



USDA-CSREES 2006 National Water Quality Conference

Hype or hope: How much does phytoremediation of high-phosphorus soils accomplish?

The removal of high-yielding forages with elevated concentrations of tissue-phosphorus (P) to phytoremediate soils containing excessive amounts of manure-P is a popular recommendation. Land area requirements (LAR) for manure-producing operations are also estimated on this basis but do not always take into account soils or management. Just how sound are these approaches, then? Reviews of phytoremediation in the literature tend to be positive but very little research actually correlates P removal in forage to appreciable declines in water-soluble soil-P tests or P runoff. Do we fully understand the soil-root dynamics that drive water-soluble soil-P changes, especially where organically-bound P is involved? Root exudates can free otherwise bound P, so are we reducing escape P or not? And how does the removal of water-soluble P by forages affect laboratory soil tests used by regulatory agencies, both in the short and the long term? Simple arithmetic (manure-P in, forage-P out) should govern the determination of LAR for manure-producing operations, but do producers manage their land as prescribed? Many questions remain unanswered as the use of phytoremediation moves from the research plot (and conference papers) to manure-generating operations on the ground.

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