

Claims of GM feed safety are misleading

As an agricultural consultant specializing in livestock nutrition, I believe it's vital that farmers get the best advice about what to feed their animals. So I was interested to read Krissa Welshans's article, "GM feed: No risk to animal health" (Feedstuffs, Oct 6 2014). The scientific review that prompted the headline, authored by former Monsanto scientist¹ Alison Van Eenennaam and Amy Young, analyzed 28 years' worth of field data on over 100 billion farm animals from before and after the introduction of genetically modified (GM) feed. The authors concluded that there were no adverse effects from GM feed on livestock health.

However, a closer look reveals that the review and the conclusions drawn from it in the article are misleading, for several reasons:

- 1. The data on the 100 billion farm animals are uncontrolled.** They were not generated in a controlled study, in which one group of animals is fed a GM diet and the other group a similar non-GM diet – with other conditions kept the same. Much has changed in livestock husbandry in recent decades, including escalating antibiotic use, which can mask inflammation. The review's data are not controlled for these factors. It is not even known what proportion of the animals' diets was GM. So no conclusions can be drawn about GM feed safety.
- 2. In contrast, controlled feeding studies on farm and laboratory animals have found toxic effects from a GM diet.**^{1 2 3 4 5 6 7 8 9 10 11 12 13 14} None of these studies have been repeated. The favored response to inconvenient findings has been to attack them using unscientific arguments.^{15 16 17}
- 3. Most of the data are on 49-day-old chickens.** A massive 98% of the one billion farm animals are poultry, with 92% being broiler chickens. Broiler chickens live for only 49 days before being sent to slaughter, a fraction (2%) of a chicken's natural lifespan of 7 years. These data give no information on long-term health effects of GM feed in poultry and no useful information on any types of health effects in mammals, such as cattle and pigs. Many serious health effects, including cancer and organ damage, take time to show up and the short commercial lifespans of livestock mean that they are slaughtered before these problems can be seen. For example, beef cattle are slaughtered at around 24 months – 10% of their natural lifespan of 17–20 years. Claiming that the data in the review show GM feed is safe is equivalent to exposing children to cigarette smoke for the first few years of their lives and claiming that because they haven't contracted lung disease by then, cigarette smoking is safe.
- 4. Studies claimed to be long-term are not.** The review cites two

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<http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/VeterinaryMedicineAdvisoryCommittee/UCM225072.pdf>

controlled and so-called long-term studies as evidence of the safety of GM feed. The first is a study on dairy cows with MON810 Bt maize.^{18 19 20} But this study is not long-term, as it only followed the cows up to 25 months. Also, the researchers replaced half the animals at an unspecified point in the study for unclear reasons, making the results of no value in assessing GM feed safety. The second was on pigs fed the same Bt maize.^{21 22 23 24} Van Eenennaam says no “long-term adverse effects” were found in this study. However, the Bt maize was found to trigger immune disturbances²⁴ and blood biochemistry changes.²³ While changes found after 143 days were dismissed by the study authors as “unlikely to be of major importance”, there is no way of telling without extending the study length, given that pigs naturally live for 10–12 years.

5. Many health effects are not spotted in slaughterhouse inspections and would not show up in the review’s data on animals

“condemned” at slaughter. The authors of a study that found higher rates of severe stomach inflammation in pigs fed GM feed¹ said all animals passed slaughterhouse inspection (personal communication). And problems with GM glyphosate-tolerant soy feed reported by a pig farmer, such as reduced litter size, fewer live-born piglets, increased need for medication, and malformations,^{26 27} would not show up in the review’s data, since pigs that are dead, malformed, or not even born are not sent for slaughter and medication use is not considered.

At some point, a controlled study may be carried out that convinces me that GM feed is safe, but the Van Eenennaam review is not it.

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