



BACKGROUND AND REFERENCE MATERIAL **Sensitive Areas Identification System**

<http://sais.iwr.msu.edu/>

QUESTIONNAIRE

1. Is there subsurface drainage (tile drainage) in the area?
2. Are there any surface inlets, catch basins, risers in the field(s)?
3. Are there any vegetated buffers between the field(s) and nearby surface water (ditch, drain, stream, lake, etc.)?

Describe your vegetative buffer:

- Less than 20 feet wide
- 20 - 25 feet wide
- 26 - 35 feet wide
- Greater than 35 feet wide
- Greater than 300 feet from water

4. Do you have recent (less than 3 years old) soil test results for the field(s)?

What phosphorus levels were found?

- Less than 20 ppm (< 40 lbs/acre)
- 20 - 40 ppm (40 - 80 lbs/acre)
- 41 - 74 ppm (82 - 148 lbs/acre)
- 75 - 149 ppm (150 - 298 lbs/acre)
- Greater than 150 ppm (> 300 lbs/acre)

5. Was fertilizer being applied to the selected farm field(s)?

How and when was fertilizer applied to the farm field(s)?

- Injected/surface applied and incorporated < 2 days before planting
- Surface applied and incorporated 3 - 7 days before planting
- Surface applied and incorporated 8 - 15 days before planting
- Surface applied or incorporated > 15 days before planting
- Surface applied with no incorporation

What amount of fertilizer was applied to the farm field(s)?

- No phosphorus application (crop is harvested)
- 1-2 year phosphorus crop removal application
- 3 year phosphorus crop removal application
- 4 year phosphorus crop removal application
- Greater than 4 year phosphorus crop removal application

6. Was manure applied to the selected farm field(s)?

How and when was manure applied to the farm field(s)?

- Inject/incorporate manure within 2 days of application
- Incorporate manure 3 - 7 days after application
- Incorporate manure 8 - 30 days after application
- Incorporate manure >30 days after application
- Surface applied on a growing crop
- No incorporation

What was the rate of phosphorus (P_2O_5) applied with manure?

- Less than 30 lbs/acre
- 31 - 60 lbs/acre
- 61 - 99 lbs/acre
- Greater than 100 lbs/acre

What was the rate of nitrogen (N) applied with manure?

- Less than 60 lbs/acre
- 61 - to 130 lbs/acre
- 131 - 200 lbs/acre
- Greater than 200 lbs/acre

7. Do you leave any crop residue on the soil surface after all pre-plant tillage operations have been completed?

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|--------------------|-----------------------|---------------------|
| - 30% Corn Residue | - 20% Soybean Residue | - 20% Wheat Residue |
| - 40% Corn Residue | - 30% Soybean Residue | - 30% Wheat Residue |
| - 50% Corn Residue | - 40% Soybean Residue | - 50% Wheat Residue |

INCLUDED PRACTICES

- Conservation Crop Rotation
 - Cover Crop
 - Residue and Tillage Management, No-Till
 - Residue and Tillage Management, Reduced Till
 - Critical Area Planting
 - Grassed Waterway
 - Agrichemical Handling Facility
 - Filter Strip
 - Nutrient Management
 - Waste Storage Facility
 - Vegetated Treatment Area
 - Water and Sediment Control Basin
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RISK LAYERS

- Concentrated Flow
 - Developed from digital elevation models of 3-meter and 10-meter resolution
 - Represents surface flow of water with a minimum contributing area of 1 acre
- Sediment Delivery
 - 30-meter (or 10-meter) resolution raster dataset containing estimates for annual sediment loading for the selected 8-digit watershed as predicted by combining erosion estimates from RUSLE and delivery ratio estimates from SEDMOD
- Sheet and Rill Erosion by Water
 - 30-meter (or 10-meter) resolution raster dataset containing estimates for annual erosion for the selected 8-digit watershed as predicted by RUSLE
 - SAIS assumes a risk if a field has any areas eroding greater than 5 tons/acre/year
- Nitrate Leaching
 - Nitrate Leaching Index: The Leaching Index (LI) is an estimate of the inches of precipitation that infiltrates in a field and percolates below the rootzone (1 meter)
 - Based upon SSURGO dataset
 - SAIS assumes a risk if a field has areas of “high” risk present
- Soil Erosion by Wind
 - Based upon Wind Erodibility Groups - a grouping of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate the susceptibility to blowing. The wind erodibility index, used in the wind erosion equation, is assigned using the wind erodibility groups.
 - SAIS displays groups 1-3 (high) and assumes a risk if any “high” groups are present

ASSESSMENTS

Manure Application Risk Index (MARI) uses 12 specific field features to obtain an overall rating for each site:

- Soil Hydrologic Group (A)
- Soil Management Group (A)
- Percent Slope (A)
- Soil Test P Value (Q)
- Concentrated Water Flow or Surface Inlet Discharge (A/Q)
- Nitrogen Leaching Index for Soil Hydrologic Group (A)
- Residue/Cover Crops or Perennial Cover (Q)
- Surface Water Setback (A)
- Vegetative Buffer Width (Q)
- Manure P₂O₅ Application Rate (Q)
- Manure N Application Rate (Q)
- Manure Application Method (Q)

Michigan Phosphorus Risk Assessment (MPRA) uses nine specific field features to obtain an overall rating for each site:

- Water Erosion (A)
- Runoff Curve Number (A)
- Distance to surface water and/or surface inlets (A)
- Subsurface drainage (Q)
- Buffers (Q)
- Soil Test P (Q)
- P fertilizer method (Q)
- Manure method (Q)
- P₂O₅ rate all sources (Q)

A = automatically gathered data

Q = user supplied data