MANAGE RESISTANCE *Now*

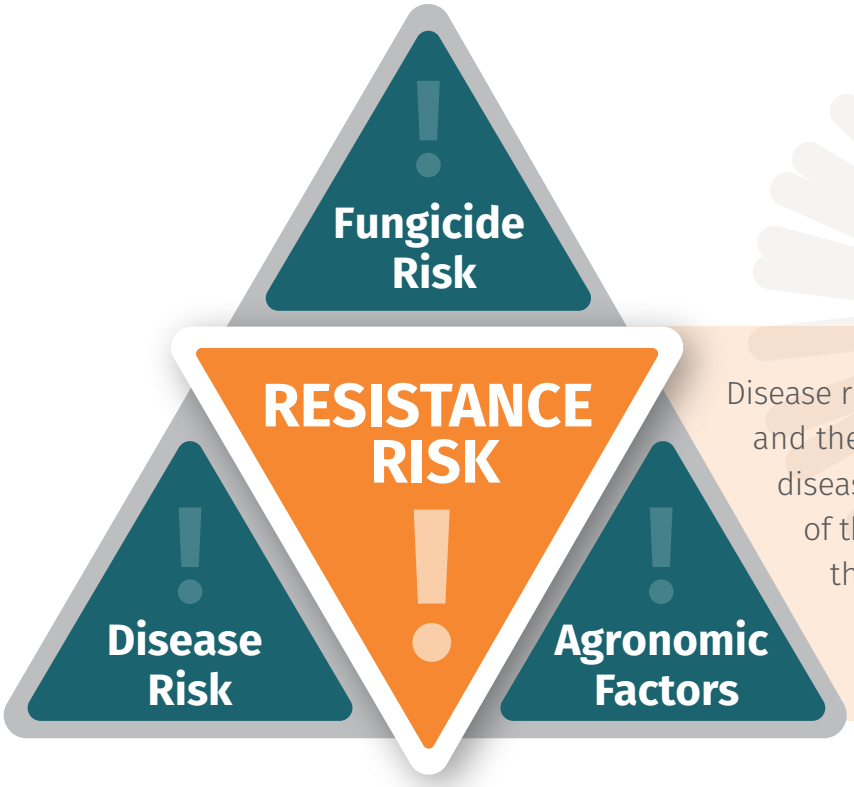
Protect your land, one field at a time

HOW TO MANAGE FUNGICIDE RESISTANCE IN YOUR CROPS

Fungicide resistance affects many crops grown across Canada, and is already a problem in several including pulses, potatoes and fruit crops.

Effectively managing fungicide resistance requires multiple strategies to promote both healthy plants and fungicide longevity. Ultimately, this will help maintain yield and crop quality.

There are three main factors that contribute to the development of fungicide resistance: agronomic factors, disease risk, and fungicide risk. Read on for practices that will help you manage risk in each area. **Start today to manage fungicide resistance on your farm.**



Disease risk is often dictated by weather conditions and the presence of the pathogen. To lower disease risk, manage the other two elements of the risk triangle. Use agronomic practices that promote healthy plants and select fungicides strategically to reduce disease and resistance risk.

BEST MANAGMENT PRACTICES (BMP)

1 USE AGRONOMIC PRACTICES THAT PROMOTE HEALTHY PLANTS TO REDUCE DISEASE RISK

The best way to reduce your risk of disease is through cropping practices that will ensure plants are healthy. Practices include:

- Using varieties or cultivars that are resistant to problematic diseases in your area.
- Knowing what farm and weather conditions contribute to disease development and being aware of disease issues in previous years.
- Rotating field crops to reduce pathogen populations.
- Reducing crop stress by optimizing planting date, planting at proper seed rate and depth, using high-quality seed, controlling other pests, and minimizing herbicide injury.
- Using sanitation practices (e.g. cleaning equipment, removing diseased plants) to reduce or eliminate sources of disease.
- Using quality seed treatments when possible. For some crops, soil- and seed-borne pathogens can be a source of disease.

2 EVALUATE THE NEED FOR DISEASE CONTROL

Know your disease risk and use fungicides as part of an integrated disease management plan. Determining if an application is warranted can be difficult. Practices include:

- Assessing your level of disease risk in your crop for that year based on agronomic factors (for example crop type and stage), disease issues in previous years, and environmental conditions in the current year. For some pathogens, such as late blight, Sclerotinia, Fusarium Head Blight and apple scab, preventative fungicide applications can be beneficial.
- Scouting fields to identify problems and assess early and often. Correctly determine the level of disease risk before deciding whether fungicides are needed. Very early fungicide applications can be beneficial to prevent populations from getting out of control. For example, forage crops should be scouted for leaf spots prior to head emergence (grasses) or the vegetative to early bloom stages (legumes).
- Reviewing cultural practices and environmental conditions and applying a fungicide if risk to yield or quality is greater than cost of application. Scout after application and use unsprayed check strips to evaluate the application's effectiveness. Keep and review records to make good management decisions year to year.

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3 SELECT FUNGICIDES STRATEGICALLY

- When selecting fungicides, be sure to first understand the resistance risk of the fungicide, the pathogen, and agronomic factors. If possible, and where high resistance risk exists (for certain pathogens), plan to mix and rotate fungicide groups active on the pathogen. Use fungicides that are labelled for the diseases that pose a threat to your crop yield.
- Fungicide groups have been classified according to their level of risk of developing resistance. Avoid using at-risk fungicides when possible. For more information please see this FRAC Code List.
- Rotate fungicide groups/FRAC Codes, either through tank mixes or alternating sprays (or blocks of spray applications).
- Applying a mixture of two or more fungicides with different modes of action against the targeted pathogen can delay the onset of resistance. For a mixture to be truly multi-mode of action, both modes of action need to be effective on the same disease species.
- If a disease is resistant to one fungicide in a group, it may impact sensitivity to other fungicides in that group. This is known as cross-resistance.

4 MAXIMIZE FUNGICIDE EFFICACY

Use the recommended rate, timing and water volume indicated on the fungicide label to ensure that diseases are effectively controlled.

- Use in-crop scouting and/or verified predictive models to determine the need and optimal timing of spray application.
- Be mindful of proper spray techniques and adequate water volumes when applying fungicides. Follow fungicide label directions for the most effective control.

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

Manage resistance now to keep the long-term value and productivity of your land and help ensure that crop protection tools remain effective for future use.

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

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