

Measuring the Effectiveness of Stacked Nutrient Reduction Practices

Issue: Detecting water quality improvements from best management practices (BMP) at the landscape scale has been difficult. Insufficient monitoring and the inability to link BMPs to monitored results may be to blame.

Objective: A paired watershed study design could overcome these issues. Two watersheds are monitored for a calibration period, then one serves as a control while improvements are implemented on the other.

Approach: Two sub-watersheds of Rapid Creek will be used for this research. Nutrient reduction BMPs, including cover crops, bioreactors, wetlands and filter/buffer strips will be “stacked” in one sub-watershed, with a similarly sized sub-watershed serving as the control. Sensors that continuously monitor and transmit water quality and stream-stage data will be installed and calibrated in the two sub-watersheds in fall 2014. Working with producers and landowners, stacked BMPs will be installed in 2015 in the treatment sub-watershed. Discharge and nitrate concentrations will be monitored during the calibration, treatment and post-treatment period to evaluate the effectiveness of stacking multiple BMPs to achieve water quality benefits.

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