

D Scavia *et al.* – Supporting Information

WebTable 6. Descriptions of the scenarios and results. Acronyms used: DRP-dissolved reactive phosphorus; P-phosphorus; TP-total phosphorus.

No.	Scenario Description	Project Findings
1	All point source discharges were removed	Removing point sources reduced P load, but did not reach target.
2a-c	In these scenarios, 10%, 25%, and 50% of the row croplands with the lowest crop yields and greatest P losses were converted to switchgrass and managed for wildlife habitat (limited harvesting and no P fertilization).	TP targets could be achieved with nearly 25% conversion of cropland; and DRP targets were met with closer to 50% conversion. The difficulty reducing DRP loadings may be a result of legacy P stored in soils within the Maumee River watershed.
3	The following were applied together on a random 25% of row cropland: 50% reduction in P fertilizer application, fall timing of P applications, subsurface placement of P fertilizers, and a cereal rye cover crop.	While in-field practices did reduce both TP and DRP losses, random implementation on only 25% of croplands was not enough to achieve either the TP or DRP targets.
4	The following practices were applied to a randomly selected 25% of row crop acreage: 50% reduction in P fertilizer application, fall P applications, and subsurface placement of P into the soil.	Nutrient management at 25% implementation is not enough to achieve TP or DRP load targets.
5	The following practices were applied to 100% of row crop fields: 50% reduction in P fertilizer application, fall P applications, and subsurface placement of P.	On average, nutrient management alone has the potential to achieve DRP targets, but not TP targets.
6	The following 4 practices were each applied to separate 25% of the crop acres: a 50% reduction in P fertilizer application, subsurface application of P fertilizers, continuous no-tillage, and medium-quality buffer strips.	While 100% adoption of at least one conservation practice helped move average loads closer to target goals, adoption of multiple practices per farm field may be required to achieve the targets.
7	A combination of continuous no-tillage and subsurface application of P fertilizers were applied together on a randomly selected 50% of row crop acres.	Implementing subsurface application of P fertilizers in a no-tillage system can help reduce P losses; however, when implemented on 50% of cropland, this combination of practices is not sufficient to achieve load targets.
8	The following practices were targeted to the 50% of row cropland with the highest P loss in the watershed: subsurface application of P fertilizers, cereal rye cover crop in the winters without wheat, and application of medium-quality buffer strips.	Results showed that a series of in-field and edge-of-field practices on the same crop fields could achieve the TP load target with random application at 50% adoption and well exceeded the target load with targeted placement of the practices on high P exporting croplands. Targeted implementation was required to achieve the DRP target load. These results indicate the value of targeting conservation practices to lands with the highest P losses.
9	The following practices were applied to a random 50% of row cropland: subsurface application of P fertilizers, cereal rye cover crop in the winters without wheat, and application of medium-quality buffer strips.	
10	An alternative corn-soybean-wheat rotation with a cereal rye cover crop all winters without wheat was applied over a randomly chosen 50% of row cropland.	The results of the diversified rotations are less conclusive as some of the models had Baseline wheat rotations where the wheat was double-cropped with soybean in the same year. On average, the models showed marked reductions in TP loads and some improvement in DRP loads with the diversified rotation.
11	Wetlands were targeted to the 25% of sub watersheds with the greatest P loading and assumed to intercept half of overland and, in some models, tile flow, and medium-quality buffer strips were targeted to the 25% of row crop acreage responsible for the greatest P loss.	Wetlands targeted to 25% of high P loading sub-watersheds and buffer strips targeted to 25% of high P exporting cropland could achieve TP loading targets on average, but not DRP. This is partially due to the fact that much of DRP exits cropland via subsurface drains which are not intercepted by buffer strips.