Field Nutrient Loss App

https://transformingdrainage.org/tools/nutrient-loss/

Overview

The Field Nutrient Loss App allows users to estimate nutrient loss from field measurements.

Farmers are often interested in determining how much nitrogen (N) is leaving their field tile. Determining the loss in pounds requires measuring (1) drain flow rate (usually in gallons per minutes, abbreviated as gpm) and (2) the concentration of nitrogen in the water (usually in mg/L or parts per million, abbreviated as ppm). Together these can be used to estimate the mass of N lost at the time that the measurements are taken. The lost nitrogen has monetary value, which can be calculated based on the pounds of N lost per day and the value of the fertilizer. This user-friendly tool is available to estimate this in the field, so the user can roughly see how much nitrogen is being lost without dealing with cumbersome calculations.

How it works

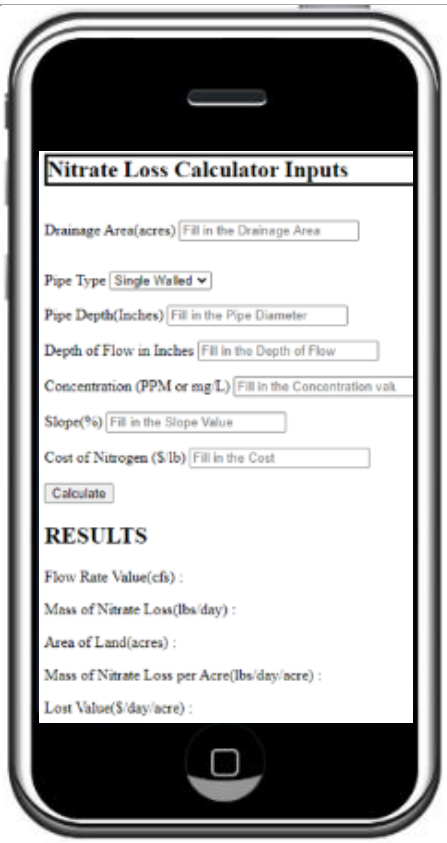
A farmer inputs the type of pipe and three values based on measurements at the drain outlet: the depth of flow, the pipe diameter, and slope. The tool uses these values in a standard hydraulic formula (Manning's equation) to calculate the flow rate. The farmer also inputs the concentration of nitrogen, measured using paper test strips or a laboratory analysis of a tile water sample.

How the tool can be used

The tool can be used by a variety of users to answer a range of different questions, for example:

Farmers and landowners can use the tool to quantify nutrient losses under current management approaches (crop type, fertilizer rate, application, and timing).

Crop advisors and conservation professionals can use it to quickly explore opportunities with farmers and landowners to implement management practices that reduce nutrient loss. Watershed coordinators can use the tool within a monitoring program to determine where edge-of-field practices would have the highest impact.



User interface for the Field Nutrient Loss App.

For more information

This tool is freely available at https://www.sdstate.edu/agricultural-and-biosystems-engineering/nutrient-loss-calculator.

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