

MANAGE RESISTANCE*Now*

Protect your land, one field at a time



KEYS TO MANAGING FUNGICIDE RESISTANCE:

PART A: Promoting healthy plants and evaluating the need for disease control

Crop, pathogen type and environmental conditions all factor into disease development. Using fungicides appropriately can significantly reduce disease levels in crops. However, some diseases can become resistant to certain fungicides. Fungicide resistance affects many crops in Canada. To effectively manage disease and fungicide resistance, a series of best management practices (BMPs) are recommended. This article focuses on two practices and how to put them to use.

BEST MANAGEMENT PRACTICES (BMP)

USE AGRONOMIC PRACTICES THAT PROMOTE HEALTHY PLANTS TO REDUCE DISEASE RISK

It is essential to use cropping practices that promote healthy plants and, in turn, reduce disease risk.

Before planting, select crop cultivars or varieties that are resistant to prevalent diseases in your area. For example, if you know that net blotch is an issue on barley on your farm, plant a variety that is either moderately resistant or resistant to this disease. Diseases will reproduce more slowly or not at all on partially resistant or resistant varieties. It's important to be aware that different diseases have different levels of risk to resistance.

It's also important to know the specific conditions that contribute to disease development, such as multiple rain events, and disease issues that have occurred in your fields and neighbouring fields in previous years. If there are high-risk areas on your farm (e.g., areas with poor drainage), monitor and manage these areas separately.

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Crop rotation helps to break the disease cycle

Disease pathogens can persist on stubble, in certain weed populations, in soil between seasons and over the winter. Crop rotation, especially with crops that are not susceptible to the same diseases, can help break the disease cycle. For example, growing non-host crops for at least two years will help keep disease at bay.

Since plants become more susceptible to disease under stress, use cultural practices that reduce crop stress. This can be achieved by optimizing seeding/planting dates as well as seed rate and depth, using high-quality seed, controlling other pests (such as weeds and insects) and minimizing herbicide injury.

Where applicable, sanitation practices also reduce or eliminate sources of disease. Cleaning equipment and removal of diseased plants greatly reduces, or eliminates, inoculum available for subsequent disease development.

For some crops, seed-borne pathogens may serve as a source of disease. Use only certified seed, and test seeds to avoid significant levels of seed-borne pathogens. Use quality seed treatments when possible.

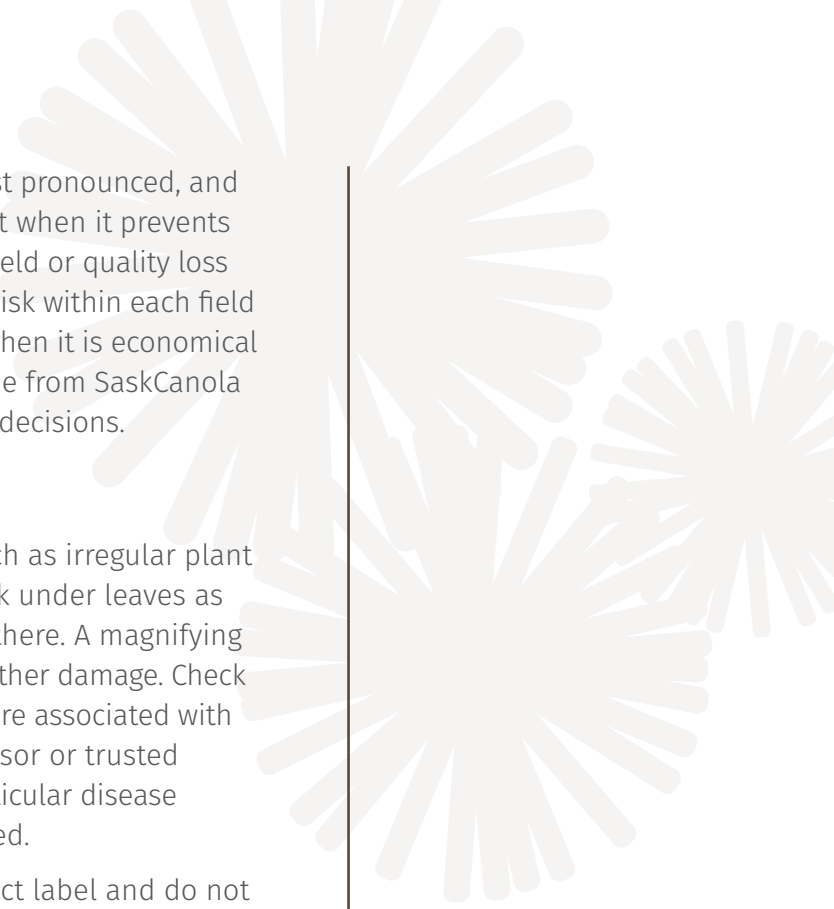
EVALUATE THE NEED FOR DISEASE CONTROL

Determining if an application is warranted can be a difficult decision to make. Be aware that different crops can handle different levels of disease risk before yield is impacted.

Assess 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. Accurate assessment of potential disease risk in each field is very important. Effective and economical management of some diseases like Sclerotinia stem rot in canola may require decisive action before symptoms develop.¹

Scout 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).

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Scout to determine pathogen presence

When scouting, look for common signs of disease, such as irregular plant colour (brown, yellow, light green) and leaf spots. Look under leaves as well as on the top surface, since diseases often start there. A magnifying glass can be used to distinguish between lesions and other damage. Check online resources to help determine if crop symptoms are associated with a particular disease. Consult with a certified crop advisor or trusted agronomist to help determine the threat level of a particular disease in your growing region, and if disease control is needed.

If you've made the decision to spray, follow the product label and do not exceed the number of applications permitted per year. Review other control methods before making the decision to spray, and ensure that symptoms are disease-related and are not due to other factors, such as nutrient deficiencies, weather, herbicide drift.

Be sure to compare disease levels before and after treatment. In addition, small unsprayed areas or check strips are useful for evaluating the efficacy of fungicide applications.

Each crop season, maintain detailed records of diseases issues, including date discovered, treatment method and mode of action/product, treatment dates and subsequent results. This important step will allow for year-over-year comparisons and to make better management decisions, now and in the future.

Through a diversity of best management practices and the prudent use of fungicides, resistance can be managed.

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**

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