



USDA-CSREES 2006 National Water Quality Conference

[Monitoring Agricultural Drainage Ditches for Water Quality Protection](#)

Agricultural drainage ditches are fundamental components of productive farming in poorly drained soils of the Atlantic Coastal plain. While considerable information exists on nitrogen transport in coastal plain ditches, very little is known about the fate of phosphorus (P). In order to elucidate the role of ditches in P transport, two shallow ditches (approximately 1-m deep) on the University Maryland Eastern Shore's Research Farm, formerly a commercial poultry operation, were instrumented with flow and water quality monitoring equipment in 2001. Monitoring data highlight the role of the ditches as a conduit for agricultural P losses: in 2004, P losses exceeded 15 kg/ha. Storm flow accounted for 70-98% of annual P losses from the ditches, with substantial contributions of dissolved P (up to 55% of annual total P losses). Comparison of ditch monitoring data with runoff data from adjacent fields suggests that ditches themselves, especially sediments, are an important source of P during storm flow. Results highlight the potential for improved management of ditches for water quality protection.

Author: Arthur Allen

Coauthor(s): Peter Kleinman, Andrew Sharpley, Brian Needelman and Lou Saporito.