SOIL RATING FOR NITRATE AND NUTRIENT LOSS MITIGATION INFORMATION

Introduction
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 can be a hazard to ground water. The method is based on a Leaching Index (LI).

For areas with ground water concerns, the LI should be determined to evaluate the potential for contaminating the ground water with soluble nutrients. In addition, nutrient management policy requires LI be used in selected watersheds to assess the potential for nitrogen leaching. The LI uses annual precipitation, hydrologic soil group, and rainfall distribution data, and is now included in RUSLE-generated soils documentation.

Mitigation of potential Phosphorus Losses: Where a PLAT evaluation has determined a “HIGH” risk of excessive P loss from planned fields, or where P loss has been identified as a resource concern in the conservation planning process, consult the USDA ARS publication Best Management Practices to Minimize Agricultural Phosphorus Impacts on Water Quality (http://www.ars.usda.gov/is/np/BestMgmtPractices/BestMgmtPracticesIntro.htm) for technical guidance on conservation practices and application techniques effective in mitigating P losses. The PLAT Ratings Report details the risk rating contribution for each loss pathway assessed through PLAT, and may be helpful in determining effective conservation practices for mitigating potential losses.

Nitrogen Leaching Index
The LI map for each hydrologic soil group has not changed from the 1990 version. The hydrologic group describes those soils that do not have dual hydrologic ratings because of differences in drainage. Soils with dual hydrologic rating, such as AID (drained/undrained), should be evaluated on the basis of the current drainage status. If the soil has a high LI and is over a shallow aquifer, 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 the 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 soil's hydrologic group. Soil Hydrologic Groups per soil map unit are available in NRCS Web Soil Survey feature Soil Data Explorer/Soil Properties and Qualities once an Area of Interest has been defined OR through use of the “Open Soil” option in RUSLE 2.
2. Locate the Iso-leaching map in NC FOTG Section II for that soil hydrologic group.
3. From the map, based on the soil location, determine the LI value.

OR
Obtain the soil map unit Leaching Index value through RUSLE 2 field specific erosion loss calculations. (Instructions are posted on the NC SharePoint site under ECS > Conservation Planning References > Nutrient Management.)

NOTE: Use the LI from the predominant field soil map unit to determine field-specific LI.
### Guidelines for Recommendations for Soluble Nutrient Loss Mitigation Practices in Conservation Plans

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<thead>
<tr>
<th>LI</th>
<th>Potential Leaching</th>
<th>Technical Guidance</th>
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<tbody>
<tr>
<td>&lt; 2</td>
<td>Low potential to contribute to soluble nutrient leaching below the root zone.</td>
<td>None</td>
</tr>
<tr>
<td>&gt;= 2 and &lt;= 10</td>
<td>Moderate potential to contribute to soluble nutrient leaching below the root zone.</td>
<td>Nutrient Management (590) should be planned.</td>
</tr>
<tr>
<td>&gt; 10</td>
<td>High potential to contribute to soluble nutrient leaching below the root zone.</td>
<td>Nutrient Management (590) must be planned AND practices must be planned to trap soluble nutrients prior to field loss via surface or subsurface drainage. Recommendations for loss mitigation practices include conservation crop rotations, cover crops, water control structures, drainage water management, irrigation water management, and buffer practices.</td>
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