Nitrogen and Phosphorus Removal from Runoff in a Subsurface Flow Constructed Wetland. (A00-stearman103117-Poster)

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Abstract:

A 192 sq. meter gravel subsurface flow constructed wetland was designed and installed at Pirtle's Nursery in Smithville, TN. The wetland was 45 cm deep and contained approximately 20,000 L of water. Softstem bulrush, cattails and juncus were planted in the wetlands. The wetland included a standpipe to control water level and a bypass pipe for heavy flow. Total nitrogen, phosphorus and the pesticide, prodiamine were measured from the influent and effluent water during daily irrigation events. Hydraulic retention times (HRTs) of 1, 2, and 3 days were controlled by opening the valve into the wetlands. A Steven's chart recorder was used to measure water entering the wetlands so that HRTs could be calculated. Nitrogen removal varied between 60 and 90% of the total N entering the wetland. Phosphorus removal varied from 0-60%. Prodiamine removal was generally 40-60%. The wetland required little maintenance other than occasional sediment flushing of the pipes to maintain constant flow.

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