

SOIL RATING FOR NITRATE AND SOLUBLE NUTRIENTS

General

This section provides a way to determine the degree to which water percolates below the root zone in certain soils. Percolating water containing dissolved nitrates or other soluble nutrients could be a hazard to ground water. The Method is based on a Leaching Index (LI)^{1/} .

For areas with ground water concerns, the LI should be determined to evaluate the potential for contaminating the ground water with soluble nutrients. The LI uses annual precipitation, hydrologic soil group, and rainfall distribution data.

Leaching Index

A leaching index has been developed for each hydrologic soil group. Soils in dual hydrologic groups (C/D) should use the hydrologic group that gives the highest leaching index. If a soil has a high leaching index and is over a shallow aquifer or is <20 inches to bedrock, soluble nutrients, especially nitrates, may contaminate the water.

The LI does not account for irrigation. If irrigation is applied only to supply plant needs, there will be little additional loss below root zone. The additional loss would be relative to the precipitation events after the soil profile is saturated or nearly saturated due to irrigation.

Procedure

Follow these steps to determine the Leaching Index of a certain soil

1. Find the soils hydrologic group
2. Determine Leaching Index from table
3. Follow guidelines for recommendations

Hydrologic Group	Counties	Leaching Index
A	All Counties	>10 inches
B	Northern Aroostook, Fort Kent & Presque Isle	2 to 10 inches
	All Other Counties	>10 inches
C	Washington, Hancock, Waldo, Knox -Lincoln	>10 inches
	All Other Counties	2 to 10 inches
D	All Counties	2 to 10 inches

Guidelines for Using LI:

1. An LI less than 2 inches would probably not contribute to soluble nutrient leaching below the root zone
2. An LI between 2 and 10 inches may contribute to soluble nutrient leaching below the root zone and nutrient management should be considered.
3. An LI greater than 10 inches will contribute to soluble nutrient leaching below the root zone. Nutrient management practices should be intense or soluble nutrients should not be applied. Also consider using conservation practices that minimize infiltration, such as stripcropping rather than pipe outlet terraces.

^{1/} The method to calculate the Leaching Index was developed by J.R. Williams and D.E. Kissel in “Water Percolation: An indicator of N Leaching Potential “from managing Nitrogen for Groundwater Quality and Farm Profitability, Edited by R.F. Follet (unpublished).