HAZELNUT (*Corylus avellana* 'Jefferson')
Bacterial Blight; *Xanthomonas arboricola* pv. *corylina*

J. W. Pscheidt[1], V. Stockwell[2], S. Heckert[1]
D. Kroese[1] and N. DiManno[1]
[1]Dept. of Botany and Plant Pathology
Oregon State University
Corvallis, OR 97331
[2] USDA-ARS-HCRL
Corvallis, OR 97331

Evaluation of Kocide for control of bacterial blight on hazelnut, 2021 - 2024.

During mid-summer of 2020, a stool bed of Jefferson hazelnut trees was managed for tie-off layering to produce new trees. Sucker shoots were thinned out and hog rings were placed at the base of shoots from 22 to 23 June 2020. Roofing tar paper (9 inches wide) was placed around a set of sucker shoots in a circle 1 to 2 feet wide. Tarpaper circles were filled with sawdust and watered frequently during the growing season. Trees were not inoculated nor treated with copper-based bactericides in the fall of 2020. Tarpaper and sawdust was removed 5 Jan 2021, new trees were harvested above hog rings and then heeled back into sawdust. New trees were quite small and of small caliper but planted out anyway from 10 to 11 Feb 2021 in area 16 feet wide by 152 feet long. Sawdust was placed around trees 11 May 2021 to encourage survival into 2022. There was no supplemental irrigation during the summer of 2022 or 2023.

Trees that survived the excessively hot summer of 2021 were either left non-treated or treated with Kocide 3000 at 10.5 lb/100 gal water plus Stylet Oil at 1 pt/100 gal water. Each treatment consisted of 12 single tree replicates. The bactericide was only applied on 15 Oct 2021 to trees (at 60-75% leaf fall) using a Stihl SG20-Pump-Style backpack sprayer using approximately 0.5 gal of a spray suspension per 12 trees. Trees were then inoculated only on 8 Nov 2021 (85-95% leaf fall) with two isolates of *Xanthomonas arboricola* pv. *corylina*. The cell suspension was applied to treatment trees until bark was visibly damp or wet on a morning with temperatures in the high 30s to low 40s and with 0.08 inches of rain 24 hours after application. Mad Dog (3%) tank mixed with Forfeit (1.7 oz/gal) was applied in a small circle (2 ft. radius) around the base of trees on 8 Jun 2022 for general weed management. Sawdust was then applied over the same area to help retain soil moisture since there was no supplemental irrigation during the 2022, 2023 or 2024 summer. Trees were monitored for symptoms of bacterial blight during the springs of 2022, 2023 and 2024. The number of dead buds/shoots per tree was determined on 12 May 2022, 27 Jun 2023 and 17 Jun 2024.

There was 4.74 inches of rain from bactericide application to inoculation in the fall of 2021. Rainfall during the dormant season 2021-22 was 5.4 inches below normal but spring weather conditions were very wet with the second wettest spring on record. Rainfall during the dormant season 2022-23 was 3.18 inches below normal while the 2023-24 season was 4.1 inches above normal. Symptoms of bacterial blight started to develop on 9 May 2022, 15 May 2023 and again on 15 May 2024 as random dieback of buds and a few shoots. Although the lowest amount of bacterial blight was found on Kocide treated trees, it was not significantly different from that found on non-treated trees in any of the years. Canopy health ratings in 2024 also indicated no significant difference between treatments. None of these small trees died over the summer of 2022 but some trees died in 2023 due to Pacific flatheaded borer (*Chrysobothris mali*) damage and as a result those trees were not used in the final analysis.

Treatment and Rate/100 gal water	Dead shoots per tree [*]		
	2022	2023	2024
Non-treated but Inoculated…….....	2.0	9.5	6.9
Kocide 3000 at 10.5 lb plus Stylet Oil at 1 pt then Inoculated ……..	0.5	4.1	4.0

[*] Analysis of variance is based on log (x+1) transformation. Means followed by the same letter do not differ significantly based on Fisher's protected LSD (*P=0.05*). Means without letters are not significantly different.