Best Management Practices

Seed-Applied Insecticides and Pollinator Safety

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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

10% post-harvest

13% disease

14% weeds

15% insects

Average % losses without crop protection products

- 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

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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

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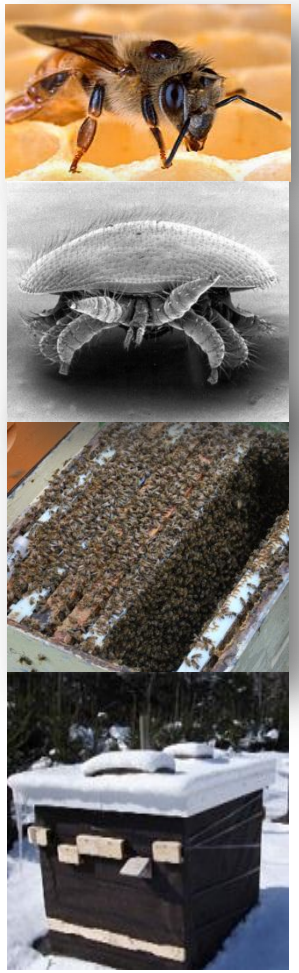
Status of Honey Bees in Canada

- 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



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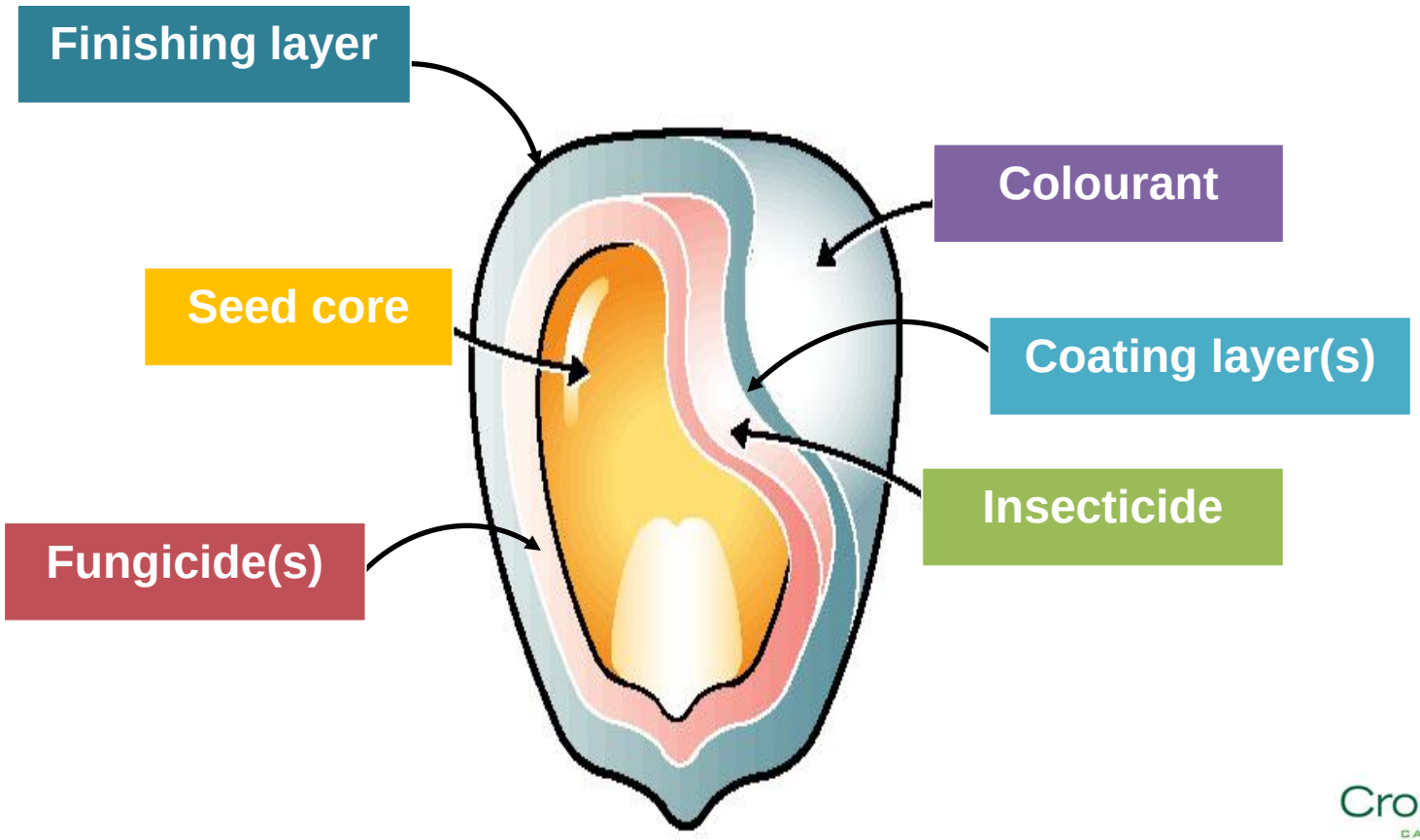
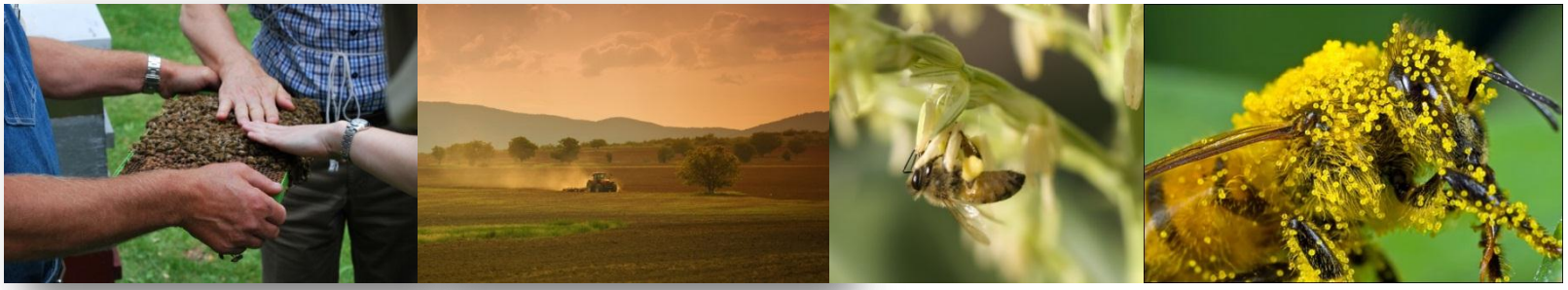
Seed Treatment Technologies

- 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



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Best Management Practices for Growers

- 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

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