THE ROLE OF PIONEER FARM IN THE WISCONSIN PHOSPHORUS INDEX

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Abstract

As part of the Wisconsin Agricultural Stewardship Initiative (WASI), Pioneer Farm serves as an applied systems research and education farm with a mission to collect and disseminate high-quality environmental and economic baseline data to students, producers, researchers, and regulatory personnel. The water monitoring data being collected at Pioneer Farm are providing a method for evaluating the effectiveness of the Phosphorus Index (PI) at predicting the risk of P losses, and for testing specific assumptions of the PI. Measured annual runoff sediment and P loads from single-use watersheds in 2003 and 2004 have demonstrated that the PI can effectively assess the risk of P losses, but further refinement of the PI is needed to account for factors such as gully erosion. Data collected at Pioneer Farm are also being used to evaluate specific components of the PI, including the prediction of soluble P delivery based on soil test data, seasonal changes in soluble P, development of a sediment P enrichment ratio, and the impact of acute (single runoff event) losses. The runoff data generated by Pioneer Farm, along with data from the Discovery Farms and University component research, are providing a scientific basis for the development and refinement of the PI, which will play a major role in the future of nutrient management in Wisconsin.

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