CUCUMBER (*Cucumis sativus* 'Peacemaker', 'Citadel', 'Vlaspik', 'Expedition')
Downy mildew; *Pseudoperonospora cubensis*

M. L. Adams and L. M. Quesada-Ocampo Dept. Entomology and Plant Pathology, NC State University, Raleigh, NC 27695

Evaluation of cultivars and fungicides for control of downy mildew on cucumber, Clinton 2015.

The experiment was conducted at the Horticultural Crops Research Station in Clinton, NC (N35°01.331'; W078°17.304'). Plots were double row beds on 5-ft centers covered with white plastic mulch; 20-ft long with 5-ft fallow borders between plots within the row and non-treated guard rows on the perimeter of the field. The previous year the field was planted with sweetpotato. Cucumber was direct seeded on 11 Aug (1-ft in-row spacing, 1 seed/hill) in raised beds (40 plants/plot). Irrigation and fertilization (15.5-0-0 and 13.5-0-46 N-P-K) were applied via drip tape on 26 Aug, and 2, 11, 17 and 22 Sep. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO_2-pressurized backpack sprayer equipped with a two-nozzle, handheld boom with a hollow cone nozzle (TXVS-26) delivering 40 gal/A at 45 psi. The four spray applications were made with a two-nozzle boom (19-in. spacing). Applications were made on 27 Aug and 3, 10 and 17 Sep. Disease severity was assessed on 24 Sep and 1 Oct as percent leaf area with necrosis per plot. Fruit were harvested on 24 Sep. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and the Waller-Duncan test to separate means.

Downy mildew was first detected on 27 Aug at approximately 3% disease severity in the field and progressed throughout the course of the trial. Orondis Opti, Ranman and Previcur Flex tank mixed with Bravo Weather Stik on cv. Peacemaker provided excellent control of *P. cubensis*. Orondis Opti, Ranman and Previcur Flex tank mixed with Bravo Weather Stik on cvs. Citadel and Expedition provided good downy mildew control. All treatments were significantly different from the non-treated cvs. Vlaspik and Expedition, which had 71-75% disease severity at the end of the trial on 1 Oct. Slight Bravo Weather Stik phytotoxicity was observed in all treatments. In the table, treatments are sorted by disease severity on 1 Oct.

Treatment and rate of product per acre	Application no.	Disease severity* (%)	
		24 Sept	1 Oct
Orondis Opti 406SC 2 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Ranman 3.33SC 2.75 fl oz	2		
Previcur Flex 6F 19.2 fl oz	3		
Peacemaker		3.7 g[**]	5.3 g
Orondis Opti 406SC 2 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Ranman 3.33SC 2.75 fl oz	2		
Previcur Flex 6F 19.2 fl oz	3		
Citadel		5.3 g	8.0 fg
Orondis Opti 406SC 2 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Ranman 3.33SC 2.75 fl oz	2		
Previcur Flex 6F 19.2 fl oz	3		
Expedition		6.3 fg	9.7 fg
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Previcur Plex 6F 19.2 fl oz	2		
Zampro 4.33SC 14 fl oz	3		
Peacemaker		8.0 fg	11.3 efg
Orondis Opti 406SC 2 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Ranman 3.33SC 2.75 fl oz	2		
Previcur Flex 6F 19.2 fl oz	3		
Vlaspik		9.0 efg	12.7 d-g
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Previcur Flex 6F 19.2 fl oz	2		
Zampro 4.33SC 14 fl oz	3		
Citadel		10.0 d-g	13.3 d-g
Bravo Weather Stik 6SC 32 fl oz	1-4		
Peacemaker		10.7 d-g	15.0 def
Bravo Weather Stik 6SC	1-4		
Citadel		15.7 cde	19.7 cde

Non-treated	N/A		
Peacemaker		13.0 def	19.7 cde
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Previcur Plex 6F 19.2 fl oz	2		
Zampro 4.33SC 14 fl oz	3		
Vlaspik		15.7 cde	20.3 cde
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 32 fl oz	1-4		
Previcur Plex 6F 19.2 fl oz	2		
Zampro 4.33SC 14 fl oz	3		
Expedition		16.7 cd	22.0 cd
Non-treated	N/A		
Citadel		21.0 c	28.3 c
Bravo Weather Stik 6SC 32 fl oz	1-4		
Expedition		35.7 b	44.3 b
Bravo Weather Stik 6SC 32 fl oz	1-4		
Vlaspik		36.3 b	46.0 b
Non-treated	N/A		
Vlaspik		59.0 a	71.0 a
Non-treated	N/A		
Expedition		63.3 a	74.7 a

[*] Disease rating scale based on percent necrotic foliage caused by *P. cubensis*.
[**] Treatments followed by the same letter(s) within a column are not statistically different (*P*=0.05, Waller-Duncan k=100).