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## Best Management Practices:

To prevent the loss of nitrates ( $\text{NO}_3^-$ ) from leaching and runoff of manure into surface water. The US Environmental Protection Agency says the maximum contaminant level for nitrates in drinking water is 10 ppm.

- **Native Grass Seeding**
  - Plant and successively maintain native grass species such as Switchgrass, Indiangrass, Big bluestem, Little bluestem, Canada wild rye
  - There will be roots with the potential to take up nitrate in the spring
- **Cool Season Grass Seeding**
  - Plant and successively maintain cool season grass species such as Kentucky Bluegrass, Fescue, Ryegrass, Bromegrass, Orchardgrass, Timothy, Red Clover, Alfalfa
  - Land under grass cover and requires little fertilizer
- **Crop Rotation with Winter Cover Crop**
  - Suggested Cover Crops: Oats, Rye, Wheat, Red Clover, Hairy Vetch,
  - Cover crops recycle nutrients that might otherwise be lost to leaching during the winter and spring.
- **Crop Rotations**
  - Integrate a system with an oats/alfalfa or other grasses in a corn/soybean rotation
  - Reduces fertilizer requirements
  - If use legume cover crops, no nitrogen needed
- **Nutrient Management Practices**
  - Soil Testing: Monitor Nitrate levels in the soil
    - Evaluate the amount of nitrate N in the top foot of soil to determine mineralized and residual N from last fall.
  - Late spring nitrate test: Shows how much N a field needs
    - Ensures crop is fed enough
    - Prevent unnecessary application
  - Record/track fertilizer application

- Fall stalk test: “Postmortem” analysis indicating the level of nitrates the plant took up.
- **Compost**
  - Use of a slow release fertilizer so the plant may take it up as it’s needed (in comparison to anhydrous ammonia or liquid manure).
- **Split Fertilizer Applications**
  - An attempt to reduce nitrates available for leaching by matching plant N needs to N available.
    - Apply a small amount near planting time
    - Sidedress in late spring

The nitrogen that leaves a field through runoff or tiles is money lost to the farmer.

Excess nitrate flowing from fields is also a threat to groundwater and surface water.

<http://mdc.mo.gov/landown/grass/seeds/>  
<http://ohioline.osu.edu/agf-fact/0022.html>  
<http://comdev.osu.edu/~news/story.php?id=3140>  
<http://www.ipm.iastate.edu/ipm/icm/2003/3-17-2003/integration.html>

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