

From the editor

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Researchers from the University of Caen in France published a paper in the journal *Food and Chemical Toxicology* in 2012. This study, Séralini et al. (2012), reported results of experiments in which rats were fed diets containing genetically modified (GM) maize grown with and without the herbicide Roundup™ Ready. The purpose of the study was to determine the long-term health effects of consuming foods that contain GM maize. The authors reported that rats fed a diet of GM maize had higher death rates than rats in a control group. They also reported that rats consuming GM maize developed tumors and other health problems. The authors published photos of rats with abnormal growths on their bodies.

The public and academic reaction to the study was swift and extensive. Numerous letters to the editor were submitted to the journal in support of and in opposition to the study, although most were negative. Some scholars argued that the study was scientifically flawed and that the findings were not valid (EFSA 2012; Arjó et al. 2013; see also Nicole 2012; DeFrancesco 2013). Critics pointed to the small sample size (10 vs. 50 rats per group), the lack of statistical analysis, the strain of rats used (susceptible to tumors) and the unethical treatment of the animals (allowing tumors to grow too large). Some governments revised policies as a result of the study. For example, Kenya's government banned GM imports and products in late 2012, citing the Séralini et al. study (Willingham 2012). Some writers suggested that fraud was involved with it (Miller 2012).

There was a widespread call for the journal to retract the study. At first the journal resisted, but in November 2013 the journal retracted the paper. According to the editor: "This retraction comes after a thorough and time-consuming analysis of the published article and the data it reports, along with an investigation into the peer-review behind the article" (Food and Chemical Toxicology, N.d.).

I believe it was a mistake to publish the article. I also believe it was a mistake to retract it. If the article had serious scientific or technical flaws, then it should not have been published in the first place. But if the editor published the paper, then flaws notwithstanding the journal should have kept the paper in print. I do not see any value in retracting a paper in this situation.

I think the only legitimate reason for retracting a published research article is when the research and/or publication of the study is found to involve fraud, plagiarism or other violation of ethical research standards. In this case, the editor "found no evidence of fraud or intentional misrepresentation of the data," as stated in the journal's retraction statement. Rather, the editor's evaluation of the study, original data and the peer review process revealed concerns expressed by critics of the study, such as small sample size, biased strain of rats used in study, etc. But these issues were raised by the peer review process. For instance, the retraction statement observes that "The low number of animals had been identified as a cause for concern during the initial review process, but the peer review decision ultimately weighed that the work still had merit despite this limitation." Moreover, in their reply to critics, Séralini et al. (2013) asserted that "Additional sets of results were included in the revision of the manuscript in response to issues raised by the reviewers prior to publication" (p. 480). Recognizing the study's flaws, the editor chose to publish the study nonetheless. Retracting the paper

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for reasons known prior to publication seems odd to me. It is like regurgitating the chocolate cake you know you should not have eaten. It won't make you feel any better and will probably end up creating a foul-smelling mess. At least one source claims that Séralini is considering legal action (see Entine 2013).

No published study is perfect. All scientific work has flaws. For instance, there might be problems with the theoretical or conceptual model. Data gathered or empirical measures constructed might be biased or be poor indicators of the theoretical constructs. Conclusions might not fully follow the evidence presented. Although these and other problems can be grounds for rejecting a paper, any published scientific paper can also be found to contain one or more of these problems. If there are flaws with a published paper that might have warranted a rejection, then that is for subsequent studies to debate. Indeed, scholars usually cite flaws in previously-published research as a motivation for their work. This is how scholarly knowledge advances.

One of my most cited papers, which has been recognized as one of the 20 most influential papers published by the journal that published it (see Morgan and Frech 2013), was weakly endorsed by the reviewers.¹ But the editor saw something in the paper that he thought merited publication and so accepted it. I am glad he did. If subsequent research identifies problems with the analysis, then the appropriate response is not to call for a retraction but to publish a refinement or counter-argument.

In the case of the Séralini et al. study, the editor chose to publish the paper, warts and all. The challenge for scholars is to publish peer-reviewed studies documenting the flaws, presenting contrary evidence, and demonstrating why the conclusions drawn cannot be supported by the analysis presented. Retracting the paper will undoubtedly raise more issues than it solves. That said, there may also be a benefit in publishing an academically weak paper, if it motivates research that ultimately expands our scientific understanding. Conversely, it is an axiom that papers endorsed by reviewers ought not to be automatically accepted either.² Of course, there should be standards that papers meet before they are published. The peer review process helps here. But the line dividing a paper that is

acceptable and one that is unacceptable is not always clear. Publication is ultimately a judgment call of editors.

Fortunately, this issue of *Agriculture and Human Values* contains papers that clearly advance our understanding of contemporary and alternative food and agricultural systems. Dixon explains how people can improve their ability to recognize the ethical implications of efforts to intervene in the food acquisition and eating behaviors of others. Holloway, Bear and Wilkinson consider how ethical norms change when conventional agricultural practices are replaced by novel technologies. Bowen and Mutersbaugh show how a study of French local agrifood systems can contribute to our understanding of alternative food systems. Goldsmith and Pereira develop a framework for assessing the legitimacy of large confined animal feeding operations. Kiptot and Franzel explain why some farmers are willing to share their knowledge with others. Nelson et al. examine how social networks help facilitate changes within agrifood systems, using dairy production as a case study. Howley, Dillon and Hennessy examine the effect of non-financial considerations on off-farm labor decisions. Naylor argues that the conventional distinction between “north” and “south” obscures important issues about fair trade certification programs. Taylor and Lovell propose a framework for improving our understanding of urban food gardens. Finally, Obach and Tobin survey residents of New York state to assess how participation in civic agriculture correlates with community engagement. This issue concludes with book reviews and the list of books received.

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¹ According to the letter from the journal's editor requesting a revision of the paper, “Two referee reports are in on your paper. The referees are very distinguished people. Both reports are lukewarm. ...” (personal correspondence, dated 12 August 1997). The more negative reviewer's final comment is that he/she “didn't learn anything from reading the paper” (personal correspondence, dated 12 August 1997).

² I concede that I have rejected papers that reviewers found to contain no significant scholarly flaws. Flawless does not imply important, interesting and relevant, which are some of the criteria I use in deciding when to accept a paper for publication in this journal.

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