

Evaluation of fungicides to control anthracnose fruit rot in annual strawberry, 2003-04.

Bare root runner plants from Canada were transplanted into methyl bromide:chloropicrin (98:2) fumigated soil in plastic-mulched raised beds on 13 Oct 03. The beds were 28 in wide on 4-ft centers. Each bed contained two staggered rows of plants spaced 15 in apart within rows and 12 in apart between rows. Treatments were arranged in a randomized complete block design with four blocks, each in a separate bed. Experimental beds were flanked by single untreated beds also planted to ‘Strawberry Festival’ to facilitate the natural increase and spread of inoculum. Individual plots were 8 ft long and contained 12 plants. Transplants were irrigated by overhead sprinklers for 12 days to aid establishment, then irrigated and fertilized through drip tape. Fungicides were applied weekly up to 20 times from 5 Nov to 17 Mar using a CO₂ backpack sprayer calibrated to deliver 100 gal/ac at 40 psi. During the early season (5 Nov to 28 Jan), captan alone was applied in most treatments as part of a minimal maintenance program. During the late season (4 Feb to 17 Mar), a period when anthracnose epidemics typically occur, test products were applied by themselves, in tank mixes, or in alternation with other products. For comparison, an untreated check and treatments with captan alone were included. Fruit were harvested twice weekly from 12 Dec through 27 Mar (31 harvests) and evaluated for disease. The incidence of anthracnose fruit rot, Botrytis fruit rot (i.e., number of diseased fruit divided by total number of marketable and unmarketable fruit, expressed in percent), and total marketable yield (lbs/A) are reported. Disease incidence data were transformed (arc sine square root) prior to analysis by two-way ANOVA. Treatment means were compared using a Fisher’s protected LSD test ($P \leq 0.05$). The reported means are untransformed.

The 2003-04 strawberry season was ideal for strawberry production with relatively mild weather and low rainfall. By 1 Mar, few fruit had developed anthracnose fruit rot, although Botrytis infections were common. An aggressive isolate of *C. acutatum* (5×10^4 spores/ml) was applied to all plots on 6 Mar using the equipment described above, and overhead sprinklers were activated several times throughout March. These efforts produced an epidemic of anthracnose fruit rot from 16 Mar through the last harvest on 27 Mar. All treatments with late season applications significantly reduced anthracnose fruit rot compared to an untreated check, but none of the test products significantly improved disease control over a captan standard. In general, treatments that effectively suppressed Botrytis in addition to anthracnose (e.g., those incorporating Captevate, Pristine, or Switch) provided the highest yields of marketable fruit.

Treatment, rate/acre, and spray program ^z	Yield (lb/A)	BFR ^y (%)	AFR ^y (%)
Captan 80WDG, 1.88 lb early, Captan 80WDG, 3.75 lb, late.....	25,900 d ^w	18.1 de	1.0 a
Captan 80WDG, 1.88 lb early, Cabrio 20EG (14 oz) alt. Captan 80WDG, 3.75 lb late..	28,900 a-d	16.2 cd	1.0 ab
Captan 80WDG, 1.88 lb early, Pristine 38EG, 23 oz alt. Captan 80WDG, 3.75 lb late	30,200 ab	11.7 ab	1.4 ab
Captan 80WDG, 1.88 lb early, Tanos 50WG, 10 oz + Captan 80WDG (1.88 lb) late ^x	27,700 b-d	17.5 d	1.6 a-c
Captan 80WDG, 3.75 lb late only	26,800 cd	12.5 bc	2.1 a-c
Captan 80WDG, 1.88 lb early, Abound 2.08F (15.4 fl oz) alt. Switch 62.5WG, 14 oz. late	29,600 a-c	9.2 ab	2.4 b-d
Captan 80WDG, 1.88 lb early, Captevate 68WDG, 5.25 lb late.....	31,000 a	8.0 a	3.0 cd
Captan 80WDG, 1.88 lb whole season.....	26,400 d	15.8 cd	3.8 d
Untreated check.....	17,300 f	22.6 ef	13.2 e
Captan 80WDG, 1.88 lb early only	20,400 e	27.0 f	14.1 e

^zFungicides were applied weekly from 5 Nov to 28 Jan (early season) and from 4 Feb to 17 Mar (late season).

^yBFR = Botrytis Fruit Rot incidence; AFR = Anthracnose Fruit Rot incidence.

^xThe “+” symbol indicates products used in combination (a tank mix).

^wTreatment means within a column followed by the same letter are not significantly different by Fisher’s protected LSD ($P = 0.05$).