

Site Specific Soil Test Phosphorous Guidelines for Sensible Manure Management Strategies

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Elevated levels of phosphorous in surface waters can threaten water quality. In 1998, a regulatory framework for manure management strategies was initiated accompanied by an operating standards document. Initially, a single threshold soil test phosphorous level was proposed that set the limit for maximum manure additions. However, since soils vary in their ability to hold phosphorous and phosphorous export from soils is dependant on landscape and climate, a flexible threshold soil test phosphorous level that would be based upon soil type, climate, and landscape was proposed.

Research funded by the Hog Industry Development Fund and AAFRD is currently underway to develop site-specific maximum soil test phosphorous levels designed to aid in creating more flexible manure management strategies. Data from rainfall simulation, laboratory studies and watershed monitoring sites are being integrated to develop models of critical manure loading rates based upon soil test phosphorous levels. This research demonstrates that while adding manure to soils increases dissolved phosphorous in runoff, manure also helps hold the soil in place thus reducing erosion rates (sediment phosphorous loads). Further work will focus on developing the relationship between higher dissolved phosphorous loads and lower sediment phosphorous loads as manure applications increase.

Implications:

Manure management guidelines that are soil and site specific are scheduled to be in place by the fall of 2001.