

FUNGICIDE CONTROL STUDIES ON TREES¹

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Leaf Spot on Black Oak

During the fall of 1976, we tagged 33 trees of black oak (*Quercus velutina*) that exhibited leaf spot (*Actinopelte dryina*), a disease for which there is difference in susceptibility from tree-to-tree, and from one season to another.

In the spring of 1977 we used the KWH sprayer to apply sprays to a height of about 18-20 feet on one half of each tree while the other half remained as unsprayed check. Sprays were applied 5 times at 10-day intervals starting as buds broke dormancy on April 29. Chemicals used were Daconil 2787-6F at 1½, 3, and 6 pints and Manzate 200 at 1½, 3, and 6 pounds per 100 gallons of water. The high rates were used in an attempt to satisfy EPA regulations for labeling chemicals for disease control. Both Daconil and Manzate at the standard rate of 1½ pints and pounds, respectively, and Kocide (copper hydroxide) were also applied just once, as the first spray when dormancy was breaking.

Unfortunately, there was so little *Actinopelte* in this area in 1977 that no significant observations could be recorded. The experiment is being conducted again in 1978.

Leaf Blight on English Hawthorn

Spray experiments were conducted on English

hawthorn (*Crataegus oxycantha*) for control of leaf blight (*Fabrea thumenii*) which causes complete defoliation of unsprayed trees by early August. Four applications of the test materials were made at 10-day intervals starting at budbreak on April 20.

In the table below it will be noted that Manzate 200 (a mancozeb material) was used at only ¾ pound per 100 gallons rather than at the standard 1½ lbs/100 gallons. We know from past experience with mancozeb at the 1½ lb. rate excellent control will be obtained. This lower rate compares with the amount of mancozeb that is in the experimental material MF 586 which is a mixture of mancozeb and Fungo (a methyl thiophanate material).

The disease was first observed in early May and unsprayed portions were completely defoliated by early May at which time final observations were made on leaf spots and defoliation.

Leaf Blotch on Horsechestnut

During the spring of 1976 spray experiments were conducted on horsechestnut (*Aesculus hippocastanum*) using five chemicals applied four times at 2-week intervals for control of leaf blotch disease (*Guignardia aesculi*).

During the spring of 1977, two of the better

Treatment	Rate (oz)/100 gal	Disease rating*	
		Leaf spots	Defoliation
MF 586	16.0	1.5	1.5
Manzate 200	12.0	2.0	2.0
Fungo 50	5.0	6.0	3.0
Daconil 6F	24.0	5.0	2.0
EL 222	5.2	9.0	8.5
Check		—	10.0

*Disease rating on a 1 to 10 scale: 1=no leaf spots, 10=leaves covered.

Defoliation rating on 1 to 10 scale: 1=no defoliation, 10=limbs completely defoliated.

The data are self explanatory, however, it is particularly interesting to note that the Manzate 200 at one-half standard rate gave excellent control of hawthorn leaf blight.

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materials were selected for a "timing experiment" for the control of the leaf blotch disease. Applications were made once, twice or three times at two-week intervals starting just after budbreak on April 22. Each chemical and timing interval was replicated three times.

fortunately, the data indicated no significant differences among treatments when analyzed statistically which we feel is the result of the variation in the amount of disease normally observed on these trees.

Treatment	Rate/100 gal	Disease Rating*		
		number of sprays		
		1	2	3
Daconil 2787 6F	1.5 pt.	5.0	4.3	4.3
Daconil 2787 6F	3.0 pt.	5.3	3.5	2.5
Manzate 200	1.5 lb.	1.3	1.5	1.3
Check		9.0	9.0	9.0

*Disease rating: 1=no spots, 10=8-10 spots/leaf

Leaf blotch began to appear in June and the disease became more severe as the summer progressed. Final disease counts were made in mid-September at which time the unsprayed sections were beginning to defoliate.

Based upon these results of a single year trial, it appears that a single application of Manzate 200, at 1½ lb/100 gallon can give excellent control of leaf blotch on horsechestnut.

Tip Blight on Austrian Pine

During the spring of 1976 spray experiments were conducted on Austrian pine (*Pinus nigra*) for control of tip blight (*Diplodia pini*) using a Hudson hand sprayer on selected branches of the trees.

During the spring of 1977, two of the better materials were used, utilizing the KWH sprayer on eight half-tree selections for each chemical, leaving the other half of 24 trees as unsprayed checks. Sprays were applied 3 times at 10-day intervals starting just as needles were about to emerge.

Leaf Blister Control on Red Oak

Sprays were applied to selected branches of red oak (*Quercus borealis*) for control of the leaf blister disease (*Taphrina caerulescens*). Four applications of the chemicals were made at 10-day intervals starting on April 20.

Disease readings were made in mid-September and both the Manzate 200 and Daconil 6F gave excellent control of the leaf blister disease.

Treatment	Rate (oz)/ 100 gal	Disease ratings*
Manzate 200	24	1.5
Daconil 6F	24	1.5
Check		6.0

*Disease ratings on a 1 to 10 scale: 1=no spotting, 10=leaves covered.

Treatment	Rate/100 gal.	Check	Disease Rating*	
			Treated	Difference
Benlate 50W	1 lb.	10.6	3.6	7.0
Daconil 2787 6F	3.0 pt.	10.3	5.5	4.4
Daconil 2787 6F	1.5 pt.	5.4	2.4	3.2

*Disease rating based on the average number of tip blighted limbs per treatment. The difference is between the treated areas and the corresponding non-treated areas as to the number of tip blighted limbs.

The number of blighted tips were recorded in mid-August and are shown in the table below. Un-

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