Strategic scouting for insect pests

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Our classroom potato field is infested with Colorado potato beetle larvae, should we treat?

To find out, scout:

- If pests ≥ threshold, treat
- If < threshold, don’t use control
Activity: Simulate recording of scouting data with two sampling strategies

1. Go over your sampling strategy (cover sheet example)
2. Compare decisions made with data from two strategies
   1. Low effort: Count and record pests from 4 petris in your half of the room
   2. Higher effort: Count and record pests from 8 petris, 4 in each half of the room
3. Note: imaginary threshold of 2 larvae/plant
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Results of scouting

<table>
<thead>
<tr>
<th>4 samples from one half</th>
<th>8 samples, 4 from each half</th>
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% correct decisions:

- True average pest density: 1.3/plant
- Result: 1.3 < 2, do not treat
- Why did results differ?
- What does this tell us about scouting?
Where you scout matters: Walk a path that takes you throughout your planting

Suggested pathways:

- "X"
- "V"
- "W"

1st visit:
- "U"

2nd visit:
- "W"

Misleading:
- Upward arrows
Sample size matters: Through research or experience, choose a sample size that gives precise data with minimum of effort.


http://www.plosone.org/article/info:doi/10.1371/journal.pone.0082618

Balsam gall midge
Steven Katovich, USDA Forest Service, Bugwood.org
For more information, see handouts, talk to us about traps during break
Go to the pest: Direct counts

**On-plant counts** – Count pests or measure defoliation on multiple plants throughout field
Go to the pest: Sweep net sampling

**How it works:** Knock pests of plants into net for counting

**Sampling effort:** Need to do multiple sets of sweeps over field

**Location still key:** Need to do multiple sets of sweeps over field

Howard F. Schwartz, Colorado State University, Bugwood.org
Attractive traps

How it works: Sex or aggregation pheromone, UV light, or color draws in pest

Sampling effort: Pest comes to you, so less sample units needed

Placement still key: Place it upwind of where pests are active

**Light trap:** Collects male & female night-fliers

**Pheromone-baited sticky trap:** Typically just males
Strategize before you scout, whether big or small

<table>
<thead>
<tr>
<th>Reality</th>
<th>Pest &lt; threshold</th>
<th>Pest &gt; threshold</th>
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<tbody>
<tr>
<td><strong>What data says</strong></td>
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<tr>
<td>Pest &lt; threshold</td>
<td>Save money on unnecessary sprays</td>
<td>Lose money, significant crop damage not averted</td>
</tr>
<tr>
<td>Pest &gt; threshold</td>
<td>Lose money, apply unnecessary sprays</td>
<td>Save money, protect crop from damage</td>
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