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UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Plant Pathology Fact Sheet

Orange Rust of Brambles

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What is it?

Orange rust is a disease caused by one of two very similar fungi, *Gymnoconia nitens* in the Southeast, and *Arthuriomyces peckianus* in the Midwest. Both fungi, causing the same symptoms, may be active in Kentucky.

What does it infect?

In Kentucky, orange rust is severe on some wild and cultivated thorny blackberries. It infects black and purple raspberries and thornless blackberries somewhat, but is not known to infect red raspberries.

Disease symptoms

In early spring, groups of the newly forming shoots (primocanes) appear weak and spindly and are easily distinguished from healthy shoots. Leaves on these shoots turn pale green to yellowish and are narrow and twisted (Figure 1). Leaf edges may be bronze-colored. The undersides of these leaves bear tiny orange pustules that are visible with a hand lens. In a few weeks, the undersides of infected, fully expanded leaves are covered with highly visible, waxy, bright orange, flat pustules full of spores (Figure 2). These pustules are first visible in mid-May, but by mid-summer, the leaves

Figure 1. Blackberry shoots infected with Orange Rust (right) compared to healthy shoots (Left)

dry up and fall off. Other than leaf loss, newly-infected plants may appear normal even though they are systemically infected. Orange rust does not normally kill plants, but after the first year it stunts and weakens them so much that they produce little or no fruit.

Disease spread

In spring, when the bright orange spores are being produced, they are released from the pustules and scattered by wind to nearby uninfected plants. During cool, moist weather, the spores germinate and penetrate the leaf surfaces, and the fungus begins to colonize the leaf. In late summer

Figure 2. Black Raspberry leaves encrusted with rust pustules filled with orange spores

and fall, a second kind of spore is produced. These spores are also spread by air currents and can cause additional infections of shoot tips and buds on rooting cane tips during cool, moist periods. Leaf, shoot tip, and bud infections can lead eventually to permanent infection of the entire plant.

Unlike other fungal diseases of brambles, the orange rust fungus grows systemically throughout the roots, crown, and shoots of an infected plant. Since the infection is perennial inside the below-ground plant parts, once a plant is infected with orange rust it is infected for life. The disease cycle resumes in spring with the emergence of new, infected shoots.

Disease management

Orange rust disease is best managed by integrating eradication, sanitation, and chemical control strategies. Fungicides do not adequately control orange rust by themselves. The following practices should benefit blackberry growers facing orange rust disease.

- Dig out infected plants (including roots), and burn them. This is best done in early spring when infected plants are easy to recognize and before the tiny pustules mature into the highly visible pustules that release spores.

- Remove and destroy all wild blackberries or black raspberries from fence rows or other areas in the vicinity of the berry planting. Wild brambles often harbor this disease.

- If new plantings are made, make sure rooted shoot tips and nursery stock are not derived from infected mother plants.

- Apply a fungicide; contact a local Extension office or refer to one of the following management guides for specific fungicide recommendations. Applications should be made at 10 to 14 day intervals from late April through June and again from early September through mid-October. To prevent development of fungicide resistance, limit the number of consecutive applications of the same fungicide or alternate between fungicides with different modes of action.

Additional resources

- Commercial Fruit Pest Management Guide (ID-232)
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/ID-232.pdf

- Disease and Insect Control Program **for** Homegrown Fruit in Kentucky, including Organic Alternatives (ID-21)
http://www.ca.uky.edu/agc/pubs/id/id21/id21.pdf

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