

## GUIDELINES FOR CONTROLLING ANTHRACNOSE ON STRAWBERRY AND SLOWING THE SPREAD OF FUNGICIDE GROUP 11 RESISTANCE

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Anthracnose is a disease that occurs wherever strawberries are produced. The disease occurs sporadically, and its significance can vary greatly from year to year. In some years, the disease is incredibly destructive, resulting in plants with reduced productivity (Figure 1), unmarketable fruit with lesions and even plant death. In years when the disease is severe, 100% of the fruit may become unmarketable. As shown in Figure 2, fruit infections are characterized by dark, sunken lesions containing orange mucilage on their surface, making them unsaleable.



**Figure 1:** Anthracnose can cause flower blight at any time after bud emergence, although fully opened flowers can be particularly susceptible.



**Figure 2:** Sunken lesions on fruit are most damaging and identifiable as anthracnose.

The following guidelines have been developed to slow the spread of group 11 fungicide resistance within anthracnose in Nova Scotia. Group 11 fungicides should not be relied on during periods when weather conditions and crop growth stage favour the rapid spread of anthracnose. In everbearing strawberries, it is very difficult to control anthracnose through the season with the limited number of fungicides available while respecting the maximum number of applications per year and rotating fungicide classes. Therefore, growers should integrate cultural control measures listed below where it is practical.

### Cultural control measures for anthracnose:

- Good mulches decrease splashing during wet periods, thereby decreasing the spread of infection
- Removal of infected fruit from the field can dramatically decrease inoculum
- Maintain a tight picking schedule so that fruit does not develop infections pre-harvest and infected over-ripe fruit is not left in the field
- Irrigation using drip as opposed to overhead sprinklers to reduce the spread of inoculum by reducing splashing
- Refrain from working in fields when wet with pickers and machinery to curb the spread of inoculum during favourable weather conditions

- Work from newer, cleaner fields to older fields to decrease the spread and introduction of the disease into other fields. Whenever possible clean and disinfect equipment and clothing between fields
- Do not over-fertilize with nitrogen. Overly dense canopies can be slow to dry out, and the lush growth can be more susceptible to infection

Cultural controls alone will not sufficiently control anthracnose in conducive weather conditions. Table 2.1 lists products registered on strawberries with activity on anthracnose. These products should be used as part of a complete spray program through the appropriate growth stages. Growers should **never** apply group 11 fungicides sequentially.

**Table 2.1:** Products Registered on strawberries with activity on anthracnose as of this date (February 2023). Please always refer to the product label for the most up to date information.

Group	Fungicide	Control Rating	Days to Harvest	REI	Max. Application/yr	Superficial or systemic
M	Bravo	1	30	12 hrs	2 spring +1 post harvest	Superficial
M	Copper 53W	1	2	48 hrs	5	Superficial
M	Folpan	2	1	11 day hand harvest	6	Superficial
M	Meastro/Captan	2	2	6 day hand harvest	6	Superficial
3+11	Quaddris Top	3R	1	12 hrs	3	Systemic
7+11	Pristine	3R	1	24 hrs hand harvest	5	Systemic
7+11	Luna Sensation	3R	0	12 hrs	2	Systemic
11	Cabrio	3R	1	12 hrs	5	Systemic
7+11	Merivon	3R	1	hand harvest 5 days	3	Systemic
9+12	Switch	2	1	12 hrs	3	Systemic
7+12	Miravis Prime	2	1	12 hrs	2 l/ha	Systemic
19	Diplomat	2	0	when dry	2.77 l/ha	Systemic
P9	Confine	1	1	12 hrs	5	Systemic

Control ratings are adapted from the OMAFRA publication crop protection guide for berries 2021 and the Midwest Fruit Pest Management Guide 2023-2024

## Guidelines for organizing an anthracnose spray program for June bearing strawberries:

- Pre-bloom: two applications of Bravo (M) (max apps 3/year) primarily for botrytis
- Bloom: Captan (M) or Folpan (M) (max apps 6/year), Miravis Prime (7+12) (max apps 3/year)
- Harvest: rotate through Miravis Prime, Switch and Diplomat
- Pay particular attention to Annapolis, Cavendish, Kent and Mira varieties, which can be more susceptible

## Guidelines for organizing an anthracnose spray program for everbearing strawberries:

- Pre-bloom: two applications of Bravo (M) (max apps 3/year) primarily for botrytis
- Through harvest, rotate through Miravis Prime, Switch, group 11 with Captan/Maestro (mind the 6-day re-entry period for hand-harvested fruit) and Diplomat
  - » Keep in mind that Diplomat needs a tank mix partner for powdery mildew and botrytis control
- During the summer rest period, rely on Captan/Maestro
  - » Watch all everbearing varieties while Albion is less susceptible
- Use Quadris Top, Pristine, Luna Sensation, Cabrio and Merivon through harvest, but during periods that are less conducive to anthracnose infection, if harvest timings allow, these products should be mixed with group M products
- Save Switch application for periods of weather and crop stages that are particularly conducive to anthracnose infection
- **Never** apply Group 11 fungicides sequentially

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