Task 9: BMP Effectiveness Monitoring

Objective: Monitor implementation of manure/compost BMPs through collection of water runoff using automatic water samplers, soil samples within fields, soil samples within buffer zones, down-gradient soil samples, manure samples, and water well samples.

Task 9.2: ....install automatic water samplers to collect runoff from the control and treatment plots. Water samples will be analyzed for nutrients and bacteria...
Watersheds 6 - 8 with GPS Coordinates for Flume Locations

36° 04' 42.4290" N
-94° 17' 7.0222" W

36° 04' 36.0018" N
-94° 17' 8.1988" W

36° 04' 36.0468" N
-94° 17' 7.1968" W

Harmon Rd

0 55 110 220 Feet
Watersheds 9 - 10 with GPS Coordinates for Flume Locations

Low – no litter
STP=242 mg/kg

High – no litter
STP=524 mg/kg

High – with litter
STP=52 mg/kg

TP Applied = 41.4 lb/ac

Watersheds 11 - 12 with GPS Coordinates for Flume Locations

Low – no litter
STP=45 mg/kg

Low – with litter
STP=52 mg/kg
Average P Concentration (mg/L)

- **TP**
- **SRP**

<table>
<thead>
<tr>
<th>Condition</th>
<th>TP</th>
<th>SRP</th>
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<tr>
<td>Low STP</td>
<td></td>
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<tr>
<td>Low STP with litter</td>
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<tr>
<td>High STP</td>
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<tr>
<td>High STP with litter</td>
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</tbody>
</table>
Cumulative P Loss (lb P/ac)

- Low STP
- Low STP with litter
- High STP
- High STP with litter

Legend:
- Yellow: TP
- Red: SRP
Runoff Volume (L x 1000/ha)

- Low STP
- Low STP with litter
- High STP
- High STP with litter
Selection Criteria

• Uniform Soil Series

• Uniform Slope

• Uniform Field Size

• Cooperating landowner
  – Some construction involved
  – Implementation of different management practices
Treatments

• Tillage
  – No-till/Conventional Till

• Application Timing
  – Fall/Spring; Annually/every third year

• Application Methods
  – Surface Application/Incorporation/Injecting

• Fertilizer Type
  – Compost/Raw Manure

• Other BMPs
  – Buffer Strip/Setback; grazing systems; cropping systems