

Challenges for Water Quality Best Management Practices

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Agricultural **B**est **M**anagement **P**ractices (BMPs) are strategies designed to reduce the potential for movement of nutrients and sediment from farmland and protect surface and groundwater quality. Generally, BMPs can be categorized as source- and transport-based measures. Source BMPs seek to reduce inputs at the farm gate through animal feed rations, manure treatment, basing fertilizer applications on soil test recommendations, and transportation from surplus to deficit areas. Transport BMPs aim to decrease nutrient runoff and erosion by conservation tillage, crop residue management, terracing, contour farming, cover crops, buffer strips, riparian areas, and impoundments (e.g., settling basins). While there are several examples of extensive and intensive voluntary and legislated BMP implementation at watershed scales, water quality improvement can be less than expected. This has led to a reassessment of the many sources of nutrients (point / nonpoint and agricultural / nonagricultural) in a watershed. Clearly, challenges to long-term water quality improvement exist. For agriculture, these challenges include targeting BMPs to source areas in a watershed, site specificity of BMP effectiveness, time to water quality response, adaptive or iterative management of BMPs, and a lack of monitoring and demonstration programs that document success stories and facilitate more widespread voluntary adoption of BMPs.