

# Use of Simulated Runoff Research for Development of the Wisconsin Phosphorus Index. (S11-good626848-poster)

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## Abstract:

The Wisconsin Phosphorus Index ranks agricultural fields by their risk of environmental P losses through the use of algorithms estimating P loads to surface water in particulate and dissolved form. These algorithms are being developed with the aid of in-field simulated runoff research trials. For example, the equation for predicting runoff dissolved P concentrations is based on the relationships observed between soil test P (STP, Bray-Kurtz P1), soil water-extractable P (WEP), and dissolved P concentrations in simulated runoff at four research sites in three different parts of the state. The positive linear relationship between STP and WEP was similar across all soil types. In contrast, the slope of the regression between STP and dissolved P in runoff was found to be different for soils with different infiltration capacities. Therefore an “extraction efficiency” factor has been incorporated into the equation. It is defined as the ratio of soil WEP to dissolved P in runoff and is assigned by soil hydrologic group. Simulated runoff trials have also been used to estimate the proportion of surface-applied manure P that can be dissolved in runoff with different application timing and tillage operations. Phosphorus concentrations from natural runoff studies on similar soils are being used to calibrate the P Index equations.

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