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## MASTEP Technology Review

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**Technology Name:** Vegetated Filter Strips – Switchgrass and Cool Season Grasses  
**Studies Reviewed:** Lee et al: Nutrient And Sediment Removal By Switchgrass And Cool-Season Grass Filter Strips In Central Iowa, USA. 1999

**Date:** May 6, 2010

**Reviewers:** Jerry Schoen

**Rating:** 3

**Brief rationale for rating:**

These vegetated filter strips were monitored in 6 simulated rain events over a 3 day period using a single rainfall rate (5.1cm/hr) and a single sediment concentration in the simulated rainfall. Minimal documentation of methods, no mention of quality control procedures.

**Other comments:**

- Two different grass mixes were tested: switchgrass and cool-season grass mix (bromegrass, timothy and fescue).
- 3 and 6 meter strips were tested.
- Results: 6 meter switchback strips: 78.2% TSS removal, 51.2% Total N, 46.9% NO3-N, 55.2% Total P, 46% PO4-P; 3 meter switchback strips: 69% TSS, 31.7% Total N, 28.1% NO3-N, 39.5% Total P, 38.1% PO4-P; 6 meter cool season grass strips: 69% TSS, 41.1% Total N; 37.5% NO3-N, 49.5% Total P, 39.4% PO4-P; 3 meter cool season grass strips: 62% TSS, 23.5% Total N, 22.3% NO3-N, 35.2% Total P, 29.8% PO4-P. 77% Total Sed. 46% total N, 42% NO3-N, 52% Total P, 43% PO4-P.
- From a statistical perspective, the removal efficiency of switchgrass was found to be significantly better than that of cool season grass in all cases except the 3 meter strips for Total P removal.
- Infiltration efficiency was also calculated; switchgrass infiltration was 36.4% (i.e. % of rainfall plus run-on to the plots that infiltrated) for 6 meter strips and 22.4% for 3 meter strips. For cool season grass, infiltration rates were 38.2% (6M) and 22.6% (3M) respectively. The difference in infiltration was not significant for switchgrass vs. cool season grass; it was significant between 6 and 3 meter strips.