Optimizing the Placement of Riparian Practices to Intercept Nutrients in a Tile-Drained Watershed. (A05-tomer100343-Poster)

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Abstract:

Best management practices (BMPs) can reduce nutrient losses within riparian zones. This study aimed to determine if terrain analyses could identify the best locations to place vegetated buffers and constructed wetlands within a watershed. The Tipton Creek watershed (20,000 ha) in Iowa was used as a case study. Hydrologic modeling of digital elevation data identified where large wetness and erosion indices occur in stream-side zones, where buffers should intercept sheet or rill flows, or minimize near-stream erosion. We also identified sites that may qualify as CREP (Conservation Reserve Enhancement Program) wetlands, which can treat tile-drainage waters. Results were produced as a series of maps, and a field review was carried out to evaluate their usefulness for planning purposes. The maps were carefully compared to existing land use along the watershed's riparian corridor, and sites were selected for possible establishment of new riparian BMPs. One conclusion from statistical analysis of terrain data is that sites best suited for riparian BMPs are usually small in size (<300 m length of streambank), and well distributed through the watershed.

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