How to Recognize and Control Raspberry Anthracnose
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Raspberry Anthracnose

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Most growers consider anthracnose the most important fungous disease of raspberry, dewberry, and blackberry in Michigan. This disease reduces yields, makes affected plants more susceptible to winter injury, and shortens the life of the planting.

How to Recognize Anthracnose

On canes

In the spring, when the new canes are about 6 inches high, small reddish-brown anthracnose spots appear. As the canes grow, these spots enlarge, become round, turn white to gray in color, and develop a slightly sunken center. These anthracnose spots sometimes are so numerous that individual spots run together and cover large portions of the cane (Fig. 1).

As the canes develop in size, the severely infected portions split open. This has a girdling effect on the cane and reduces the flow of sap and food materials to the maturing fruit. Severely infected canes also may dry out and die during the winter or break off during their fruiting year.

On leaves

The first symptoms of anthracnose generally appear on the leaves in late June as small, irreg-

Fig. 1. Raspberry lateral showing different stages of anthracnose infection.

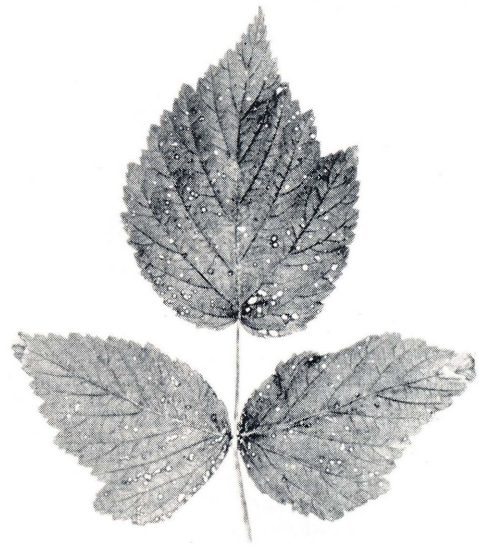

Fig. 2. Raspberry leaf showing effects of anthracnose.

ular, yellow spots. These spots soon turn red, enlarge somewhat, then become brown. Quite often the leaf tissue in these diseased spots drops out, giving the leaf a "shothole" effect (Fig. 2).

A severe anthracnose leaf infection may cause the plant to lose part of its leaves. This can delay the normal ripening period of the fruit.

On fruit parts

The most damage caused recently by anthracnose in Michigan has been on the fruiting stems and spurs. The symptoms are similar to those on the canes. Spots cause the fruiting stems to be lopsided in their growth, making them curl and crack. Fruit borne on these stems is small and may actually dry up before it ripens.

Furthermore, at picking time the entire cluster may come off when the ripe berries are picked. This cuts yields more because unripe berries in the cluster are lost.

Life Habits of Anthracnose

Understanding how anthracnose lives through the year will help you to know the measures necessary to keep your planting free of this disease. The fungus lives through the winter on the inside of the spots on the canes. In the spring, this "winter spore" or seed of the fungus dis-

charges into the air during wet periods. The "winter spore" may land on any new developing plant parts. If the growth is tender and the weather damp, infection will take place.

These new spots then serve as the home of the "summer spore." This spore causes the infections which occur throughout the summer. The "summer spore" is carried or splashed to other plant parts by rain. Late in the summer the anthracnose spots become dormant and become the home for the "winter spore."

Conditions Favoring Disease

If you examine an anthracnose-infected cane, you will see that the spots are **unevenly** distributed along the length of the cane. The reason for this is that only young, succulent plant parts are susceptible to infection. Furthermore, rain or heavy dew is necessary for spore discharge and germination.

During dry periods, the plant growth becomes "hardened-off" and resists infection. Thus, the rainy periods of the growing season are marked on the canes by the anthracnose spots. The growth produced during dry weather is relatively free of disease.

Control Measures

Cultural program

You can prevent raspberry anthracnose from gaining a foothold in your new planting by putting these A, B, C's into practice.

A. Select a planting site that has good air drainage. Air movement will quickly evaporate rain and dew from plant parts.

B. Clean cultivate in and between the rows during May and June to remove weeds that not only hold moisture but also may interfere with proper spray coverage to the raspberry plants.

C. Cut "handles" off new plants early. Propagation of raspberry is either by tip-layering or by suckers. In either case, a portion of the parent cane, termed "handle", is left on these newly rooted plants by nurserymen to make planting easier. However, these "handles" are generally infected with anthracnose; cut them

TABLE 1—Spray control program for raspberry anthracnose

Time to Apply	Material	Amount to use in:	
		1 gal. water	100 gal. water
Delayed Dormant (leaves exposed ½ to ¾ inch)	Lime-sulfur: Liquid **or** Powder	1 pint ½ pound	12½ gal. Not practical in large quantities
Pre-Blossom (when blossom buds are visible on fruiting cane or when new canes are 6 to 8 inches high)	Ferbam **or** Coro-SDD with ferric sulfate	1½ tablespoons Not advisable for small quantities	1½ lbs. 1½ pints Coro-SDD with ½lb. ferric sulfate
Post Bloom or Petal Fall	Same as Pre-Blossom		

off and destroy them before new growth appears. This will remove the primary source of anthracnose from your new planting. (See Fig. 3.)

Spray program

In plantings where anthracnose is established, spray control is quite effective IF you apply the sprays thoroughly and at the right time. The "winter spore" is most readily killed in early spring when the plants are breaking dormancy. As the plants begin growth in spring, the fungus also breaks out through the spots on the canes.

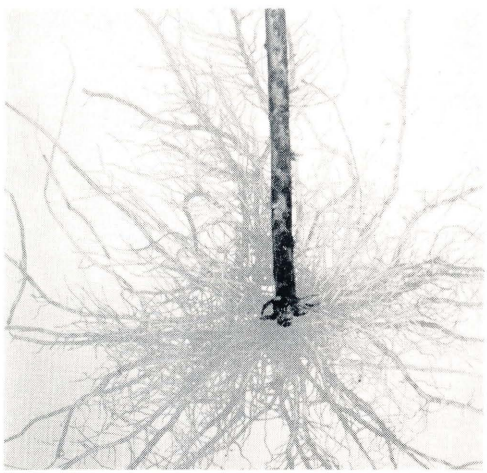

Fig. 3. Young raspberry plant with anthracnose-infected "handle". This "handle" should be removed before new growth appears.

One thorough application of liquid-lime sulfur **at this critical stage** often gives control throughout the season. See Table 1 for this and other spray recommendations.

Additional sprays of protective fungicides will prevent new infections on young canes and flower and fruit parts. Time these sprays with plant development and apply within a day or two BEFORE predicted rains.

REMEMBER, **complete spray coverage** of raspberry plants is essential for good control. Be sure all canes are wet by the spray.

After-harvest sprays to control anthracnose are useless because late infection occurs on the young terminal portions of the plants—and these are generally removed by pruning during the dormant season.

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