

Late Leaf Rust on Heritage Red Raspberry in Ohio

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ABSTRACT

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Late leaf rust caused by *Pucciniastrum americanum* was observed for the first time in Ohio on Heritage red raspberry in September 1980. Rust pustules containing urediospores and teliospores were observed on the adaxial surface of older, lower leaves and on fruit. Leaf symptoms were very mild, and no defoliation was observed. Fruits were infected during all stages of development. About 30% of the fruits from a 3.2-ha (8-A) field were infected and unfit for sale.

Late leaf rust of raspberry is caused by the heteroecious rust fungus *Pucciniastrum americanum* (Farl.) Arth. The pathogen infects red raspberry (*Rubus idaeus* L.) and purple raspberry (*R. neglectus*) but not black raspberry (*R. occidentalis*) or blackberry (subgenus *Eubatus*) (2). Serious damage to susceptible red raspberry cultivars such as Latham and Viking has been reported (4), but because the disease usually appears after harvest, it is considered minor. Anderson (1) states that "the relative unimportance of this disease so far as production is concerned, hardly warrants special control measures."

P. americanum can infect fruit during all stages of development (2). Infected drupelets are converted into yellowish orange uredial pustules, making fruit unfit for sale. With the introduction and

increased acreage of fall-bearing red raspberries, this disease could become more important.

The rust was observed on 8 September 1980 in a 3.2-ha (8-A) field of Heritage red raspberries near Troy, OH. Samples from infected leaves and fruit were sent to J. F. Hennen (Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47907), who verified identification of the fungus. Rust first appeared on raspberry plants along the western edge of the field and spread rapidly eastward across the field with the prevailing wind. Within 10 days, the rust was present in most of the field.

Symptoms on leaves were very mild and difficult to detect. Rust pustules containing urediospores were observed on the adaxial surface of older, lower leaves. A few teliospores were observed within several pustules. No defoliation resulted from rust infection, and we assumed that leaf infection caused relatively little or no damage. Fruit infection, however, resulted in severe loss. Fruits were infected during all stages of development. About 30% of all fruits produced from 8 September to 10 October 1981 were infected and unfit for sale.

White spruce (*Picea glauca*) is reported to be the alternate host of the fungus (5).

No spruce were observed within a 1.6-km radius of the infected raspberry field. There are no records of any rust fungus on *Picea* spp. in Ohio. It has been suggested that the fungus overwinters on raspberry canes (6).

Heritage red raspberry is becoming an increasingly popular cultivar in Ohio because of its high yield, good fruit quality, and lack of pruning requirements. In 1976, 23% of all raspberries planted in the state were Heritage (3); since then, 70% of all new plantings (about 81 ha) have been of this cultivar. Heritage blooms in early August, and fruit is harvested from late August through October, or through the first hard frost. Because plants bear late in the season, late leaf rust occurs at the same time as highly susceptible fruit, producing a potentially damaging situation.

Because no fungicides are currently registered for control of *P. americanum* on brambles, this disease could be a serious threat to the production of fall-bearing red raspberries in Ohio.

LITERATURE CITED

1. Anderson, H. W. 1956. *Diseases of Fruit Crops*. McGraw-Hill Book Co., New York. 501 pp.
2. Arthur, J. C. 1929. *Plant Rusts*. F. H. Gilson Co., Boston. 446 pp.
3. Carter, C., Carter, H., Ackers, K., Evans, M., Stang, E., and Williams, R. 1976. Ohio's strawberry, raspberry, and blackberry industry: Potentials and problems of an expanding industry. *Ohio Agric. Res. Dev. Cent. Res. Circ.* 242. 13 pp.
4. Conner, I. L. 1976. An annotated index of plant diseases in Canada. *Can. Dep. Agric. Publ.* 1215. 381 pp.
5. Converse, R. H. 1966. *Diseases of raspberries and trailing blackberries*. U.S. Dep. Agric. *Agric. Handb.* No. 310. 111 pp.
6. Dodge, B. O. 1923. Morphology and host relations of *Pucciniastrum americanum*. *J. Agric. Res.* 24:885-894.

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