

Evaluation of fungicides for control of downy mildew of cucumber, 2005.

The experiment was conducted in a commercial cucumber field near Spivey's Corner, NC (coordinates N35°11.603', W078°27.500'). Seed was planted on 27 Aug. No irrigation was used. Treatments were randomized into four complete blocks. Plots were bareground single rows on 42-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 a single nozzle and a 2-nozzle (19-in. spacing) handheld boom and hollow cone nozzles (TXVS-26) set to deliver 40 gal/A at 45 psi. The first application was made with one pass with the single-nozzle boom, and the remaining applications were made using the 2-nozzle boom. Treatments were initiated at vine tip-over stage of plant growth. Treatments were applied on 7-day intervals with applications made on 20, 26 Sep, 4, and 11 Oct. Disease severity was rated on 28 Sep, 5,12,18 Oct. Fruit were harvested on 11 and 18 Oct.

Downy mildew was detected on the day of the first fungicide application, but at a level that was difficult to detect for the experienced observer. Disease progressed quickly after the first fungicide application. Cultivar Fiesty (Harris Moran) is listed as moderately resistant to downy mildew, but this resistance was inadequate to control the disease. Treatment differences were evident 7 days following the first application. In the table, treatments are ranked by AUDPC. Treatments that resulted in the lowest disease and highest yield included Previcur Flex, Tanos, Curzate, Gavel and Ranman. These products also performed well in our 2004 trial (F&N 60:V059). Downy mildew had a dramatic impact on cucumber yield and the proportion of culls (by weight) generally increased with the level of disease. Many products that have worked well in the past did not provide effective levels of downy mildew control in this trial, including Cabrio and Ridomil Gold Bravo.

Treatment, rate of product per acre	Disease severity		Total yield (lb/plot)	
	18 Oct ^z	AUDPC ^x	No. 1	% Cull
Previcur Flex 6F, 1.2 pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Curzate 60DF, 3.2 oz + Manzate Pro-Stick 75DG, 2lb.....	26.3 h	445.2 j	16.17 ab	28.78 fg
Previcur Flex 6F, 1.2pt + Bravo Weather Stik 6SC, 2 pt alt. w/ Gavel 75 DF, 2 lb.....	32.5 gh	526.7 ij	15.64 ab	31.62 fg
Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb alt. w/ Previcur Flex 6F, 1.2 pt+ Bravo Weather Stik 6SC, 2 pt.....	31.3 gh	550.2 ij	18.06 a	25.28 g
Ranman 400SC, 2.75 fl oz + Silwet L-77, 2 fl oz alt. w/ Tanos 50DF, 8 oz + Bravo Weather Stik 6SC, 2 pt.....	45.0 e-h	663.2 hij	13.52 abc	32.69 fg
Curzate 60DF, 3.2 pt + Manzate Pro-Stick 75DG, 2lb.....	38.8 fgh	707.4 hij	12.33 a-d	34.33 fg
Tanos 50DF, 8 oz + Gavel 75DF, 2 lb alt. w/ Previcur Flex 6F, 1.2 pt + Curzate 60DF, 3.2 oz.....	37.5 fgh	715.5 hij	11.20 b-e	42.25 efg
Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb alt w/ Manzate Pro Stick 75DG 2 lb + Curzate 60DF, 3.2 oz.....	41.3 fgh	767.0 g-j	10.31 b-f	44.34 efg
Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb alt. w/ Gavel 75DF, 2 lb.....	46.3 d-g	795.1 f-j	9.43 b-g	42.14 efg
ProPhyt 4L, 4 pt + Bravo Weather Stik 6SC, 2 pt.....	48.8 d-g	876.0 e-i	8.27 c-h	35.00 fg
Tanos 50DF, 8 oz + Manzate Pro-Stick 75DG, 2 lb alt. w/ Ridomil Gold Bravo 76.5WP, 2 lb.....	56.3 c-f	1013.0 d-h	7.16 c-i	49.62 d-g
Forum 550SC, 6.14 fl oz + Dithane 75DF Rainshield, 2 lb alt. w/ Bravo Weather Stik 6SC, 2 pt.....	63.8 cd	1088.0 c-g	4.77 e-i	57.26 b-f
Reason 500SC, 5.5 fl oz + Bond 480SL, 0.1% v/v alt. w/ Previcur Flex 6F, 1.2 pt.....	61.3 cde	1122.4 c-f	5.58 d-i	54.10 c-g
Manzate Pro-Stick 75DG, 2 lb.....	70.0 bc	1201.2 b-e	5.22 d-i	52.34 d-g
Prev-Am, 2.5 pt/100gal + Nutri-Phite Magnum, 5 pt/100 gal (5-7 d).....	72.5 bc	1233.9 bcd	2.16 ghi	72.56 a-d
Bravo Weather Stik 6SC, 2 pt.....	68.8 bc	1300.7 bcd	3.78 e-i	65.96 b-e
BAS 536 00F, 26 oz alt. w/ Bravo Weather Stik 6SC, 2 pt.....	82.5 ab	1340.4 bcd	2.96 f-i	68.36 a-e
Cabrio 20EG, 8 oz + Bravo Weather Stik 6SC, 2 pt alt. w/ Forum 550SC, 6.14 fl oz + Bravo Weather Stik 6SC, 2 pt.....	70.0 bc	1389.1 bc	2.16 ghi	74.37 a-d
Sonata, 3 qt + Biotune, 0.2% v/v.....	92.5 a	1528.0 ab	1.16 hi	83.06 ab
NOA 446510, 8.2 fl oz.....	83.8 ab	1535.0 ab	1.12 hi	80.18 abc
Non-treated.....	92.5 a ^y	1789.8 a	0.24 i	93.65 a
LSD (P=0.05)	12.4	233.7	4.63	17.58

^z Disease rating scale based on percentage of necrotic foliage (0-100)

^y Treatments followed by the same letter(s) within a column are not significantly different (P=0.05, Student-Newman-Keuls)

^x AUDPC = Area under disease progress curve