



GMOs In Animal Agriculture

COMMON QUESTIONS FROM THE PUBLIC ANSWERED BY EXPERTS



1. How much of our food in the U.S. is genetically modified?

While nearly all foods today have been genetically modified in some way over thousands of years through selective breeding, **there are only 9 crops commercially available in the U.S.: soybeans, corn (field and sweet), canola, cotton, alfalfa, sugar beets, summer squash, papaya and potatoes.** GM apples also have been approved to be grown and will be coming to market soon.

The majority of these crops, like alfalfa, field corn and soy are actually used for livestock feed. Other uses for crops include common food ingredients, such as sugar, canola oil, cornstarch and soy lecithin. You may find only a few of these in your product section: rainbow papaya, summer squash, sweet corn and potatoes. The GM AquaAdvantage salmon is the first GM food animal to be approved by the FDA. The salmon was genetically modified to grow to market weight faster, utilize less feed and conserve wild fish populations.

2. Are feeds made from GMOs safe for livestock?

GM crops, such as corn, soy and alfalfa, are commonly used for livestock, and more than 100 digestion and feeding studies have been conducted with food-producing animals, like beef cattle, swine, sheep, lactating dairy cows and chickens.

“GM products have been in the U.S. food supply since 1996—hence we have years of practice that have shown no negative impact on animal or human health. Farm animals, the most carefully monitored animals on the planet, have been raised on GM corn and soybeans over several generations and there is no evidence of negative effects on growth, reproduction or disease. **And there has been no documented case of human illness or allergen associated with GM foods.**”

3. If livestock eat genetically modified grain, will there be GMOs in my meat?

No. It has been estimated that over 70% of harvested GM crops are fed to food producing animals,⁷ making the world’s livestock population the largest consumers of the current generations of GM Crops. **GMOs have never been detected in the milk, meat or eggs derived from animals fed GM feed.**⁸

According to Alison Van Eenennaam, Ph.D., extension specialist in animal genomics and biotechnology at the University of California, “Genetically engineered crops are digested by animals in the same way as conventional crops”.

The Federation of Animal Science Societies (FASS) compiled over 100 digestion and feeding studies⁸ examining the digestive fate of genetically engineered DNA, or the novel proteins encoded therein, have never been detected in the milk, meat or eggs derived from animals fed genetically engineered feedstuffs.” Additionally, Alison Van Eenennaam said, “Evidence to date strongly suggests that feeding livestock with genetically engineered crops is equivalent to feeding unmodified feed sources in terms of nutrient composition, digestibility and feed value.”

ADDITIONAL RESOURCES

PUBLICATIONS

1. Flachowsky, G. 2013. Feeding studies with first-generation GM plants (input traits) with food-producing animals. Pages 72-93 in Animal Nutrition With Transgenic Plants. G. Flachowsky, ed. CAB International, Boston, MA.
2. Herman, R. A. and W. D. Price. 2013. Unintended Compositional Changes in Genetically Modified (GM) Crops: 20 Years of Research. J. Agric. Food Chem. 61:11695-11170.
Ricroch, A. E. 2013. Assessment of GE food safety using '-omics' techniques and long-term animal feeding studies. New Biotechnol. 30(4):349-354.
3. Ricroch, A. E., A. Berheim, C. Snell, G. Pascal, A. Paris, and M. Kuntz. 2013. Long-term and multi-generational animal feeding studies. Pages 112-129 in Animal Nutrition With Transgenic Plants. G. Flachowsky, ed. CAB International, Boston, MA.
4. Rizzi, A., N. Raddadi, C. Sorlini, L. Nordgrd, K. M. Nielsen, and D. Daffonchio. 2012. The stability and degradation of dietary DNA in the gastrointestinal tract of mammals: Implications for horizontal gene transfer and the biosafety of GMOs. Crit. Rev. Food Sci. Nutr. 52(2):142-161.
5. Snell, C., A. Bernheim, J. B. Berge, M. Kuntz, G. Pascal, A. Paris, and A. E. Ricroch. 2012. Assessment of the health impact of GM plant diets in long-term and multigenerational animal feeding trials: a literature review. Food Chem. Toxicol. 50(3-4):1134-1148.
6. Van Eenennaam, A. L. and A. E. Young. 2014. Prevalence and impacts of genetically engineered feedstuffs on livestock populations. J. Anim. Sci. 92(10):4255-4278.
7. Van Eenennaam, A. 2013. GMOs in animal agriculture: time to consider both costs and benefits in regulatory evaluations. J. Anim. Sci. Biotechnol. doi: 10.1186/2049-1891-4-37.
8. Van Eenennaam, A. 2005. Genetic Engineering and Animal Feed. <https://anrcatalog.ucanr.edu/pdf/8183.pdf>

Note: Additional Resources collated by Monsanto

TWITTER



Animal Agriculture

@AgProudRyan
@BoviDiva
@BovineVet
@SkeptVet
@VetPracticeVAHS

Crop/Agriculture

@AGofTheWorld
@CASTagScience
@FarmBabe
@Mark_Lynas
@prometheusgreen
@The_CAPHR

BLOGS

- Applied Mythol edmythology.blogspot.com (Steve Savage)
- Biology Fortified - biofortified.org
- Bovidiva - bovidiva.com (Jude Capper)
- Camistry - camiryan.com (Cami Ryan)
- Illumination - kfolta.blogspot.com (Kevin Folta)
- Jayson Lusk - jaysonlusk.com

VIDEOS

- The case for engineering our food (Pam Ronald)
bit.ly/1NbPHOa
- Give it a minute series (Monsanto)
bit.ly/1NvYLo5

WEBSITES

- Agdaily - Agdaily.com
- Global Farmer Network - GlobalFarmerNetwork.org
- GMO Answers - GMOAnswers.com
- Genetic Literacy Project - GeneticLiteracyProject.org
- Modern Ag - Modernag.org
- Monsanto - Monsanto.com
- Skepti Forum - SkeptiForum.org
- U.S. Farmers & Ranchers Alliance - fooddialogues.com