a failure to find commercial interest.
- In 1995 a team of three researchers at the University of Guelph in Ontario Canada, led by Dr. Cecil W. Forsberg, began research on the GM pig. The researchers hold the patent.
- The GM pig technology is patented in Canada, the United States and China. The university could not find any companies interested in licensing the technology.

- In 2009, the University of Guelph requested approval for “Enviropig” from both Health Canada and the U.S. Food and Drug Administration. These requests are outstanding.
- In February 2010, Environment Canada granted approval for the confined reproduction of the GM pig. This is the first time that Environment Canada has been directly involved in assessing the environmental risks of a GMO and was given this responsibility by default because there are no specific regulations for GM animals in Canada. This is the only regulatory approval granted to the GM pig.
- The GM pig was in a race with a GM Atlantic salmon to be the first genetically modified food animal approved in the world.
- The GM pig has never been on the market and there are no GM food animals approved anywhere in the world.

Will GM salmon be the first GM food animal in the world or is it the next to fail?

A GM Atlantic salmon could be under review inside Health Canada and Environment Canada but the departments refuse to confirm or deny the status of any application for approval.

The company pursuing commercialization of the GM salmon is in deep financial trouble however. The small U.S. company, called AquaBounty, only has enough financing to last until early 2013. The company also just shut down its office in St. John’s Newfoundland.

What is Genetic Engineering?

- Genetic modification (GM) is also called genetic engineering (GE). The two terms can be used interchangeably to describe recombinant DNA technology which allows the direct transfer of genes from one organism to another, even between organisms in unrelated species or different kingdoms. GMO stands for genetically modified organism. The GM pig can also be called transgenic because it has genes from another species
- There are four GM crops grown in Canada: canola, corn, soy and white sugarbeet (for sugar processing). Around the world GM cotton is the other major GM crop with a small amount of GM papaya and squash grown in the U.S. as well as a small amount of GM alfalfa. Canada grows 6% of the world’s GM crops (the U.S. grow 43%).

For more information contact:

Lucy Sharratt, Coordinator Canadian Biotechnology Action Network
 180 Metcalfe St, Suite 206, Ottawa, ON, K2P 1P5
 Phone: 613 241 2267 ext.25 Fax: 613 241 2506
 coordinator@cban.ca www.cban.ca

For more information on the GM Pig: www.cban.ca/enviropig