

***Smell a rat?
Results from animal feeding trials
give us reasons to be fearful.***

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A few years ago the debate on the safety of GM was high profile but there was little evidence on either side. We were sure that GMOs (genetically modified organisms) were a health risk but the GM companies argued we were being irrational. The Government said decisions should be made on "sound science". Years later, we now have a body of science. But this indicates that GMOs really are unsafe.

Animal feeding trials

Industries use animal feeding trials to test whether their products are safe for humans. In the 1990s, the biotechnology company Calgene found that mice fed on its new product, Flavr Savr tomatoes, the first GM food, developed lesions in their gut wall, while seven out of 40 rats fed the GM tomatoes died within two weeks. In defiance of its own scientific advisors, the US Government decided to abandon animal trials to test GM safety and instead adopted an alternative approach from the industry, 'substantial equivalence'.

The same thing happened in the UK. The first GM animal feeding trial, conducted by Dr. Arpad Pusztai for the UK Government in 1998, found rats fed GM potatoes developed lesions in their gut wall. Pusztai was suspended, gagged and eventually dismissed. The Lancet recommended that Pusztai's study be repeated; this has not happened.

Instead the UK and the rest of Europe abandoned the use of animal feeding trials and followed the US policy of 'substantial equivalence'. In this process, just a small number of chemicals, such as key nutrients and known toxins, are compared to the non-GM plant. If the levels are considered similar, the whole plant is deemed to be 'substantially equivalent' to its non-GM counterpart. Few further tests are carried out, and the GM plants are presumed to be safe.

According to the Food Standards Agency (FSA), it "is satisfied that these safety assessment procedures, using the framework of substantial equivalence, are sufficiently rigorous to ensure that approved GM foods are as safe to eat as their non-GM counterparts." However this process leaves thousands of plant chemicals potentially altered and untested. Since then, further studies have shown how irresponsible the Government is for ignoring evidence from animal feeding trials.

In 2005, Russian scientist Dr. Irina Ermakova fed a group of female rats Roundup-Ready (RR) soya before they mated, during pregnancy and lactation. High mortality rates occurred: 56% of the rat pups died within three weeks of birth, compared with only 9% in the control rats. Stunted growth was also observed in the surviving GM-fed pups.

The FSA said that Dr. Ermakova's study had insufficient nutritional detail and was inconsistent with another RR soya feeding trial, and so could be dismissed. However, that study had even less nutritional detail.

In June 2005, after Greenpeace took Monsanto to court, the biotech company was forced to reveal its safety data for a GM maize. GM maize is widely used in animal feed, along with soya. The maize, Mon 863, had been genetically modified to produce a Bt-toxin, which kills maize pests. Monsanto's own studies showed that Mon 863 had statistically significant effects on rats that, according to a French scientist, indicated a toxic reaction. However the European Food Safety Authority (EFSA) accepted Monsanto's arguments for why the findings should be ignored, and approved the GM maize.

The story of another approval shows how GM regulators can turn a blind eye to worrying evidence. After a trial of the GM oilseed rape, GT73, caused significant decreases in rats' weights, Monsanto said there were technical problems and repeated the study. The second study found that the GM-fed rats had larger liver weights. Monsanto said this trial should also be ignored as it was "inconsistent" with the first trial. When a third study found no problems, GT73 was approved by the EFSA.

Another recent study raised a new concern. Australian scientists inserted a gene from a kidney bean into peas to make them resistant to a weevil. They then fed the GM peas to mice for four weeks. Results published in 2005 showed this triggered allergic reactions and the mice's lung tissue became inflamed. The mice also became sensitive to other substances, such as egg white, whereas those fed non-GM peas did not.

The scientific community was surprised because the gene, when it was in the kidney bean, had been known to be safe. However, further tests revealed that when the gene was introduced into the pea, the pea had attached different chemicals to the protein produced by the gene, changing its safety. The scientists were forced to conclude that a gene that is safe in its native plant may become unsafe when inserted into a GM plant – contrary to what had been assumed by the GM regulators.

There has been only one published test of humans fed on GM, and that also showed disturbing results. Following one meal of GM-soya milkshake and GM soyaburger, Newcastle University found that portions of DNA from GM soya had transferred into the gut bacteria of some of the volunteers. Could GM food affect the health of our gut bacteria? Irresponsibly, the FSA omitted to mention this key finding when presenting the results of this study in 2002.

GM animal feed

Currently most of the approved GMOs are being used as animal feed. A forthcoming Soil Association report shows that nearly all the meat and dairy food sold in UK supermarkets is being produced using GM animal feed.

The question is, can GM material from GM-fed animals end up in our food? Four scientific studies now suggest it can. Two studies detected GM DNA from GM maize and oilseed rape in blood, liver, kidneys and other organs in pigs. In addition, two studies have found GM soya and maize DNA in cow's milk.

Further research is clearly needed but it now seems the public is unknowingly consuming GM material, albeit in small quantities, in food from GM-fed animals.

Avoiding GM

How can you avoid eating food that might have come from GM-fed animals? Meat, dairy and eggs from animals fed on GM products are not labelled as such.

The only supermarket to produce all its non-organic milk, eggs and fresh meat without GM feed is Marks & Spencers.

Otherwise the only way to be sure is to go organic, because organic standards prohibit the use of all GMOs including GM animal feed.

There is now enough evidence to be seriously concerned about the health effects of eating GM. We should now also be concerned about the effects on farm animals. You have the right to avoid eating GM; do exercise it.