

## Cases for Teaching Responsible Communication of Science

### Monarchs in the corn: Annotated bibliography

Berenbaum, May R. (2001). Interpreting the scientific literature: Differences in scientific and lay communities? *Plant Physiology*, 125, 509-512.

*This paper discusses the difference in response between scientists and the lay public, to research publications that touch on high-profile controversial issues. It includes an extensive discussion of Losey et al. (1999) and the controversy discussed in this case study.*

Beringer, John E. (1999). Cautionary Tale on GM Crops. *Nature*. 399:405.

*A brief critical comment on Losey et al (1999).*

Cornell University News Service. (1999). Toxic pollen from widely planted, genetically modified corn can kill monarch butterflies, Cornell study shows. Retrieved from <http://www.news.cornell.edu/releases/May99/Butterflies.bpf.html>

*Original press release from Cornell University.*

Losey, et al. 1999. Transgenic pollen harms monarch larvae. *Nature*, 399, 214. Retrieved from <http://www.nature.com/nature/journal/v399/n6733/pdf/399214a0.pdf>

*This is the paper that started the controversy discussed in this study.*

Milius, S. (1999) New studies clarify monarch Worries.” *Science News*. 156(25-26):391. <http://www.sciencenews.org/pages/pdfs/data/1999/15625/15625-07.pdf>

*This is a press release reporting the publication of the paper that started the controversy.*

Pew Initiative on Food and Biotechnology. (2002) Three years later: Genetically engineered corn and the monarch butterfly controversy. Retrieved from [http://www.pewtrusts.org/our\\_work\\_report\\_detail.aspx?id=33380](http://www.pewtrusts.org/our_work_report_detail.aspx?id=33380)

*An excellent if brief account of the controversy over Monarch larvae and Bt corn as it developed during the three years after the publication of Losey et al (1999). This report includes statements from many of the scientists involved in the controversy, including those who pursued follow-up studies to evaluate risk.*

Pleasants, John M, Hellmich, Richard L, Dively, Galen P. Sears, Mark K., Stanley Horn, Diane E, Mattila, Heather R. Foster, John E., Clark, Peter, and Jones, Gretchen D. (2001). Corn pollen deposition on milkweeds in and near cornfields. *Proceedings of the National Academy of Sciences* 98(21):11919-11924.

*These researchers evaluated pollen density on milkweed leaves in the field, and found that the density is lowest on the upper leaves, which are preferred by Monarch larvae. Note that this paper, like Losey et. al. (1999) are both incomplete studies—each paper provides a small piece of information relevant to the evaluation of the risk posed to Monarchs by Bt corn.*

Shelton, Shelton, A.M, and Roush, R.T. 1999. Commentary: False reports and the ears of men. *Nature Biotechnology* 17, 832. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1046/j.1365-313X.2001.01118.x/abstract>

*A colorfully written critical review of Losey et al (1999).*

Shelton, A. M., & Sears, M. K. (2002). The monarch butterfly controversy: Scientific interpretations of a phenomenon. *Plant Journal*, 29(5), 679-679.

*This paper includes a summary of the events and outcomes surrounding the monarch butterfly controversy, written by a colleague of John Losey at Cornell. The authors provide context for the controversy, and a critical perspective on some of the decisions made.*

United States Department of Agriculture, Agricultural Research Services. (2004). Frequently asked questions about Bt corn and monarch butterflies. Retrieved from <http://www.ars.usda.gov/is/br/btcorn/>

*A brief presentation from 2004, of the USDA response to the controversy.*

Waltz, E. (2009). Battlefield. *Nature*, 461(7260), 27-32. Retrieved from <http://www.nature.com/news/2009/090902/full/461027a.html>

*This popular article includes an extensive discussion of the Monarch/Bt controversy, but focusses significantly on more recent cases.*

Yoon, Carol. (1999, May 20) Altered corn may imperil butterfly. *New York Times*. Retrieved from <http://www.nytimes.com/1999/05/20/us/altered-corn-may-imperil-butterfly-researchers-say.html>

*New York Times report on the paper discussed in this case.*