Licensed farmers, professional pesticide applicators and pesticide businesses in the counties selected for that year are eligible to participate. Complete the CHEMSWEEP registration form and return to the address shown by the deadline of February 28. CHEMSWEEP will cover the cost of the first 2,000 pounds per participant.


Learning Objectives

- Identify key components on soil maps
- Choose appropriate pesticides based on soil maps
- Use soil tests to select pesticides and determine rates

Soil Survey

- USDA Natural Resource Conservation Service (NRCS) soils web site http://websoilsurvey.nrcs.usda.gov/app/

The Application Site – Soil Features

- Soil Types/Textures
- Rock Outcroppings
- Sinkholes
- Ponds
- Wet Areas
- Intermittent Waterways
Hagerstown Silt Loam (Ha)

Ap1 = 0.7", dark brown/brown silt loam; moderate medium subangular blocky structure; friable
Ap2 7.10", db/b silt loam; weak coarse platy structure; firm; limestone channels; neutral
BE 10-17": strong brown silt loam; common medium distinct db/b organic sains; mod med subangular blocky struc.; friable
BI1 17-26": yellowish red silty clay loam; common med distinct very dark gray iron mang stains; mod med subangular blocky structure; friable
BI2 26-45": reddish brown silty clay; fine and med distinct very dark gray iron mang stains; strong fine subangular blocky structure; friable
BI3 45-83": red clay; common med distinct brownish yellow; strong fine platy structure; friable
BCt 63-71": yellowish red, db/b variegated silt loam, weak med subangular blocky structure; friable.
The Application Site – Soil Types

• Soil Type
• Rock Outcroppings
• Sinkholes
• Ponds
• Wet Areas
• Intermittent Waterways

The Application Site – Rock Outcroppings

• Soil Type
• Rock Outcroppings
• Sinkholes
• Ponds
• Wet Areas
• Intermittent Waterways

The Application Site – Sinkholes

• Soil Type
• Rock Outcroppings
• Sinkholes
• Ponds
• Wet Areas
• Intermittent Waterways

The Application Site – Ponds and Wet Areas

• Soil Type
• Rock Outcroppings
• Sinkholes
• Ponds
• Wet Areas
• Intermittent Waterways

The Application Site – Intermittent Waterways

• Soil Type
• Rock Outcroppings
• Sinkholes
• Ponds
• Wet Areas
• Intermittent Waterways
The Application Site – Intermittent Waterways

Intermittent waterway

Photos: Tracey Harpster, Penn State

Soil Testing

Standard
• pH
• Phosphorus
• Potassium
• Magnesium

Optional
• Nitrogen
• Organic Matter
• Soluble Salts

pH Scale

Acidic
• pH = 0
• pH = 1
• pH = 2
• pH = 3
• pH = 4
• pH = 5
• pH = 6
• pH = 7
• pH = 8
• pH = 9
• pH = 10
• pH = 11
• pH = 12
• pH = 13
• pH = 14

Neutral
• pH = 7
• pH = 8
• pH = 9
• pH = 10
• pH = 11
• pH = 12
• pH = 13

Basic
• pH = 14

Battery acid
Orange juice
Bananas
Pure water
Baking soda
Soapy water
Liquid drain cleaner

Microorganisms

Range

Optimum

Bacteria
5 - 9
7

Blue green bacteria
6 - 9
> 7

Actinomycetes
6.5 - 9.5
8

Fungi
2 - 7
5
Soil Testing – pH

<table>
<thead>
<tr>
<th>Importance</th>
<th>Dinitroanalines</th>
<th>Imidazolinones</th>
<th>Sulfonyleures</th>
<th>Triazines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Important</td>
<td>Low rainfall</td>
<td>Low rainfall</td>
<td>High pH</td>
<td>High or low pH</td>
</tr>
<tr>
<td>Important</td>
<td>High clay / organic matter</td>
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</tr>
<tr>
<td>Somewhat Important</td>
<td>High or low pH</td>
<td>Low pH</td>
<td>Low rainfall</td>
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</table>

Soil pH (over 7.0)

- Breakdown (Decreases)
- Persistence (Increases)

Soil pH (below 6.0)

- Persistence (increases)
- Carryover (increases)

Soil Testing – Organic Matter

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Photos: Tracey Harpster, Penn State

25 26 27 28 29 30
Soil Testing – Soil Texture and Organic Matter

**Surpass**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

**Use Precautions and Restrictions**

- Not for Sale, Sale into, Distribution and/or Use in Nassau and Suffolk Counties of New York State.

On the following soil types, do not apply this product within 50 feet of any well where the depth to groundwater is 30 feet or less or in areas with less than 3% organic matter; sandy soils with less than 2% organic matter; or sandy loams with less than 1 percent organic matter. See the label for additional clarification.

<table>
<thead>
<tr>
<th>Soil Texture</th>
<th>Organic Matter Content</th>
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<tbody>
<tr>
<td>Coarse</td>
<td>0.2% - 2.0%</td>
</tr>
<tr>
<td>Medium</td>
<td>2.1% - 6.0%</td>
</tr>
<tr>
<td>Fine</td>
<td>6.1% - 35.9%</td>
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</table>

Rate Range: The rate of application shall be in accordance with the following:
- Coarse: 0.2% - 2.0%
- Medium: 2.1% - 6.0%
- Fine: 6.1% - 35.9%

**LITERATURE RESULTS**

<table>
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<th>K</th>
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<td>7.2</td>
<td>0.64%</td>
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**SOIL TESTING – SOIL TEXTURE AND ORGANIC MATTER**

**Prowl H2O**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

Use Area

- Preemergence, Postemergence: Sands, loamy sands, loamy sand loams

For weed control 10 days prior to and for 3 days after planting for the following:

- Sands: Coarse loams
- Loamy sands: Sandy-loam
- Loamy sand loams: Sandy clay loams

**LITERATURE RESULTS**

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**SOIL TESTING – SOIL TEXTURE AND ORGANIC MATTER**

**LowRate**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

Use Area

- Preemergence, Postemergence: Sands, loamy sands, loamy sand loams

For weed control 10 days prior to and for 3 days after planting for the following:

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**SOIL TESTING – SOIL TEXTURE AND ORGANIC MATTER**

**Engineered**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

Use Area

- Preemergence, Postemergence: Sands, loamy sands, loamy sand loams

For weed control 10 days prior to and for 3 days after planting for the following:

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**SOIL TESTING – SOIL TEXTURE AND ORGANIC MATTER**

**NoThrive**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

Use Area

- Preemergence, Postemergence: Sands, loamy sands, loamy sand loams

For weed control 10 days prior to and for 3 days after planting for the following:

- Sands: Coarse loams
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**SOIL TESTING – SOIL TEXTURE AND ORGANIC MATTER**

**Surpass**

**HERBICIDE**

*Material of the Dow Chemical Company/Chenopodium*

Use Area

- Preemergence, Postemergence: Sands, loamy sands, loamy sand loams

For weed control 10 days prior to and for 3 days after planting for the following:

- Sands: Coarse loams
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What are your other options?

• Buffer strips
  - How wide and how far from the sensitive area?
• Use a less restrictive product
• Choose another product
• Plant a different crop

Residential?
• Any others?

Summary

Soil Features
  • Soil Type and Texture
  • Rock Outcroppings
  • Sinkholes
  • Ponds
  • Wet Areas
  • Intermittent Waterways

Soil Test
  • Soil pH
  • Soil organic matter

Remember

The user’s responsibility is to read and understand the label before buying, using, storing, transporting, or disposing of the pesticide.

The Label is the Law – Always Read the Label First!

Questions

Credits

Presentation prepared by:
Tracey Harpster, Penn State Extension, Pesticide Education Program
Photos: Tracey Harpster and Garo Goodrow, Penn State

Where trade names appear, no discrimination is intended, and no endorsement by Penn State Extension is implied.