

Evaluation of fungicides for control of downy mildew of cucumber I, 2006.

The experiment was conducted in a commercial cucumber field near Spivey's Corner, NC (N35°11.367' W078°29.274'). Seed was planted on 14 Aug. No irrigation was used. Treatments were randomized into four complete blocks. Plots were bare ground single rows on 30-in. centers, 20 ft long with 5-ft borders on each end. Treated rows were alternated with non-treated rows. Fungicide treatments were applied using a CO₂-pressurized sprayer equipped with hollow cone nozzles (TXVS-26) set to deliver 40 gal/A at 45 psi. The first two applications were made with one pass with a single-nozzle boom, and the remaining applications were made using a 2-nozzle (19-in. spacing) handheld boom with one pass. Treatments were initiated when the majority of plants had three true leaves. Treatments were applied on 7-day intervals on 29 Aug, 5, 11, 18, and 25 Sep. Disease severity was rated on 22, 25 and 29 Sep. Fruit were harvested on 2 Oct.

Downy mildew was detected at a very low level (<1% in 1 plot) on the day of the second fungicide application. Disease progressed quickly after the second fungicide application due to heavy rains from Tropical Storm Ernesto. Heavy rains and poor plant stand, led to low yields overall. Cultivar Feisty (Harris Moran) is listed as moderately resistant to downy mildew, but this resistance was inadequate to control the disease. Warm weather following cool and rainy weather allowed for resurgence in new plant growth before the third disease rating. Fungicide programs that resulted in the lowest disease and highest yield included Previcur Flex, Tanos, Curzate, Ranman, Gavel. These products also performed well in our 2004 and 2005 trials (F&N 60:V059 and F&N 61:V103, respectively). Downy mildew had a dramatic impact on cucumber yield. Many treatments did not yield statistically different from the non-treated control, which didn't produce a single marketable fruit. Products that have worked well in the past, Cabrio, Quadris and Ridomil Gold Bravo did not provide effective levels of downy mildew control in this trial. Surprisingly, Quadris Opti performed well in the trial, but this may be due to strong rotation partners.

Treatment, rate of product per acre	Disease severity*		Total yield (lb/plot)	
	29 Sep	22 Sep	No. 1	% Cull
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz	41.3 g**	40.0 d	4.5 ab	20.2 e
Tanos 50DF, 8 oz + Bravo Weather Stik 6SC, 2 pt alt. w/ Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz	47.5 fg	42.5 cd	4.1 ab	33.1 e
Curzate 60DF, 3.2 oz + Bravo Weather Stik 6SC, 2 pt alt. w/ Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz	47.5 fg	42.5 cd	5.5 a	30.0 e
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Gavel 75 DF, 2 lb.....	50.0 efg	45.0 cd	3.7 ab	50.6 cde
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Quadris Opti.	50.0 efg	43.8 cd	3.2 abc	40.3 de
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Curzate 60DF, 3.2 oz + Manzate Pro-Stick 75DG, 2 lb.....	51.3 efg	48.8 bcd	2.5 bc	45.9 cde
Previcur Flex 6F, 1.2 pt+ Bravo Weather Stik 6SC, 2 pt alt. w/ Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb	56.3 def	46.3 cd	1.9 bc	54.4 b-e
Curzate 60DF, 3.2 pt + Manzate Pro-Stick 75DG, 2 lb	57.5 c-f	51.3 bcd	1.7 bc	71.7 a-d
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Cabrio 20 EG, 8 oz + Bravo Weather Stik 6SC, 2 pt	61.3 b-e	51.3 bcd	2.3 bc	53.0 b-e
Ridomil Gold Bravo 76.5WP, 2 lb alt. w/ Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb.	63.8 bcd	50.0 bcd	0.9 c	76.4 a-d
Cabrio 20 EG, 8 oz alt. w/ Bravo Weather Stik 6SC, 2 pt.	67.5 bcd	62.5 abc	0.1 c	92.0 ab
Quadris 2.08SC, 11 fl oz alt. w/ Bravo Weather Stik 6SC, 2 pt.....	68.8 bcd	58.8 a-d	0.2 c	93.8 ab
Bravo Weather Stik 6SC, 2 pt.....	68.8 bcd	57.5 a-d	0.3 c	86.5 abc
Omega 500F, 5.5 fl oz	68.8 bcd	68.8 ab	0.3 c	81.0 abc
Revus 250SC, 8.2 fl oz + Activator 90L, 0.125% v/v.....	70.0 bcd	58.8 a-d	0.3 c	93.8 ab
Ridomil Gold Bravo alt. w/ Bravo Weather Stik 6SC, 2 pt.	71.3 bc	57.5 a-d	0.5 c	86.0 abc
Manzate Pro-Stick 75DG, 2 lb.....	73.8 b	67.5 ab	0.2 c	81.8 abc
Non-treated	83.8 a	75.0 a	0.0 c	100.0 a
LSD (P=0.05)	8.58	12.03	1.8	24.98

* Disease rating scale based on percentage of necrotic foliage (0-100)
** Treatments followed by the same letter(s) within a column are not significantly different (P=0.05, Student-Newman-Keuls)