

STRAWBERRY (*Fragaria x ananassa* 'Sweet Charlie')
 Botrytis fruit rot; *Botrytis cinerea*
 Other fruit rots; *Rhizopus* spp. and *Mucor* spp.

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Evaluation of fungicides for control of Botrytis and other fruit rots in annual strawberry, 2007-08.

On 16 Oct 07, bare-root runner plants from Canada were transplanted into methyl-bromide:chloropicrin (98:2) fumigated soil in plastic-mulched raised beds. 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. Individual 14-plant plots were 9.4 ft-long, separated by a 2.5-ft open space between plots within a bed and by an unplanted bed between blocks. Transplants were irrigated by overhead sprinklers for 10 days to facilitate establishment, then irrigated and fertilized through drip tape. Fungicides were applied at weekly intervals from 13 Dec 07 to 27 Feb 08 (12 applications) with a CO₂ back pack sprayer calibrated to deliver 100 gal/ac at 40 psi through a two nozzle boom. In seven treatments, the first five applications were maintenance sprays of Captan 80WDG at 1.5 lb/A. Most experimental products/programs were applied five times between 16 Jan and 13 Feb to protect susceptible flowers during the main bloom period. Bloom treatments were frequently followed by two additional applications of Captan 80WDG at 3.0 lb/A to end the season. Ripe and diseased fruit were picked twice weekly from 27 Dec through 7 Mar (20 harvests) and graded for marketable yield and the incidence of Botrytis fruit rot and leak disease caused by *Rhizopus* and/or *Mucor* spp. Disease incidence values were expressed as a percent of all marketable and unmarketable fruit, and transformed by an arcsine square root expression before statistical analysis. The variables were analyzed by two-way ANOVA. Non-transformed means are presented.

Botrytis fruit rot incidence was low in this trial whereas the incidence of leak diseases was relatively high. A hard freeze on 3 Jan reduced flower production for several weeks during the prime period for Botrytis infection, and also reduced yield. All treatments tested, with the exception of MOI-106, significantly reduced Botrytis fruit rot. Pristine/Captan, Thiram Granuflo, and Vacciplant/Captevate treatments also significantly reduced the incidence of leak disease. Increased marketable yields were associated with Thiram Granuflo used alone, and programs relying, at least in part, on applications of Captevate (captan + fenhexamid), Polyoxidin D + Elevate (fenhexamid), Pristine, and Evito + Elevate) during the main bloom period. A program limited to five applications of Captevate alone during the bloom period did not significantly increase yield. However, yields were increased when a Captevate bloom program was supplemented with pre- and post-bloom applications of QRD 800 at 1.25 lb/A, but not when supplemented with Serenade Max, Vacciplant, or QRD 800 at 2.5 lb/A.

Products and rates/A ^z	Timing ^y	Marketable yield (lb/A)	Rhizopus/Mucor incidence (%)	Botrytis incidence (%)
Captan 80WDG (1.5 lb)	1-5			
Switch 62.5WG (14 oz)	6,8,10			
Captevate 68WDG (4.38 lb)	7,9			
Captan 80WDG (3.0 lb).....	11,12	8,100 b-e ^x	4.5 d	0.9 a
Captan 80WDG (1.5 lb)	1-5			
Polyoxin-D WDG (6.2 oz) + Elevate 50WDG (1.0 lb)	6,8,10			
Captevate 68WDG (4.38 lb)	7,9			
Captan 80WDG (3.0 lb).....	11,12	8,200 b-d	2.8 a-d	1.0 a
QRD 800 (1.25 lb)	1-5, 11,12			
Captevate 68WDG (4.38 lb).....	6-10	8,400 bc	3.7 a-d	1.1 ab
Vacciplant (14.4 oz.)	1-5, 11,12			
Captevate 68WDG (4.38 lb).....	6-10	7,200 c-f	1.9 a	1.3 ab
Thiram Granuflo 75WDG (1.6 lb)	1-5			
Thiram Granuflo 75WDG (3.2 lb).....	6-12	9,900 a	1.6 a	1.4 ab
Captan 80WDG (1.5 lb)	1-5			
Captan 80WDG (3.0 lb).....	6-12	7,800 c-e	2.8 a-d	1.5 ab
Serenade Max (1.0 lb)	1-5, 11,12			
Captevate 68WDG (4.38 lb).....	6-10	7,500 c-f	2.1 a-c	1.7 ab
Captan 80WDG (1.5 lb)	1-5			
Captevate 68WDG (4.38 lb)	6-10			
Captan 80WDG (3.0 lb).....	11,12	7,200 c-f	4.4 cd	1.7 ab

Captan 80WDG (1.5 lb)	1-5			
Pristine 38WG (23 oz)	6-10			
Captan 80WDG (3.0 lb).....	11,12	9,300 ab	1.5 a	2.1 ab
Captan 80WDG (1.5 lb)	1-5			
Evito (2.0 fl oz) + Elevate 50WDG (1.0 lb)	6,8,10			
Captevate 68WDG (4.38 lb)	7,9			
Captan 80WDG (3.0 lb).....	11,12	8,200 b-d	2.1 ab	2.2 ab
QRD 800 (2.5 lb)	1-5, 11,12			
Captevate (4.38 lb).....	6-10	7,900 c-e	2.8 a-d	2.4 ab
Actinovate (12 oz), 7 day.....	1-12	6,500 f	3.2 a-d	2.9 b
Captevate 68WDG (4.38 lb).....	6-10	7,100 d-f	2.8 a-d	3.1 b
MOI-106 (1% v/v) + Nu-Film P (0.02%).....	1-12	6,500 f	4.0 b-d	6.0 c
Control.....	--	6,900 ef	3.8 b-d	6.0 c

^zTank mixtures are indicated by plus (+) signs.

^yNumbers indicate timing in a sequence of 12 weekly applications made from 13 Dec 07 to 27 Feb 08.

^xMeans within a column followed by the same letter are not significantly different by a Fisher's protected LSD test ($P \leq 0.05$).