

Drainage Water Management Effects on Flow, Water Table Depth & Soil Moisture

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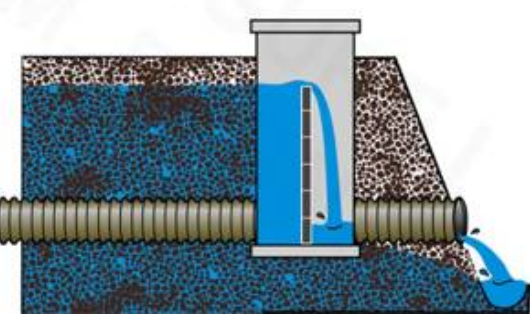
INTRODUCTION

Subsurface tile drainage

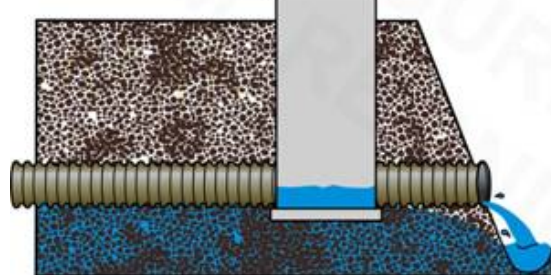
- is widely used in Midwest corn systems,
- enhances crop yields on naturally poorly-drained soils,
- is a major source of nitrate in the Gulf of Mexico



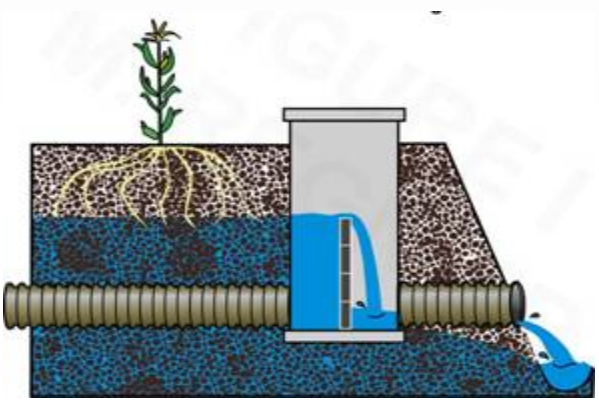
Drainage water management uses a water control structure in a drain to raise the drainage outlet during parts of the year when a higher water table will not harm and may benefit the crop.



The outlet is raised after harvest to reduce nitrate delivery.



The outlet is lowered a few weeks before planting and harvest to allow field to drain.



The outlet is raised after planting to potentially store water for crops.

We are monitoring hydrology, nitrate losses, and crop yield effects in eastern Indiana. This poster focuses on hydrologic effects.

MATERIALS AND METHODS

Site: Davis Purdue Agricultural Center, eastern Indiana. The field has 4 quadrants: Two have *managed* drainage (NW, SE), two *free* drainage (NE, SW).

Drain flow measurement: Krohne electromagnetic sensor.s

Water table measurement: 2-m deep wells, with pressure transducers and loggers

Soil moisture measurement:: Decagon 5TM dielectric permittivity sensors at 5 depths.

