A Field-Based Assessment Tool for Phosphorus Losses in Runoff in Kansas. (S11-pierzynski080856-Poster)

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Abstract:

Nonpoint P sources from the agricultural landscape are a significant environmental problem for surface water bodies due to the promotion of eutrophication. Many states have developed P assessment tools to help differentiate land uses and their potential for P losses to surface water. Kansas has developed such a P index (PI) and the purpose of this paper is to report on the calibration of that index against data collected from five runoff studies. The PI includes soil test P, rate and application method for P from fertilizers and manure, soil erosion, runoff class, distance from surface water bodies, and irrigation erosion as inputs. The runoff studies did not allow the evaluation of distance from surface water bodies or irrigation erosion as site characteristics. The PI was well correlated with soluble P (r2=0.91) and bioavailable P (r2=0.88) losses but less so with total P losses (r2=0.58). Total P losses reached a plateau while the PI continued to increase, suggesting the PI was too sensitive to the potential for high P losses. Modifications of the PI inputs and weighting factors will be explored as a means to improve the predictive capability of the PI.

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