

MANAGING RASPBERRY CANE DISEASES

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As most growers could tell you, the stock-in-trade solution for controlling cane diseases of brambles has always been a “delayed dormant” application of lime sulfur or copper based products. While this practice is an important part of your early season arsenal for cane disease management, it is by no means a sinecure (there is more work to be done!). An integrated approach to disease management is usually the most successful and begins at planting, with cultural practices and production methods which minimize disease introduction and development. After plantings are established, frequent scouting, and continued use of cultural and chemical methods come into play to keep cane disease development in plantings to a minimum.



A Review of Cane Diseases

Anthracnose (*Elsinoe veneta*) This disease is much more severe on black and purple raspberries than on red raspberries. Severe losses may occur from defoliation, wilting of lateral shoots, death of fruiting canes, and fruit infections.

Symptoms appear in spring as small, purple spots scattered over young canes. These spots enlarge to about 1/8 inch in diameter, become sunken in the center, and turn gray with a purple border. Many spots can run together to form large sunken diseased areas on the cane.

Infected drupelets remain small, are pitted, and slow to ripen. Leaves may also be infected and develop a “shot hole” appearance.



Early spring wetting periods favor development of this disease.



Spur Blight (*Didymella applanata*) Spur blight is more of a problem on red raspberries than on black raspberries. Yield losses occur most frequently in overgrown, excessively vigorous plantings- avoid excessive nitrogen.

In mid to late summer, chocolate brown to purple blotches appear centered around individual buds on canes. Buds within the discolored areas either fail to grow or produce weak shoots the following year.

Wet conditions during early spring (April-May) favor disease development. It is important to note with this disease that infections occur in early spring but do not become visible until mid to late summer.





Cane Blight (*Leptosphaeria coniothyrium*) It is interesting to note this disease first described at Geneva Experiment Station in Geneva, New York in 1902 by F.C. Stewart, who later went on to become a very famous plant pathologist...All species of *Rubus* are susceptible to cane blight. It is most common in black and purple raspberries due to tipping practices. Red raspberries appear equally susceptible. Damage caused by this disease may include bud failure, lateral shoot wilt, and cane death.

Dark brown to purple cankers appear on main canes or branches below wilted foliage, and may extend several inches along the cane. Cane blight is more likely to involve whole stems than spur blight as it is not as confined to areas surrounding buds. Infection sites are often associated

with pruning wounds or injuries, which may not be obvious. Cane blight infections most often occur from late April to early May.



(Cane blight photos courtesy of Wayne Wilcox, NYSAES Cornell University)

Cultural control - Exclude, Inhibit or Limit, and Eradicate! Starting with disease free plants is an important part of your disease management plan. If you are propagating your own materials, be sure to select only disease free stock plants!

Always check to see if disease resistant cultivars are available and use them if feasible. That said, unfortunately resistant cultivars have not yet been identified for any of the 3 cane diseases. Cultivars less susceptible to spur blight include 'Brandywine', 'Killarney', 'Latham', and 'Newburgh'. Particularly susceptible cultivars are 'Royalty', 'Titan', 'Canby', 'Skeena', 'Willamette', 'Reveille', and 'Sentry'.

Select sites, soils and planting designs carefully to maximize air and water drainage. Promote good air circulation by keeping fruiting rows narrow, spacing canes adequately, and controlling weeds. Maintain plant health by properly managing soil nutrition and irrigation, and minimizing plant wounding. In terms of cane blight management, time pruning and tipping operations to allow 4 or 5 days of healing before a rain. A fungicide application is advised after pruning in heavily infected plantings. Avoiding or minimizing the use of overhead irrigation will help limit cane disease development and spread, especially anthracnose.

Managing cane diseases in your planting continues after establishment by reducing/limiting any overwintering inoculum. This means pruning out old diseased canes before new canes emerge in the spring. Remove and destroy debris from pruning operations immediately.

Chemical control - A dormant application of lime sulfur or copper is critical where cane diseases are problematic. Liquid lime sulfur (Miller's Lime Sulfur Solution or Sulforix) should be applied when new leaves are exposed 1/4 to 3/4 inches; if you are late in your application and don't spray until a few leaves have unfolded, cut the rate to 10 gallons per acre. Thorough coverage of the canes is essential for control so be sure this application is done on a calm day in a sufficient amount of water to soak the canes completely. A note of caution- this spray may be phytotoxic if applied after 1/2 inch green, particularly on a warm day. Alternatively, several copper products are also labeled for use as a delayed dormant spray for raspberry cane diseases. These include various formulations of both copper sulfate and copper hydroxide. Consult labels for application rates and timings for specific products. Note that this delayed dormant spray is not necessary on fall bearing red raspberries if the previous year's canes are mowed and removed from the planting or thoroughly shredded.

A captan/fenhexamid mixture (Captevate 68WDG) is also labeled for control of anthracnose and spur blight on raspberries, starting at 8-10" shoot growth. Only 2 sequential applications of this product may be used before switching to a different group of fungicide chemistry.

Another group of fungicides labeled for control of cane diseases in NY state are the strobilurins, which include azoxystrobin (Abound), pyraclostrobin (Cabrio EG and a pyraclostrobin/boscalid mixture (Pristine WG). These products should be used at disease onset. Check product labels for specific information on rates and timings of applications. Pay careful attention to label restrictions for these products. Like Captevate, no more than 2 sequential applications of these products may be made before switching to an alternate chemistry.

A word to the wise on fungicide resistance development; because brambles are a relatively small market share for fungicide companies, fewer numbers of products are available for use on these crops as compared to other major fruit crops, such as apples or stone fruit. To maximize the efficacy and minimize fungicide resistance development for the limited products available, it is wise to alternate chemistries. See product label instructions for more specific information on managing fungicide resistance.

As always, carefully follow all label instructions when applying control products. (Note: Both the crop **and** pest must appear on the NY label!) Always apply products at the label recommended rates. Use sufficient volume and pressure to get thorough coverage of plant material. Maintain and calibrate application equipment on a regular basis. Store any remaining product according to the manufacturer instructions.