

Comparison of fungicides for management of rust on serviceberry, 2017.

Fungicide treatments were arranged in a randomized complete block design in a block of serviceberry trees planted in 2004 on 10 x 15 ft spacing. Each treatment consisted of 6 single tree replicates. Fungicides were applied using a hydraulic handgun sprayer at 110 psi such that 2 to 4.5 gallons of a spray suspension was applied per 6 trees (96 to 218 gal/A) depending on time of year. Treatments were applied on 10 Mar (floral bud break), 19 Mar (flowers still pressed together), 31 Mar (individual flower buds separating), 14 Apr (full bloom), 28 Apr (past petal fall), and 12 May (cover). This particular year trees were not pruned and there were no herbicides, insecticides, or fertilizer used on this block. Trees were not irrigated through the duration of the trial. The incidence of rust on fruit was evaluated on 23 May by examining all fruit on 10-15 terminal shoots (average 153 fruit with a range of 147 to 158), arbitrarily selected from each tree. A whole tree canopy rating was conducted on 23 May where 0 = full, healthy canopy, 1 = canopy with less than 1% rust, 2 = rust easily seen on many leaves and rust on 1 to 25% of the canopy, 3 = severe rust, shoot deformation and slight defoliation with rust on 25 to 50% of the canopy, 4 = > 50% foliage with rust, and 5 = dead. The incidence of rust on leaves and shoots was evaluated on 13 Jun by examining all leaves on 15 terminal shoots (average 135 leaves with a range of 86 to 171), arbitrarily selected from each tree.

Spring weather conditions for 2017 were considered cool and wet but with more normal plant growth relative to time of year. Rust was observed on a nearby planting of Incense Cedars (*Calocedrus decurrens*). Telia (orange jelly-like masses on cedar scales) were just beginning to expand on 7 Mar with one actively sporulating telia, many had swollen and dried by 20 Mar, but trees were covered with active telia on 27 Mar and for several more weeks but in declining amounts. Rust was first observed on widely scattered leaves, petals and sepals of serviceberry trees on 9 Apr. Highest amount of rust on fruit was observed on non-treated trees. Lowest amount of rust on fruit was found on trees treated with Mural. Non-treated trees had the highest whole canopy rating although the canopy rating on trees treated with Cabrio or Daconil was not significantly different. Lowest whole canopy rating occurred on trees treated with Mura I, however, the rating of trees treated with Orkestra was not significantly different. Non-treated trees had significantly fewer leaves than fungicide treated trees. Highest amount of rust on leaves was observed on non-treated trees, however, the amount found on trees treated with Daconil was not significantly different. Lowest amount of rust on leaves was found on trees treated with Mural. Highest number of shoots with rust was observed on non-treated trees. Lowest number of shoots with rust was observed on trees treated with Mural, however, the number found on trees treated with the higher rate of Orkestra was not significantly different. No phytotoxicity was observed in trees treated with any of the various materials used.

Treatment & Rate/100 gal water	Fruit with Rust ^x (%)	Whole Canopy Rating ^{yz}	Leaves with Rust ^x (%)	# of Shoots with Rust ^z
Non-treated	91.7 a	3.2 a	98.0 a	9.2 a
Orkestra Intrinsic at 4 fl oz...	52.3 b	1.2 bcd	62.7 c	1.7 bc
Orkestra Intrinsic at 11 fl oz...	26.8 c	1.0 cd	39.3 d	0.2 cd
Cabrio 20 EG at 14.3 oz.....	53.0 b	1.7 abc	74.5 bc	2.7 b
Daconil Weather Stik at 1.4 pt..	52.5 b	2.3 ab	85.0 ab	3.2 b
Mural WG at 7 oz.....	0.5 d	0.8 d	10.0 e	0.0 d

^x Means followed by same letter do not differ significantly based on Fisher's protected LSD ($P=0.05$).

^y A whole tree canopy rating was conducted on 23 May where 0 = full, healthy canopy, 1 = canopy with less than 1% rust, 2 = rust on 1 to 25% of the canopy, 3 = rust on 25 to 50% of the canopy, 4 = > 50% foliage with rust, and 5 = dead.

^z 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 ($P=0.05$).