European Corn Borer (ECB) Management

Pest Facts
- ECB is one of the most damaging insect pests of corn. It was first discovered in Manitoba in 1948.
- Larvae feed on above-ground parts of a corn plant, chewing tunnels in corn stalks and ears.

Life Cycle
- Larvae overwinter in cornstalks, ears and other residue.
- Moths emerge from pupae in late June / early July and mate.
- Females lay egg masses on the underside of corn leaves near the mid-rib. Egg masses contain about 10 to 40 eggs.
- Egg masses are initially white and appear more black right before hatching (due to color developing in heads of larvae).
- Eggs hatch after 5 to 7 days, and larvae begin feeding. At this time they are small in size – about 1/10 inch.
- Newly hatched larvae appear white but become tan with black spots as they mature, attaining about 1 inch in length.
- At the end of the season, larvae tunnel into the stalk and prepare to overwinter.

Plant Symptoms and Impact on Crop
- “Window-pane” damage results from newly hatched (first instar) larval feeding on surface of corn leaf.
- “Shot hole” damage results from feeding inside the whorl.
- Tunneling in leaf mid-ribs as well as stalks, ear shanks and ears interferes with water and nutrient movement.
- Tunneling damage to the plant leads to reduced ear size and test weight. Heavy infestations may result in stalk breakage and ear droppage.
- Mature larvae feed on silks, kernels and cobs.
- This ECB feeding may result in moderate to severe yield loss.

Management
- **Resistant (Bt) corn hybrids** provide excellent control of ECB without harming beneficial insects.
  - Several Bt corn products to consider include Pioneer® hybrids 39D97 (HX1, LL, RR2), P8107HR (HX1, LL, RR2), 39B94 (HX1, LL, RR2), P8210HR (HX1, LL, RR2), 39V07 (HX1, LL, RR2) and 39Z69 (HX1, LL, RR2) as well as Pioneer® P8193Am™ brand corn (AM, LL, RR2).
  - Two new corn products are Pioneer® hybrid P7632HR (HX1, LL, RR2) and Pioneer® P8016Am™ brand corn (AM, LL, RR2).

- **Fall tillage, mowing stalk residues or chopping** the plant for silage can reduce overwintering populations.

- If using insecticides, target young larvae (first and second instar) before they start tunneling into the stalk. Management by insecticides begins with scouting, using these methods:
  - Start in early July, and scout every 5 to 7 days. Look for egg masses or hatched larvae on 20 plants in 5 locations in field. Be sure to check for any feeding inside the whorl.
  - Calculate the number of corn borers per plant, and compare against the economic threshold table below.

Economic Threshold (number of larvae/plant)

<table>
<thead>
<tr>
<th>Control Costs</th>
<th>Crop Value</th>
</tr>
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<tbody>
<tr>
<td>($/acre)</td>
<td>150</td>
</tr>
<tr>
<td>6</td>
<td>1.00</td>
</tr>
<tr>
<td>9</td>
<td>1.50</td>
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<tr>
<td>27</td>
<td>4.50</td>
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</tbody>
</table>

1Control costs = insecticide price ($/acre) and application costs ($/acre)
Source: [http://www.gov.mb.ca/agriculture/crops/insects/fad46s00.html](http://www.gov.mb.ca/agriculture/crops/insects/fad46s00.html)

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