

STRAWBERRY (*Fragaria x ananassa* 'Strawberry Festival')
 Anthracnose fruit rot; *Colletotrichum acutatum*
 Botrytis fruit rot; *Botrytis cinerea*

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Evaluation of fungicides to control multiple diseases in annual strawberry, 2007-08.

On 17 Oct 07, bare-root runner plants from Canada were transplanted into methyl bromide:chloropicrin (98:2) fumigated soil in plastic-mulched, raised beds. Transplants were irrigated by overhead sprinklers for 10 days to aid establishment, then irrigated and fertilized through drip tape. 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. between rows. Treatments were arranged in a randomized complete block design with four blocks, each in a separate bed. In early Dec, plants were removed from the beds leaving 14-plant plots arranged in a staggered pattern, with an unplanted bed between blocks, and an unplanted gap equal to one plot (8.1 ft) between beds within a block. Fungicide applications were made weekly from 5 Dec to 12 Mar (15 applications) using a CO₂ backpack sprayer calibrated to deliver 100 gal/A at 40 psi through a boom with two TeeJet hollow-cone nozzles spaced 12 in. apart. Experimental products were applied alone, in tank mixes, or in blocking programs with other products. Fruit were harvested twice weekly from 18 Dec through 21 Mar (26 harvests). Marketable fruit were counted and weighed to determine yield. Diseased fruit were counted for each pathogen. Small fruit weighing less than 10 g, diseased fruit, and other unmarketable fruit were also enumerated. Disease incidences for anthracnose fruit rot and Botrytis fruit rot was expressed as a percentage of the total number of marketable and unmarketable fruit. Yield data and arcsine transformed incidence data were analyzed by two-way ANOVA. Non-transformed data are presented.

The incidence of fruit diseases was very low, which may have been related to healthy transplants, unfavorable weather conditions, and relative isolation of individual plots. In addition, a hard freeze on 3 Jan caused patchy damage to the plots and relatively poor yields. The probability > F values in the ANOVAs for incidence of anthracnose fruit rot, incidence of Botrytis fruit rot, and marketable yield were 0.33, 0.14, and 0.04, respectively. Treatment means were compared for Botrytis incidence and yield only with alpha set at 0.10 to help discriminate between treatments. These analyses suggest that captan / thiram program, and a tank mix of HM-0210A + HM-0736 + captan reduced Botrytis fruit rot incidence, whereas KeyPlex 1000 DP increased disease incidence. Several other treatments, including KeyPlex 350 OR produced non-significant reductions in Botrytis incidence. Three treatment programs significantly increased marketable yield, one based on captan and thiram, and two based on HM (Helena Chemical) products with or without captan.

Treatment (products and rates/A) ^z	Application timing ^y	Anthracnose incidence (%)	Botrytis incidence (%)	Yield (lb/A)
Captan 80WDG (1.5 lb)	1-7			
Thiram Granuflo 75WDG (3.2 lb)	8-11			
Captan 80WDG (3.0 lb).....	12-15	0.64	0.19 a ^x	14500 a
HM-0210A (2 pt) + HM-0736 (14 fl oz) + Captan 80WDG (1.5 lb)..	1-15	0.49	0.20 a	14000 ab
HM-0210A (2 pt) + HM-0733 (1 qt).....	1-15	0.88	0.46 ab	14000 ab
HM-0210A (2 pt) + Captan 80WDG (1.5 lb).....	1-15	0.54	0.37 ab	13300 a-c
Polyoxin-D 11.3% WDG (6.2 oz).....	1-15	1.53	0.32 ab	12900 a-d
HM-0210A (2 pt) + HM-0733 (1 qt) + Captan 80WDG (1.5 lb).....	1-15	0.68	0.32 ab	12800 a-e
Thiram Granuflo 75WDG	8-11			
Captan 80WDG (3.0 lb).....	12-15	0.52	0.46 ab	12500 a-e
KeyPlex 1000 DP (1 qt), 7-day.....	1-15	1.20	1.54 c	12500 a-e
HM-0733 (1 qt) + HM-0733B (1 qt), 7-day.....	1-15	0.94	0.53 ab	12400 b-e
Captan 80WDG (1.5 lb)	1-7			
Captevate 68WDG (4.38 lb) alt Switch 62.5WG (14 oz)	8-11			
Abound 2.08F (15.4 fl oz) alt Captan 80WDG (3.0 lb).....	12-15	0.56	0.44 ab	11600 c-e
Control.....	--	0.69	0.86 b	11300 c-e
KeyPlex 350 OR (1 qt), 7-day.....	1-15	0.85	0.63 ab	11000 de
HM-0733 (1 qt) + HM-0736 (14 fl oz), 7-day.....	1-15	0.69	0.47 ab	10700 e

^zPlus signs "+" indicate tank mixes of two or more products.

^yNumbers indicate week of application during a 15-week period from 5 Dec 07 to 12 Mar 08.

^xWithin a column, means followed by the same letter are not significantly different according to Fisher's protected LSD test ($P \leq 0.10$).