

Evaluation of cultivars and fungicides for control of downy mildew on cucumber, Clinton 2014.

The experiment was conducted at the Horticultural Crops Research Station in Clinton, NC (N35°01.704'; W078°16.612'). Plots were single row raised beds on 5-ft centers covered with black plastic mulch; 20-ft long with 5-ft fallow breaks 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 6 Aug (4-in. in-row spacing, 1 seed/hill, 60 plants/plot). Irrigation and fertilization (15.5-0-0 and 13.5-0-46 N-P-K) were applied via drip tape on 14 and 27 Aug and 3, 11 and 16 Sep. Treatments were randomized into four complete blocks. Fungicide treatments were applied using a CO₂-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 28 Aug and 4, 11 and 18 Sep. Disease severity was assessed on 17 and 25 Sep as percent leaf area with necrosis per plot. Fruit were harvested on 26 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 28 Aug at approximately 2% disease severity in the field and progressed throughout the course of the trial. The combination treatment of Ranman, Gavel and Previcur Flex tank mixed with Bravo Weather Stik on cvs. Peacemaker and Citadel provided excellent control of *P. cubensis*. Ranman, Gavel and Previcur Flex tank mixed with Bravo Weather Stik and applied to cvs. Expedition and Vlaspik, provided good downy mildew control. Ranman + Bravo Weather Stik alternated with Bravo Weather Stik applied on a 14-day schedule on cv. Peacemaker also managed downy well. No phytotoxicity was observed. In the table, treatments are sorted by disease severity on 25 Sep.

Treatment and rate of product per acre	Application no.	Disease severity* (%)	
		17 Sep	25 Sep
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 2 pt	1-4		
Gavel 75DF 2 lb	2		
Previcur Flex 6F 1.2 pt	3		
Peacemaker		4.3 c**	9.0 d
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 2 pt	1-4		
Gavel 75DF 2 lb	2		
Previcur Flex 6F 1.2 pt	3		
Citadel		7.3 b	16.3 d
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 2 pt	1-4		
Gavel 75DF 2 lb	2		
Previcur Flex 6F 1.2 pt	3		
Expedition		11.3 b	29.0 c
Ranman 3.33SC 2.75 fl oz	1,4		
Bravo Weather Stik 6SC 2 pt	1-4		
Gavel 75DF 2 lb	2		
Previcur Flex 6F 1.2 pt	3		
Vlaspik		12.3 b	30.7 c
Ranman 3.33SC 2.75 fl oz	1		
Bravo Weather Stik 6SC 2 pt (14 day)	1,3		
Peacemaker		13.0 b	34.7 c
Ranman 3.33SC 2.75 fl oz	1		
Bravo Weather Stik 6SC 2 pt (14 day)	1,3		
Citadel		24.0 a	58.0 b
Ranman 3.33SC 2.75 fl oz	1		
Bravo Weather Stik 6SC 2 pt (14 day)	1,3		
Vlaspik		23.7 a	67.3 a
Ranman 3.33SC 2.75 fl oz	1		
Bravo Weather Stik 6SC 2 pt (14 day)	1,3		
Expedition		24.7 a	70.0 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 $k=100$).