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**Spreadsheet for converting saturated hydraulic conductivity to long term acceptance rate for on-site wastewater systems**

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Abstract:

Long Term Acceptance Rates (LTAR) are used in specifying the area of the bottom of drainfield trenches required for onsite wastewater systems (OWSs). We describe an Excel spreadsheet that uses a modified equation from Bouma (1975) to calculate the steady trench bottom flux in an OWS based on an input of soil saturated hydraulic conductivity. The soil water retention parameters are also required, but they can be taken from a table in the spreadsheet that provides parameters for the 12 USDA soil textural classes based on the Rosetta database. Biomat thickness and biomat saturated hydraulic conductivity are also required and values are suggested in the spreadsheet. Bottom flux as a percent of saturated hydraulic conductivity varied widely from 52% in the silt loam class to 2% in the sand class. To convert steady bottom flux to LTAR, a safety factor should be used and we suggest that LTAR should be one half of the steady bottom flux. Using these assumptions we calculated LTAR for 12 USDA soil textural classes. The LTAR ranged from 1.48 cm d-1 (0.36 gal d-1 ft-2) for the sandy clay class to 5.40 cm d-1 (1.32 gal d-1 ft-2) for the silt class.

Impact Statement:

Our method provides a simple tool for estimating the hydraulic performance of an on-site wastewater system. States can use this method to estimate the trench line length required for soils with different hydraulic properties.

Category: Other Water Resource Topics  
Type of Presentation: Oral Presentation