

Watermelon (*Citrullus lanatus*)

Squash (*Cucurbita pepo*)

Cucumber (*Cucumis sativus*)

Cantaloupe (*Cucumis melo*)

Downy mildew (*Pseudoperonospora cubensis*)

P. D. Roberts and R.E. Systma

Department of Plant Pathology

University of Florida/IFAS

SWFREC, Immokalee, FL 34142

Evaluation of products to manage downy mildew on cucurbits in Florida, spring 2008.

Watermelon ‘Crimson Sweet’, cantaloupe ‘Hales Best’, cucumber ‘Poinsett 76’ and zucchini squash ‘Black Beauty’ seedlings were transplanted on 20 Mar into Immokalee fine sand at the Southwest Florida Research and Education Center, Immokalee, FL. Treatments were arranged in a randomized complete block design with four replications. Each plot consisted of 5 watermelon at 2 ft spacing, 5 zucchini at 18 in. spacing, 5 cantaloupe at 18 in. spacing and 6 cucumber at 6 in. spacing within a 26 ft row with 10 ft between each plot and 12 ft between each row. Guidelines established by the University of Florida/IFAS were followed for land preparation, fertility, irrigation, weed management and insect control. Applications were made with a highboy sprayer using a side drop boom equipped with 4 nozzles at 200 psi, delivering a spray volume of 44 gal/A. Disease severity as the percentage of symptomatic foliage was estimated at weekly intervals. Average monthly high and low temperatures (°F) were 90 and 38 in Mar, 90, and 40 in Apr, 96 and 48 in May. Rainfall totals for Mar, Apr, May were 2.8, 2.5 and 0.7 in., respectively

Cucumber plants failed to establish despite repeated planting (3X). Watermelon and cantaloupe plants were generally unthrifty in the majority of plots independent of field or row placement or treatment. Squash grew well and symptoms of downy mildew, and pathogen presence confirmed microscopically, were first observed mid-April. Downy mildew also appeared on watermelon and cantaloupe by 24 Apr but at a very low severity (<5%) and, contrary to typical disease progression, never established well even on untreated control plants. Differences in the severity of downy mildew on squash was detected among treatments, but again severity was quite low for this disease, particularly on the first reading date. Disease appeared to diminish by severity ratings from 20 Apr to 27 Apr probably due to lack of disease progression and dilution effect from plant growth. On 4 May, disease severity was reduced on squash plants treated with Presidio at the higher rate, Previcur Flex, Ridomil Gold Bravo, Cabrio, Revus Top, Ranman, and Forum while other treatments were not different compared to the untreated control plants, although not significantly ($P < 0.09$). Trial results are inconclusive for efficacy and sensitivity of pathogen to these materials.

	Treatment (Rate per A)	Date of application ^z	Squash				Watermelon	Cantaloupe
			13 Apr	20 Apr	27 Apr	4 May	4 May	4 May
1	Untreated plants		0.3	10.0	4.3	17.5 a	3.5	4.0
2	Curzate 60DF (5 oz)	1, 2, 3, 5, 7, 9.....	1.5	10.0	5.3	11.3 abc	1.8	2.3
	Quadris 2.08 SC (6 fl oz)	4, 6, 8, 10.....						
	Penncozeb 75DF (3 lb)	3, 4, 5, 6, 7, 8, 9, 10...						
3	Actinovate AG (6 oz)	1, 3, 5, 7, 9.....	0.3	0	3.5	10 abc	3.0	2.3
	Ranman 400SC (2.75 fl oz)	1..10 ^x						
4	Actinovate AG (6 oz)	1..10	1.5	7.5	2.	12 abc	3.3	6.3
5	Presidio 4SC (3 fl oz)	1..10		5.0	2.5	11.3 abc	1.8	2.3
6	Presidio 4SC (4 fl oz)	1..10	0.3	2.8	2.3	4.0 c	1.3	3.7
7	Penncozeb 75DF (3 lb)	1..10	2	2.5	4.5	12.5 ab	0.8	3.0
8	Pristine 38WG (18.5 oz)	1..10	1.3	5.3	3.5	11.3 abc	3.0	6.3
9	Previcur Flex 6SC (1.2 pt)	1..10	0	3.3	1.3	4.0 c	2.3	1.8
10	Ridomil Gold Bravo 76.5 WP (2 lb)	1..10	0.8	1.5	3.5	7.5 bc	0.3	3.5
11	Cabrio 20EG (12 oz)	1..10	0.8	5.0	3.3	7.8 bc	2.8	3.0
12	Tanos 50WG (8 oz)	1, 3, 5, 7, 9.....	0	5.0	3.7	7.5 bc	0.3	5.3
	Manzate Pro-Stick 75DF (3 lb)	1, 3, 5, 7, 9						
	Bravo Weather Stik FV (2 pt)	2,4,6,8, 10						
	Curzate 60DF (5 oz)	2,4,6,8, 10						
13	Revus Top 2.09 (8 fl oz)	1..10	0	0.8	4.5	5.3 bc	2.3	2.5
	Activator 90 (0.125 v:v)	1..10						
14	Ranman 400SC (2.75 fl oz)	1..10	0	0	1.7	8.3 bc	1.3	1.3
15	Forum 4.18SC (6 oz)	1..10	0.3	1.3	1.5	5.8 bc	4.0	2.8

^z1= 3 Apr; 2=10 Apr; 3= 17 Apr; 4= 24 Apr; 5=1 May; 6= 8 May; 7= 15 May; 8= 22 May; 9= 29 May; 10= 3 Jun.

^y Numbers followed by the same letter or no letter are not statistically different by LSD; $P < 0.09$.

^x Applications made on each spray date 1 though 10.