

PolicyPennings by Daryll E. Ray & Harwood D. Schaffer Science says...

The recent comments of Senator Claire McCaskill at the Bay Farm Research Center in Columbia, Missouri characterize one of the analytical tools at stake in many of the policy debates facing contemporary agriculture. An article in the Columbia Missourian quotes her as saying, “It’s ironic to me that the same group that’s pounding the table about climate change wants to ignore the science with GMOs,” she said. ‘If you believe in science, you believe in science. You can’t just pick and choose depending on the issue’” (<http://tinyurl.com/ncm9ebm>).

When it comes to issues like GMOs, antibiotic residues on meat, global warming, water pollution, and pesticide use and its residuals, participants on one or both sides of the issue make an appeal to science to bolster their position, witness the recent article in the New York Times titled, “Food Industry Enlisted Academics in G.M.O. Lobbying War, Emails Show” (<http://tinyurl.com/q9w2gbh>). As the article makes clear, both sides are busy enlisting scientists to bring “the gloss of impartiality and weight of authority that come with a professor’s pedigree” to their side of the argument.

The larger problem in making public policy decisions about GMOs, antibiotic residues, and a host of other agriculturally-related issues becomes clear when one listens to the arguments that each side is making as they make their case. As McCaskill points out, one can be on one side of an argument with regard to science on one topic and seemingly the other side when it comes to a different issue.

So it can appear that anti-GMO activists can use the preponderance of evidence that scientific studies provide to make their case for human-induced global climate change while at the same time ignoring the preponderance of evidence about the safety of GMOs while surveys show that a large number of farmers accept the arguments about the safety of GMOs and at the same time deny the evidence of human-induced climate change, believing instead that it is a hoax.

Such apparent inconsistencies tell us little about the nature of the underlying science surrounding the two issues. Instead it tells us that the debate involves more than science. One has to understand beliefs, self-interest, the question of how one establishes what is safe and potentially unsafe, consumer preference, economics, and a host of other factors to make sense of the debates over what seem like relatively simple issues.

But having said that, let’s set aside those other issues in this column and focus on the issue of science. A recent study by researchers who “reproduce[d] 100 studies published in three leading psychology journals...found that more than half of the findings did not hold up when retested” (<http://tinyurl.com/q4v4lrw>).

Of the 100 studies, 35 held up in the replication while 62 did not. In most cases the new results did not contradict the original conclusions; the results were simply weaker.

Benedict Carey, in a follow-up article, “Psychologists Welcome Analysis Casting Doubt on Their Work,” quotes Alan Kraut, the executive director of the Association for Psychological Science, “‘It’s like we’ve come clean,’ said Alan Kraut, the executive director of the Association for Psychological Science, which publishes one of the journals analyzed in the new report. ‘This kind of correction is something that has to happen across science, and I’m proud that psychology is leading the charge on this’” (<http://tinyurl.com/nhrng52>).

According to Carey, “This attitude reflects an enormous culture change that has begun to take hold in psychology. As recently as five years ago, researchers acted largely as their own editors, shaping the story their data told. But well before the publication of the new report, a handful of researchers around the world had begun setting up systems to increase transparency and data sharing. The report’s findings came as no surprise to them.”

“Jelte Wicherts, an associate professor in the department of statistics and methods at the University of Tilburg in the Netherlands” said, “‘It’s interesting. I’ve just joined a faculty where the young researchers, they’ve completely changed their ways. They share all their data on request, without any regulations; they put everything online before sending out papers for review. It’s a grass-roots effort.’”

Carey goes on to write, “Many journals have also started to insist on what is known as preregistration. When a researcher preregisters a study, he or she spells out the hypothesis and how it is going to be tested. Doing this upfront is a powerful check against moving the goal posts on a study—that is, analyzing the data and working backward, reverse-engineering the “hypothesis” to fit those findings....”

“One piece of evidence that preregistration can act as a strong corrective comes from clinicaltrials.gov, a registry of publicly and privately funded clinical studies involving human subjects. Before 2000, when the site was established, 57 percent of large clinical trials funded by the National Heart, Lung and Blood Institute showed a significant benefit of drugs or other intervention, according to a recent analysis published in the journal PLOS One. After the registry was put in place, only 2 percent of such trials found a clear benefit.”

What lessons can we draw from this as we consider the role of science in providing a set of data points that can be used to discuss issues such as the safety of GMOs, antibiotic residues on meat, global warming,

Originally published in *MidAmerica Farmer Grower*, Vol. 36, No. 37, September 11, 2015
Reproduction Permission Granted with: 1) Full attribution to Harwood D. Schaffer and Daryll E. Ray, Agricultural Policy Analysis Center, University of Tennessee, Knoxville, TN;
2) Copy of reproduction sent to Information Specialist, Agricultural Policy Analysis Center, 309 Morgan Hall, Knoxville, TN 37996-4519

Science says...

water pollution, and pesticide use and residuals?

While those who support to the safety of GMOs can point to over a thousand studies that support to the idea of the safety of GMOs in the food system over the last decade-and-a-half, there are still studies that have not been released. The initial studies that supported decisions by government agencies to allow the sale of GMOS were conducted by companies that have a strong interest in getting these seeds to market.

Many of these studies have not been released to the public. If we have learned anything from the recent events in the field of psychology and clinical trials funded by the National Heart, Lung, and Blood Institute, it is the need for transparency. If companies are going to ask for broad acceptance of their products, then they are going to have to release all of the studies they have done on their genetically-modified seeds—they cannot pick and choose which ones they allow the public to see.

Given the recent happenings in psychology and at the National Heart, Lung, and Blood Institute, as well

Cont. from p. 1

as the memory of the behavior of tobacco companies that hid the devastating impact of smoking on humans for decades, no simple appeal to “science”—even by dozens of renowned scientists—will reduce the controversy over the host of issues surrounding the question of the safety of GMOs. Full transparency and release of the studies—including all of the data sets that were created during these studies—that have been conducted by and on behalf of the companies that have produced and are marketing these products is a good start. Until then, the current cacophony will undoubtedly continue and many of the appeals to “science” will fall on deaf ears.

Harwood D. Schaffer is a Research Assistant Professor in the Agricultural Policy Analysis Center, Institute of Agriculture, University of Tennessee. Daryll E. Ray is Emeritus Professor, Institute of Agriculture, University of Tennessee, and is the former Director of the Agricultural Policy Analysis Center (APAC). (865) 974-3666; Fax: (865) 974-7484 ; hdschaffer@utk.edu and dray@utk.edu; <http://www.agpolicy.org>.