Best Management Practices

Seed-Applied Insecticides and Pollinator Safety
Introduction

• This document assembles the present knowledge and understanding around the proper use and handling of seed treated with an insecticide, primarily from the perspective of pollinator safety.

• CropLife Canada strives to develop stewardship principles to maximize the benefits and minimize the potential adverse effects of insecticidal seed treatments on non-target organisms.

• Best Management Practices (BMP’s) for the proper treatment of seed, and the management of those seeds are key steps in ensuring a sustainable business environment for all involved stakeholders.
Integral components of sustainable agriculture

- Loss of key crops affects more than just the rural economy
- Pesticides help us to use our resources more efficiently

Average % losses without crop protection products

<table>
<thead>
<tr>
<th>Loss Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-harvest</td>
<td>10%</td>
</tr>
<tr>
<td>Disease</td>
<td>13%</td>
</tr>
<tr>
<td>Weeds</td>
<td>14%</td>
</tr>
<tr>
<td>Insects</td>
<td>15%</td>
</tr>
</tbody>
</table>

- 1 out of every 3 mouthfuls of food we eat and beverages we drink is facilitated by insect pollination
- ~70% of top 100 food and fibre crops rely on insect pollination
- ~90% of wild plants use insect pollination for reproduction, underscoring their role in promoting biodiversity
Seed Treatments

• Seed treatments, while discovered hundreds of years ago, have been used routinely in agriculture for a century, and in Canada since the early 1950s
• Seed treatment is a targeted approach to pest control, consistent with IPM
• The success and popularity of seed treatment is still growing and evolving
Status of Honey Bees in Canada

- Influenced by a number of challenges
  - Has resulted in higher than normal overwintering losses in Canada and around the world

- *Varroa* is ranked the highest risk for, and contributor to, failing hive health

- Risk = hazard X exposure
  - In the absence of exposure, there is no risk

- Pollinators can be exposed to pesticides in a number of different ways (drift, dust)

- Neonicotinoid insecticides have not been shown to contribute to chronic bee declines
• Seed treatment formulations have components that make the active ingredient adhere to the seeds without impeding their flow or planting characteristics
• Companies are providing new platforms for improvements to existing seed treatments
Best Management Practices for Growers

• Treated corn seeds contain pesticides and need to be handled with care, as per the info on the tag
• Dust can be generated in a number of different ways
  – During manufacturing, transport and storage, and even during preparation and planting operations
• Communication between beekeeper and grower is critical for reducing exposure risks
  – sharing of hive locations, timing of agronomic operations
During seeding, reduce dust exposure by:

- not shaking the seed bag
- using planter box lubricants correctly
- covering any exposed seeds
- cleaning up any spills
- being aware of weather conditions (especially wind direction)
- by removing flowering plants from the target field
Corn Planting Equipment

• Some vacuum planters exhaust to the environment, not the soil surface
• In some European countries, the use of dust-deflector retrofit kits has been investigated to conduit air and dust to the ground
• While shown in many situations to reduce potential exposure of pollinators to fugitive dust, questions still remain
• Appropriateness of this technology to North American planters is being evaluated
Corn Planting Equipment:

- Modifications may not be suitable for all equipment and may result in unintended results, such as:
  - Downward deposition onto flowering weeds in the field to be seeded
  - Negative impacts on the operation of the planter

- Speak to your equipment dealer or manufacturer regarding the status of the development of deflector kits for North American vacuum planters