MANAGE RESISTANCE*Now*

Protect your land, one field at a time

MANAGING INSECTICIDE RESISTANCE:
Evaluating the Need for Insecticide Application

Using insecticides appropriately can significantly reduce pest populations that threaten crop yield and quality. However, some insects can become resistant to insecticides. More than one-third of Canadian growers are concerned that insecticide resistance will increase in the next five years.

Growers can slow the development of resistance by taking three actions: evaluate the need for an insecticide; follow insecticide best practices; and practice Integrated Pest Management (IPM). **This factsheet focuses on how to evaluate whether an insecticide application is needed.**

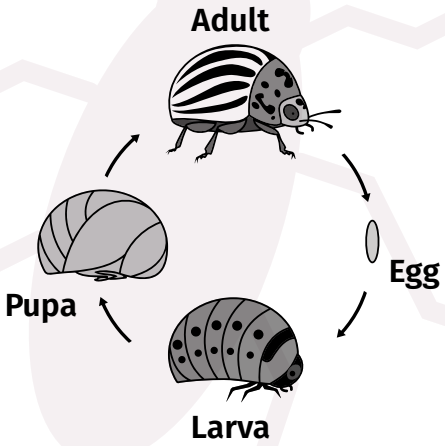
BEST MANAGEMENT PRACTICES

Before using an insecticide, you should always identify the pest correctly and monitor population levels in the crop. Only treat if action thresholds (i.e., pest numbers or damage level) are met or if forecasting models expect them to be met.

Know the insect and life cycle stage

It is critical to positively identify insect pests before spraying your fields. Misidentification may result in using the wrong insecticide and, as a result, require a follow-up application. If you are unsure, take a sample insect to a crop advisor or extension specialist for identification.

For insecticides to be most effective, you must also be aware of the life cycle and life stage of the insect. Some insects develop in plant parts or in the soil for part of their lives and are protected from insecticide spray. Knowing the pest life stage will help predict when they are out in the open and vulnerable to insecticide applications. Vulnerable life stages differ for each insect and application effectiveness can be product specific. For more information, consult fact sheets available from your provincial IPM specialist and the product label for the best time to spray.



Monitor pest presence regularly

Monitor for pests in and around your crop, including field and orchard edges, and near any damage to the crop that could have been caused by the pest. Monitoring tools and sampling methods differ among insects and crops. There are a wide variety to choose from, including insect counts, pheromone traps, sticky traps, and sweep nets. Also watch forecasts for pests that may blow in from other areas. For example, in Western Canada, check prairiepestmonitoring.blogspot.com for risk maps.

Sweep nets are a great scouting tool for flying insect pests. Empty the contents of your sweep net into a bag or bottle and evaluate what you collected. Are they pollinators, insect predators, parasitoids or insect pests?

Keep good records to inform future crop management decisions. Historical data from your farm can provide useful information on potential pest hot spots, as well as which insecticides were used and where, and how much control was achieved.

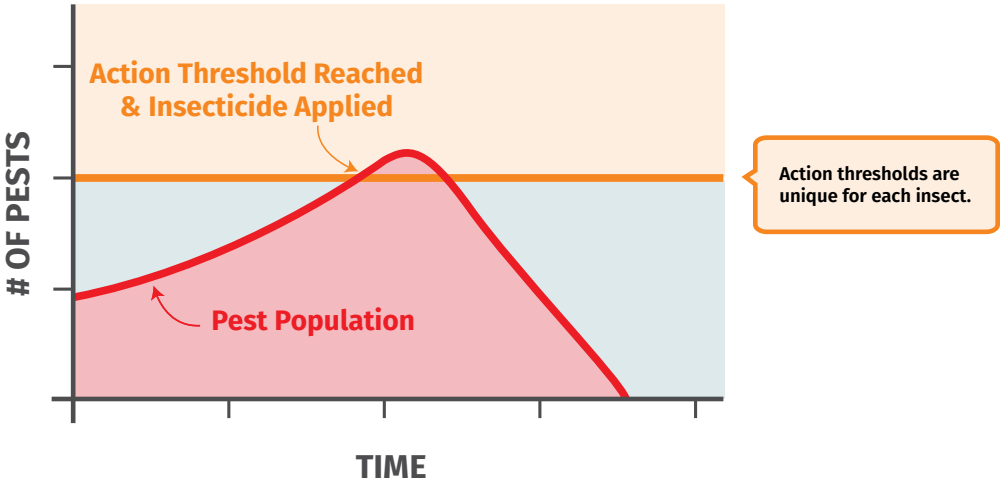
Vulnerable life stages differ for each insect. Knowing where the pest is in its life cycle will help predict when they are out in the open and vulnerable to insecticide applications.

Monitor for pests in and around your crop, including field and orchard edges, and near any damage to the crop that could have been caused by the pest.

Follow recommended action thresholds

Growers should follow recommended action thresholds or forecasting models to predict the best timing for insecticide application.

- An **action threshold** is the number of pests or damage level at which control should be initiated to avoid significant losses. Heeding action thresholds will ensure you spray only when it is most effective, reducing overall insecticide use, which reduces the likelihood of insects developing resistance.
- **Development or degree-day models** forecast the insect's vulnerable life stage, and therefore the best time to spray.



When regular scouting indicates pests are below the action threshold or not at the stage when application would be most effective, insecticide use can be avoided or delayed.

Apply insecticides as soon as the insect population reaches its specific action threshold or other recommended timing. Delayed applications may result in economic loss, and in some cases, the window for effective treatment may close.

Action thresholds differ for each insect and may not be available for all pests in all crops. Visit your provincial Ministry of Agriculture website or speak to a crop advisor or local extension specialist who may have experience dealing with the pest in your region.

Apply insecticides as soon as the insect population reaches its specific action threshold or other recommended timing. Delayed applications may result in economic loss, and in some cases, the window for effective treatment may close.

For more information on best management practices to manage resistance, please refer to additional factsheets on **ManageResistanceNow.ca** or consult with your crop advisor.

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For more information, visit **ManageResistanceNow.ca**

This information is brought to you by CropLife Canada.

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