ENVIRONMENT AND RESOURCES: FERTILIZER APPLICATOR TRAINING- IMPACT EVALUATION

Amanda Douridas[1], Mary Griffith[1], Dr. Edwin Lentz[1], Dr. Mary Ann Rose[1], John Schoenhals[2]
[1]Ohio State University Extension, , United States, [2]Pioneer, , United States

Harmful Algal Blooms (HABs) in Lake Erie have brought attention to phosphorus (P) use on farm fields across Ohio. In 2014, Ohio's 4th largest city, Toledo, had to cut off the drinking water supply because toxins from the HABs were too high for safe consumption. Legislation was passed requiring a three hour fertilizer certification training for anyone applying fertilizer to more than 50 acres. Initial training occurred from September 2014 through September 2017. Ohio State University Extension Educators certified 16,501 applicators during this time and 4,126 anonymous and voluntary surveys were collected. Using the survey data, analysis of farmer management practices and water quality perceptions was conducted using R statistical software.

The survey results were examined across farm size (0-1,000 acres, N= 2,998; and >1,000 acres, N=823), education level (High school or less, N=2,224; and Any College, N=1,454), and county of residence. County of residence was used to create regions within Ohio (Northwest, N=1,222; Southwest, N=1,735; and East, N=1,082). These regions were determined from differences in geography, watersheds, soil types and farming practices. The Northwest region contains the Lake Erie Watershed. Three counties of 24 in the Southwest region fall in the Grand Lake St. Marys watershed that has dealt with HABs approximately 5 years prior to Lake Erie. The East region is made up of smaller, more diversified farms in the foothills of the Appalachian Mountains.

When asked if farm field P loss is a problem, there was stronger agreement from the Southwest region. Considering regional differences, the Southwest has been exposed to HABs and pushback from the public from issues in Grand Lake St. Marys. These interactions likely affected their thinking on P loss and farm field contribution to it.

Larger farms were more likely to pull soil samples that represent a smaller area through grid or zone sampling. This type of sampling is a higher initial investment and is often more valuable for larger fields where variable rate fertilizer application can occur. Larger farms were also more likely to apply P in the fall. This is an easier time for Ohio farmers to apply P because the weather is typically drier so compaction is reduced. After harvest is complete, there is also more time to make the applications. From a water quality standpoint, there is some concern about applying in the fall as the nutrients are exposed to the environment for an average of 6 months before a crop is planted. This increases the opportunity for P to leave the field and enter water systems.

With this information Educators can increase education, outreach and research efforts with specific focus areas based on farmer practices and beliefs. These efforts will be aimed at improving water quality across the state. With the required fertilizer applicator certification, Educators have the opportunity to meet with these farmers once every three years for the required re-certification training.

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