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Peer Reviewed Publications on the Safety of GM Foods

Results of a search of the PubMed database for publications on feeding studies for GM crops.

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Introduction

There has been considerable recent comment on the lack of peer-reviewed scientific studies on the effect of GM food and feed on livestock, other animals and humans. A report by Pryme and Lembcke (2003) described 10 such studies. This report and the small number of studies is often quoted by groups opposed to the use of GM crops as justification for banning their use in the food chain. To determine the current state of the literature, I conducted a search of the PubMed database for publications on this topic.

Methods

The search strategy I used included the search terms (genetically and modified and food) coupled with crop species with known genetic modifications, including maize, soybean, canola, cotton, potatoes, tomatoes and peas. Searches also included the word transgenic instead of genetically and modified. A large number of hits were obtained by this search strategy, with most having little or nothing to do with GM food tests.

I collected papers that had:

1. An abstract in PubMed;

2. Were a research publication, not a review or commentary

3. Reported a feeding study involving food or food products from GM crops (not purified proteins from other sources such as bacteria or other GM products) in the abstract;

4. Test subjects were mammals, birds or fish; and 5. Reported at least one measure of comparison with non-GM food.

Results

In all, 42 publications abstracted in PubMed passed these tests. The search strategy extracted most of the studies covered by Pryme and Lembcke (2003). The ones absent were not apparently abstracted in PubMed (e.g. Pusztai 1998) or were reviews (Pusztai 2002). My search uncovered several publications between 1999 and 2001 that were not captured by Pryme and Lembcke (2003).

Of the 42 publications, most examined the effects of feeding GM crop products to livestock including cattle, pigs and poultry. A smaller number examined effects on rats and mice with two on fish. As reported in the abstracts of the publications, 36 studies found no significant effect of GM crop products on the parameters measured or concluded GM and non-GM products were equivalent. Four studies reported a positive effect of the GM feed (however, two of these were GM plants engineered for improved food quality) and two reported negative effects. The studies reporting negative effects were published in 1998 and 1999 (references 3 and 4 in the list). Since 2000, 35 publications have reported no important differences or positive effects of feeding GM crops.

Almost two thirds (27) the publications extracted from the database have been published since 2002. Many of these examined the potential effects of GM crop on livestock performance and were clearly aimed at determining whether the reports of dangers of GM crops to livestock in the press were true.

Conclusions

There are at least 42 publications extractable from the PubMed database that describe research reports of feeding studies of GM feed or food products derived from GM crops. The overwhelming majority of publications report that GM feed and food produced no significant differences in the test animals. The two studies reporting negative results were published in 1998 and 1999 and no confirmation of these effects have since been published. Many studies have been published since 2002 and all have reported no negative impact of feeding GM feed to the test species.

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Appendix

List of publications collected from PubMed by year.

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