

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

J. Mertely, T.Sejjo, C. Torres, and N.A.Peres
University of Florida, GCREC
14625 County Road 672
Wimauma, FL 33598

Evaluation of fungicides to control anthracnose and Botrytis fruit rot in annual strawberry, 2004-05.

On 22 Oct 04, 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 apart between rows. Treatments were arranged in a randomized complete block design with four blocks, each in a separate bed. Experimental beds were alternated with single untreated beds also planted to 'Strawberry Festival' to facilitate inoculum production and spread. Individual plots were 9.4 ft long and contained 12 plants. Transplants were irrigated by overhead sprinklers for 10 days to aid establishment, then irrigated and fertilized through drip tape. Fungicide treatments were applied weekly from 24 Nov to 9 Mar (16 applications) using a CO₂ backpack sprayer calibrated to deliver 100 gal/A at 40 psi through a two-nozzle boom. Most treatments received 10 maintenance applications of captan during the early season (24 Nov to 26 Jan). Experimental products were applied during the late season (2 Feb to 9 Mar) when anthracnose pressure is typically highest. Weekly applications were omitted in the untreated control, and during the early season in one captan treatment. In another nonstandard treatment, captan was applied after significant rain events (eight applications throughout the season whenever rainfall was higher than 0.25 in). Fruit were harvested and graded twice weekly from 14 Dec through 22 Mar (29 harvests). 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 as percentages), and total marketable yield (lbs/A) are reported. Disease incidence data were transformed to 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 nontransformed data.

The 2004-05 strawberry season was ideal for strawberry production with relatively mild weather and low rainfall. Anthracnose fruit rot peaked after mid-March, two to three weeks after all experimental applications had been completed. Botrytis fruit rot caused significant losses from mid-February to mid-March. Applying Captan alone, and alternating Captan with Cabrio or Pristine during the late season controlled anthracnose and moderately suppressed Botrytis. Late season applications of Abound and Switch gave excellent control of Botrytis, but unexpectedly poor control of anthracnose. Anthracnose incidence was significantly increased by late season applications of Elevate. Yields of marketable fruit were statistically similar among most treatments and generally higher than in the control.

Treatment and rate/A	Timing ^z	Yield (lb/A)		Botrytis fruit rot (%)		Anthracnose fruit rot (%)	
Captan 80WDG (1.88 lb)	1-10						
Cabrio 20EG (14 oz) alt Captan 80WDG (3.5 lb).....	11-16	16,600	ab ^y	17.2	d	2.0	a
Captan 80WDG (1.88 lb)	1-10						
Pristine 38WG (23 oz) alt Captan 80WDG (3.5 lb).....	11-16	18,000	ab	10.7	bc	2.1	ab
Captan 80WDG (1.88 lb)	1-10						
Hepta-Gro (3.2 pt) + Captan 80WDG (3.5 lb).....	11-16	18,300	a	14.3	cd	2.4	a-c
Captan 80WDG (3.5 lb).....	11-16	16,700	ab	18.2	d	2.9	a-d
Captan 80WDG (1.88 lb)	1-10						
Captan 80WDG (3.5 lb).....	11-16	17,200	ab	17.5	d	3.3	a-e
Captan 80WDG (3.5 lb).....	Variable ^x	15,500	b	18.3	d	3.4	b-e
Captan 80WDG (3.5 lb).....	1-16	17,200	ab	15.5	d	3.9	cde
Captan 80WDG (1.88 lb)	1-10						
Captevate 68WDG (5.25 lb).....	11-16	17,100	ab	5.7	a	4.5	de
Captan 80WDG (1.88 lb)	1-10						
Captan 80WDG (3.5 lb)	11-16						
Messenger STS (4 oz) ^w	21-day ^v	17,000	ab	17.5	d	4.5	de
Captan 80WDG (1.88 lb)	1-10						
Hepta-Gro (3.2 pt).....	11-16	12,800	c	30.5	e	4.7	e
Control.....	--	11,700	c	34.7	e	5.1	ef
Captan 80WDG (1.88 lb)	1-10						
Abound 2.08F (15.4 fl oz)	11,12						
Switch 68WDG (14 oz)	13,14						
Abound 2.08F (15.4 fl oz).....	15,16	18,300	a	8.4	ab	7.2	f
Captan 80WDG (1.88 lb)	1-10						
Elevate 50WDG (1.5 lb).....	11-16	16,400	ab	6.1	a	14.5	g

^zTiming given as the application number in a sequence of 16 weekly applications made from 14 Nov 04 to 9 Mar 05.

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

^xCaptan applications made 25 Nov 04, 21 Dec 04, 26 Dec 04, 14 Jan 05, 24 Jan 05, 15 Feb 05, 28 Feb 05, and 4 Mar 05 following significant rain events.

^wMessenger was tank mixed with captan on 24 Nov 04, 15 Dec 04, 5 Jan 05, 26 Jan 05, and 16 Feb 05.