

PFI MONITOR

The official publication of the Pet Food Institute



ECONOMIC CENSUS BREAKS DOWN PET FOOD INDUSTRY

THE INTERSECTION OF



MYTH BUSTER takes on GMOs



ALL FOR ADC 840
Robert Hougaard
Feed Program Manager
Utah Dept. of Agriculture & Food Division of Plant
3500 North Redwood Rd.
PO Box 146500
Salt Lake City, UT 84114-6500

PRSTD STD
U.S. POSTAGE
PAID
PERMIT NO. 4205
SOUTHERN, MD

Blending Resources and Innovative Solutions... the Right Formula to GR^oW Your Business

Many claim to be providers of companion animal premix or ingredients, but at Trow Nutrition we have been focused on pet food ready premixes and blends for decades. Our skills and expertise extend far beyond our knowledge of premixes, allowing us to partner with our customers to provide solutions as they grow their business. As the industry continues to evolve, so do we, to ensure that we continue to offer the highest level of service to our customers.

Trow Nutrition is more than a premium premix provider...
contact your Trow Nutrition representative to develop a formula for your success today!



Skin &
Coat
Health

Bone &
Joint
Health

Immune
Support

Digestive
Health



 **trow nutrition**
a Nutreco company

Trow Nutrition USA | 800.365.1357

Visit us at www.trownutritionusa-pets.com



Should I be worried about GMO's in my pet's food?

Few topics today elicit as much misunderstanding and skepticism as genetically engineered organisms, which have been coined "GMOs," short for genetically modified organisms. It can be difficult to know what the facts are about GMOs and GMO food given the volume of conflicting and inaccurate information circulating on the Internet, in the media and in pop culture.

GMOs weren't the first new product to be viewed with caution upon introduction. For example, the public was uncertain about microwave ovens during their first few years

Genetic Modifications

Corn and Cotton — Corn and cotton have been engineered to defend themselves against damage from specific insects. They express a protein found in the soil bacterium *Bacillus thuringiensis* (Bt), which has been used in organic farming for decades.

Soybeans, Canola and Sugar Beets — Genetic modification renders the plants resistant to the herbicide glyphosate.

Squash and Papaya — Genetic modification makes the plants resistant to diseases that otherwise wipe out these crops.

Apples and Potatoes — No GMO apples or potatoes are on the market yet. The apples are designed not to brown when cut or eaten and the potatoes are resistant to bruising.

on the market due to unfounded fear, and the technology still raises concerns among a segment of the population.¹

GMO crops, which are developed using the most current breeding techniques available, have been depicted as unnatural and akin to something from the Island of Dr. Moreau. Consumers might think that most foods have been genetically altered given the volume of commentary on social media and the increasing presence of "GMO free" type claims on food product labels. Despite what you see online and on grocery store shelves, only a small number of genetically modified crops have been commercialized for consumption in the United States: corn, soybeans, cotton, canola, alfalfa, sugar beets, papaya and squash. Although they are not on the market yet, apples and potatoes will soon join the list.

GMOs: How did we get here?

People have been genetically altering foods for several thousand years using a variety of breeding techniques. Until the last one hundred years, people modified the genes of plants, animals and microorganisms mainly through selective breeding.

Dog owners are very familiar with the results of selective breeding, even if they don't give it much thought. An English Mastiff weighing more than 200 pounds is a member of the same species as a 2-pound Maltese. All dogs share a common ancestor, a type of wolf, and the diversity of dog breeds was developed over centuries as people bred dogs with a preference for specific traits.

Selective breeding has created a wide range of foods that people could not enjoy were it not for consciously modifying the traits of plants and food animals over the centuries. Corn was transformed from its ancient ancestor, teosinte, a wild grass-like weed barely worth eating to the delectable golden cobs we know today.² Wild mustard spawned a shopping list of vegetables: broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, kale and collard greens (all members of the species *Brassica oleracea*). Plants aren't the only foods that have been enhanced. Cows, chickens, pigs and other livestock have been refined over the centuries to provide farmers greater productivity and offer consumers greater selection. Selective breeding even resulted in the misnamed petit fowl, the Cornish game hen.

These breeders did not know it, but through selective breeding they were changing the genetic makeup of plants and animals, resulting in the expression of new proteins or "traits" they favored. Achieving these dramatic transformations took many rounds of breeding over many centuries. In the early 1900s, new breeding methods were developed. Hybridization was introduced as a means to more predictably transfer a specific trait or improve crop vigor by transferring pollen from one plant variety to another variety to generate new seeds with genes from both parents. Mutagenesis became a tool in the 1940s to increase plant variety by exposing seeds to chemicals or irradiation to induce random mutations in DNA.

Genetic engineering enables scientists to turn on or turn off specific genes or to introduce new genes into plants or animals to bring out new traits with precision in less time.

Reviewed for safety

Even though the U.S. Food and Drug Administration considers food produced with genetic engineering as safe as food produced with other breeding methods, and therefore does not require a safety review, developers of every GMO seed commercialized in the United States have voluntarily submitted to a review by FDA. Safety factors such as allergenicity, digestibility and toxicity are considered.³

“...if an overwhelming majority of experts say something is true, then any sensible non-expert should assume that they are probably right.”

Mark Lynas, former anti-GMO activist turned advocate, in a 2013 speech

GMO crops also have been under independent scrutiny by the scientific communities across the globe since their appearance in agriculture in the 1990s (genetic engineering has been used to create many pharmaceuticals, including insulin since 1982). Thousands of safety studies have been conducted, including one by an Italian research group in 2013 that looked at more than 1,700 peer-reviewed studies. Their conclusion affirmed the scientific consensus: GMOs and GMO food are as safe as their conventional counterparts. A 2013 article published in the *Pacific Standard* magazine provides a weighty list of the organizations that have assessed the safety of biotech crops:

Within the scientific community, the debate over the safety of GM foods is over. The overwhelming conclusion is, in the words of the American Association for the Advancement of Science, that “consuming foods containing ingredients derived from GM crops is no riskier than consuming the same foods containing ingredients from crop plants modified by conventional plant improvement techniques.” Major scientific and governmental organizations agree. The U.S.

National Academy of Sciences found that “no adverse health effects attributed to genetic engineering have been documented in the human population,” and a report issued by the European Commission made the same claim. The World Health Organization has concluded that GM foods “are not likely, nor have been shown, to present risks for human health.”⁴

While GMOs have been vilified with pejorative terms like “Frankenfood,” the reality is that GMO crops and food made from them, frankly, are just food.

If they're safe, why not label them?

GMO crops on the market today and the food made from them have been determined to be materially the same as their conventional, non-GMO counterparts, and therefore are not required by FDA to be labeled differently. Companies have the ability to label non-GMO food so long as doing so is truthful and not misleading (see “Truthful and not misleading” to the right for a deeper exploration). In the event a GMO food were substantially different from non-GMO varieties — such as modified nutrient content — FDA labeling policy requires that particular GMO food to be labeled to indicate the difference, just as it would for a non-GMO food.⁵

Nevertheless legislation to update food labeling rules has been debated, and in some cases voted on, in Congress and in statehouses for several years. The ultimate resolution of this issue remains to be determined. Many companies recognize that consumers want more information about food, including pet food, on how it is grown or raised, where it comes from and how it is made. Private certification programs have emerged for products that do not contain GMOs, and companies are working on other ways to provide consumers more information about the food products they buy.

Environmental impact

GMOs have been characterized as having an adverse impact on the environment. The reality is that GMO crops, which are required to be reviewed by the U.S. Department of Agriculture, and when appropriate the Environmental Protection Agency, have had a net positive environmental impact, directly because of a reduction in overall pesticide use, conservation of topsoil, and indirectly due to higher crop yields, enabling farmers to produce more food using less land, water and fossil fuel.⁶

GMO corn and cotton, for example, have been engineered to produce their own naturally occurring defense against insect pests. A gene that codes for a pesticidal protein derived from the soil bacterium *Bacillus thuringiensis* (Bt), has been introduced into these crops. The Bt bacterium has been used in organic farming for many decades. The Bt pesticide affects a relatively short list of specific insects, particularly larvae that bore into corn cobs or attack the roots of corn plants.⁷ In contrast, other pesticides sprayed over a crop production area will kill both target insects and certain non-target insects. In addition, Bt corn has resulted in a reduction in the amount of pesticides sprayed on fields.⁸

Protecting corn from insect damage is important in terms of increasing crop production levels to feed a growing global population. In addition, ears of corn damaged by insects have an increased likelihood of being infested by molds that produce toxic substances called mycotoxins. Mycotoxins can be deadly to pets above certain levels, which is why pet food companies follow strict

Truthful and not misleading

Federal labeling requirements specify that food labels must be truthful and not misleading to consumers. Statements on food labels touting a product's certification as non-GMO are becoming more common, yet some of those statements may confuse consumers.



Despite being truthful, a “cholesterol free” sticker on a banana

could be misleading because all bananas are cholesterol free, not just the particular variety of banana.

There is no GMO quinoa on the market, despite a label that suggests the contrary.



The only genetically engineered crops that are commercially available domestically are corn, soybeans, cotton, canola, alfalfa, sugar beets, papaya and squash. That means the vast majority of food crops have not been genetically engineered.

testing procedures for corn and other grains. By protecting the ears from insect damage, Bt corn provides a supplemental benefit of reducing the concentration of mycotoxins in corn, which in turn can make grains even safer for use in human and pet food.⁹

Whether a grower cultivates a crop conventionally, organically or using GMOs, responsible farming practices — such as crop rotation — extend the utility of herbicides, insecticides and other tools. Like with the cultivation of conventional and organic crops, the appearance of resistant insects and weeds has occurred with the production of GMO crops. For example, over time pests can develop a natural resistance to the Bt pesticide, which is why crop rotation and cultivation of an area of non-GMO crops among Bt corn is important. Similarly, cultivation according to recommended practices, which involve crops rotation and usage of alternative herbicides, can forestall herbicide tolerance in weeds.

Sustainability edge

Part of the source of consumer misunderstanding about GMOs stems from the fact that the initial varieties that were commercialized did not offer consumers a benefit they could easily appreciate. While today farmers reap the more obvious benefits of GMOS (higher yields and lower production costs), consumers benefit as well in the form of cleaner water from reduced farm run off of soil and pesticides, cleaner air from reduced burning of fuel on-farm (as farmers spent less time on their tractors) and more affordable food¹⁰. These sustainability benefits are unseen and largely unknown by consumers. While not on the market yet, eventually GMO varieties may be developed and commercialized that provide consumers a distinction they can enjoy. For example, the apples and potatoes described above are resistant to browning and bruising respectively. Soybeans have been developed to produce healthier vegetable oils that are fortified with omega-3 fatty acids or possess characteristics similar to olive oil. Vegetables could be modified to contain higher levels of specific antioxidants or peanuts developed to be non-allergenic.

The world population is now estimated to be more than 7 billion. By 2050 more than 9 billion people are projected to inhabit our planet, and a recent study indicates the number could rise to 11 billion by the year 2100.¹¹ One of the greatest challenges to accommodating such a large

global population is the production of sufficient food.

GMO crops are an integral part of the suite of tools and practices needed to meet the challenge of feeding the global population as it grows to 9 billion over the next 35 years.

While some groups associated with environmental causes have been at the forefront of the campaign against GMOs, the environmental community is not monolithic when it comes to the technology. Mark Lynas, an environmental activist who helped to galvanize the anti-GMO movement in Europe, after years of railing against GMOs, read a number of peer-reviewed studies on genetically engineered crops and came to realize that his opposition was not supported by science. Lynas, who is an ardent advocate of taking action to avert environmental and humanitarian calamity due to climate change, came to accept the safety of GMOs and their potential role in confronting the challenge of feeding a growing global population amid a changing climate. (See Sidebar on right)

Lynas is not alone in the broader environmental community, or consumer community for that matter. Other major environmentally-focused organizations — the World Wildlife Fund, The Nature Conservancy and the Environmental Defense Fund — are measured and practical when it comes to GMOs, rather than campaigning against them.¹² The Center for Science in the Public Interest believes that GMOs “provide tremendous benefits to farmers and the environment.”

Prospect for the future

The pet food industry, along with many in the human food sector and producers of crops, meat and other food products, are working to develop and implement sustainability practices that will support producing sufficient food for a 9 billion plus global population.

Pet food products have an inherent sustainability edge because of the common use of byproducts (read “Winds of Change,” *PFI Monitor* Fall 2010 issue, for more information on pet food and sustainability). GMO crops, which will help to increase global food production in the coming decades, are another integral part of the solution. ●

Citations that accompany this article can be found on the PFI website at www.petfoodinstitute.org/?page=GMONotes

On Scientific Consensus

Mark Lynas in a speech hosted by the International Programs — College of Agriculture and Life Sciences (50th Anniversary Celebration), and the Atkinson Center for a Sustainable Future, Cornell University, April 29, 2013.

“Well, I’ve spent more than a decade arguing with climate sceptics [sic], and in the end I fall back on a single killer argument: that if an overwhelming majority of experts say something is true, then any sensible non-expert should assume that they are probably right.

To make the point, here is the consensus position of the American Association for the Advancement of Sciences on climate change:

‘The scientific evidence is clear: global climate change caused by human activities is occurring now, and it is a growing threat to society. Accumulating data from across the globe reveal a wide array of effects: rapidly melting glaciers, destabilization of major ice sheets, increases in extreme weather, rising sea level, shifts in species ranges, and more. The pace of change and the evidence of harm have increased markedly over the last five years. The time to control greenhouse gas emissions is now.’

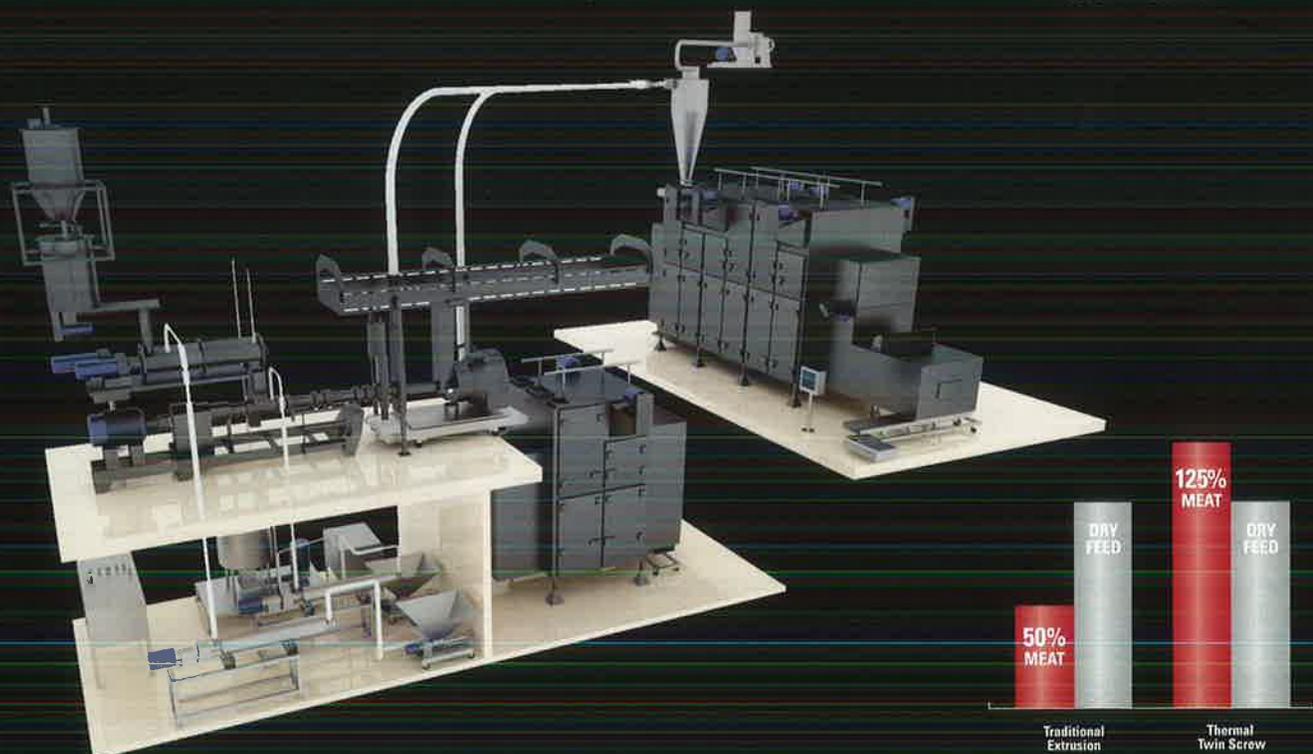
Oh, but wait — the AAAS has also released another statement of consensus science on another area concerning us today:

‘The science is quite clear: crop improvement by the modern molecular techniques of biotechnology is safe... The World Health Organization, the American Medical Association, the U.S. National Academy of Sciences, the British Royal Society, and every other respected organization that has examined the evidence has come to the same conclusion: consuming foods containing ingredients derived from GM crops is no riskier than consuming the same foods containing ingredients from crop plants modified by conventional plant improvement techniques.’

So, my suggestion today is that a sensible baseline position for environmentalists and indeed everyone else is to accept the consensus science in both these areas. Instead, you have the unedifying spectacle of so-called green groups like the Union of Concerned Scientists stoutly defending consensus science in the area of climate change, while just as determinedly undermining it in the area of biotechnology.”

Excellent firms don't believe in excellence
- only in constant improvement and constant change.

—Tom Peters



**Thermal Extrusion Process Maximizes Versatility,
Delivers Superior Rates and Product Customization.**

Today's ever-widening petfood menu makes production flexibility crucial. And Wenger's revolutionary Thermal Twin Process delivers the value-added production capabilities you need, on products ranging from ultra-premium high meat foods and treats, to classic dry kibbles. All made possible by a thermal to mechanical energy ratio up to 14:1 — a level previously unheard of in the industry.

To discuss the specific benefits of Wenger's Thermal Processing for your products, email us now at info@wenger.com.

Turning ideas into opportunities.
PROGRESSIVE PETFOOD PROCESSING

Imagine the possibilities

 **WENGER**[®]

wenger.com

BELGIUM TAIWAN BRASIL CHINA INDIA