As we read the headlines about spring flooding along the Mississippi River, where heavy rainfall in the Midwest impacts downstream cities like New Orleans, we are reminded of the connectivity of this waterway. In addition to sending spring rains downstream, nutrient loss from agricultural land in states like Illinois and Iowa cause algal blooms and reduced water quality in the Gulf of Mexico each year. While mechanisms explaining how nutrients leave fields and work their way into surface waters and downstream is understood, the flow of information from researchers to farmers, about the best ways to reduce nutrient loss, is less clear.

Mario Boerngen, an Assistant Professor of Agribusiness at Illinois State University, is interested in understanding how farmers access information and how they use that information in decision-making. In Agricultural & Environmental Letters (https://doi.org/10.2134/ael2019.02.0004), Boerngen and co-author Benjamin Marks recently published results of a study focused on farmer perspectives on nutrient loss strategies in one Illinois county. This pilot project was in preparation for a larger survey, but the approach is relevant for understanding how farmers discover information in general. For example, how do farmers learn about new crop varieties or new equipment? Or, what makes an individual farmer decide to implement a new management practice?

Researchers in Illinois surveyed farmers to assess awareness of nutrient loss reduction strategies.

Farmers are aware of nutrient loss as a problem, even if they are not aware of state planning documents.

Farmers indicated that economic pressures are a top concern and that any nutrient loss reduction strategies need to be cost effective for farmers to voluntarily apply.

This specific pilot study consisted of a telephone survey of 30 farmers, conducted in 2016–2017. The researchers wanted to determine if farmers were familiar with the Illinois Nutrient Loss Reduction Strategy, if farmers were concerned with nutrient loss, and if farmers were taking action to reduce N and P runoff. Released in 2015, the Illinois Nutrient Loss Reduction Strategy was developed by a group of researchers and other stakeholders. The document outlines goals for reducing nutrient loss from agricultural land, industry, and urban landscapes. In addition to setting these statewide reduction goals for reducing N and P loss to the Mississippi River, the strategy includes suggested best management practices.

The results of these interviews revealed farmers are concerned about nutrient loss, even if they are not aware of the particular details of the state plan. Of the 30 farmers interviewed, 14 indicated they were familiar with the Nutrient Loss...
Reduction Strategy. Boerngen says it was encouraging to find out that 19 of the 30 said that they were concerned about nutrient loss and had taken steps to reduce the nutrient loss from their farms. These farmers also stated in interviews that their trusted sources of knowledge included researchers and retailers, suggesting that opportunities for researchers to communicate with farmers through field events can resonate with this group.

While aware of the problems associated with nutrient loss, farmers indicated that this was not their main concern. Of the 30, 23 stated that economic pressures were the greatest challenge they dealt with. This result was not surprising but reinforces how making any change to farming practices—voluntary or required—needs to take into account short- and long-term costs and savings for landowners and farmers.

Boerngen emphasizes that they approached this initial survey without a hypothesis and wrote questions in a way that they were not written “in an open-ended fashion where we made no assumptions about what we would learn from our farmer participants.” For example, Boerngen explains that instead of asking how familiar farmers were with the Illinois Nutrient Loss Reduction Strategy and then asking them to rank their level of familiarity on a scale, they simply asked whether they were familiar with it and then followed up by asking their opinion of that working document. “It is a subtle but important difference that enabled the farmers to help us better understand the issues we are studying,” Boerngen says. This approach of using open-ended interviews can aid researchers in developing appropriate questions for a subsequent, larger survey. Boerngen comments that the results of a follow-up study, surveying a larger group of farmers in Illinois, are currently being analyzed.

Boerngen was not surprised by these initial results, having grown up in a family with ties to farming, that farmers understand the potential impacts of fertilizer loss—both ecologically and economically. “A wealth of agronomic research addresses the scientific aspects of nutrient loss and the effectiveness of best management practices like those outlined in the Illinois Nutrient Loss Reduction Strategy. But it is also important to remember that farmers are the end-users of that research,” Boerngen says. As a social scientist, Boerngen urges researchers to “not lose sight of the human aspect”—farmers are going to make decisions based on a combination of economics, research, and the results that they see on their own farm.

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Dig Deeper

View the Agricultural & Environmental Letters article, “A Farming Community’s Perspective on Nutrient Loss Reduction” at: https://doi.org/10.2134/ael2019.02.0004.