Distribution of Blackberry Orange Rust and Rosette Diseases in Kentucky

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Introduction

Blackberries in Kentucky are subject to several serious diseases. Some of these diseases are present in native blackberries growing in the wild and represent a threat to domestic blackberries growing nearby. In addition, some diseases may be endemic to certain regions of Kentucky due to unique weather or topography.

Orange rust. This disease affects both blackberry and black raspberry and can often be seen in native or naturalized wild plantings. In Kentucky, orange rust is caused by the fungus *Gymnoconia nitens* but the fungus *Arthuriomyces peckianus*, causing identical symptoms, may also be involved. Orange rust is the most important of several rusts of blackberry. Infected plants can be easily identified shortly after growth appears in spring when newly formed shoots appear weak and spindly. The new expanding leaves on such canes are stunted or misshapen and pale green to yellowish. The leaf edges may have a bronze color. The lower leaf surfaces of these infected shoots bear tiny orange pustules, visible with a hand lens. In a few weeks, the lower surface of infected fully expanded leaves are covered with highly visible waxy, bright orange blister-like pustules. Spores from these pustules, when blown to nearby healthy plants, will initiate new infections. Diseased blackberries become infected systemically, even below ground, and will bear little or no fruit.

Rosette. Also called "double blossom," rosette disease, caused by the fungus *Cercosporella rubi*, mainly affects blackberries, and only rarely raspberries or black raspberries. First symptoms are flowers with distorted petals, giving the appearance of a double flower (hence double blossom). The mycelium of the fungus grows over the flower pistils and stamens, producing a whitish spore mass. Unopened flowers are usually elongated and larger, coarser, and redder than normal. Sepals on infected flowers enlarge and occasionally become leaf-like. On some varieties, shoots may appear abnormal with leafy proliferation (rosette) or witches'-broom. Berries do not develop from infected branches and other parts of the cane may produce only small, poor quality fruit.

For both of these diseases, blackberries can become infected from fungal spores produced on wild blackberries nearby. Therefore, it is important to remove and destroy infected blackberry plants as they occur in the field and also wild blackberries and other brambles near the planting.

The objective of this study was to begin a survey of blackberry plantings and native blackberry patches in Kentucky for presence of orange rust and rosette diseases.

Materials and Methods

Selected and representative commercial blackberry plantings and wild brambles statewide were surveyed as opportunities occurred on field visits by Extension personnel during the 2003-2005 growing season. Blackberries were examined for symptoms and signs of orange rust disease and for symptoms of rosette disease. Samples of plants showing symptoms of either disease were collected and disease identifications were verified microscopically as needed in the University of Kentucky Plant Pathology

Department Plant Disease Diagnostic Laboratory.

Archived U.K. Plant Disease Diagnostic Laboratory databases were searched for county records of blackberry orange rust and rosette diseases. Data from 1983-1992 and 1993-2002 were searched and recorded.

Results and Discussion

During the past 20 years, blackberry orange rust has been observed in 32 Kentucky counties (Table 1). The disease appears to be distributed throughout the state wherever blackberries are grown. Western, central, and eastern regions of Kentucky are equally represented in the survey. The survey this year doubled the number of counties reporting orange rust compared to grower and county agent sampling during the previous 20 years. This suggests that the true extent of orange rust in Kentucky will only be found with a dedicated survey for the disease or that orange rust disease has not been noticed by or caused much concern for growers in the past.

Blackberry rosette is found in 18 counties and it also appears to be distributed within each region of the state (Table 2). However, it appears that 11-20 years ago the disease was more commonly noticed or caused concern in Western Kentucky, 1-10 years ago in Central Kentucky, and now is being more commonly noticed in Eastern Kentucky. Again, the survey in one year added significantly to the total number of counties recording rosette disease.

Table 1. Kentucky counties with records of blackberry orange rust disease.

1983-1992 laboratory data	1993-2002 laboratory data	2003 survey (*previously reported)	
Bourbon	Daviess	Adair	Scott
Crittenden	Fayette	Barren	Simpson
Logan	Graves	Bell	Woodford
Madison	Jackson	Bracken	
Morgan	Marion	Bourbon*	
Todd	Muhlenberg	Breathitt	
Warren	Shelby	Carter	
	Woodford	Daviess*	
		Fayette*	
		Fleming	
		Garrard	
		Jackson*	
		LaRue	
		Mason	
		Nicholas	
		Owen	
		Powell	
		Robertson	
		Rockcastle	