

**Evaluation of fungicides for control of Phytophthora fruit rot of watermelon, Kinston 2016.**

The experiment was conducted at the Cunningham Research Station in Kinston, NC (N3518.358°; W077°34.920°). Plants of 'Wonder' (triploid watermelon) and 'Mickylee' (diploid watermelon used as a pollinizer) were transplanted on 20 May at a 3:1 ratio. Overhead irrigation was used. Treatments were randomized into four complete blocks. Plots were bare ground double rows on 14-ft centers, 18-ft long with 10-ft fallow borders at each end (12 plants/plot). The previous year the field was planted with watermelon. Fungicide treatments were applied using a CO<sub>2</sub>-pressurized backpack sprayer equipped with a 3-nozzle (19-in. spacing) handheld boom with hollow cone nozzles (TXVS-26) delivering 40 gal/A at 45 psi. Applications were made on 24 Jun and 1, 8, 15, 22 and 29 Jul and 5 Aug and on 24 Jun, 5, 15 and 22 Jul and 5 Aug using the MELCAST system (Purdue University, West Lafayette, IN) which uses weather data to determine timing for fungicide applications. Disease severity was assessed on 13, 20 and 27 Jul and 3 and 10 Aug as percentage of fruit per plot with symptoms of *Phytophthora capsici*. 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.

Phytophthora fruit rot was first detected on 13 Jul as small lesions on a few fruit at 1% disease incidence. Presidio alternated with Ranman + Ridomil Gold, Revus, Zampro and Orondis Ultra in the MELCAST system, decreased the percent disease severity of *P. capsici* when compared to the non-treated control on 10 Aug. No other treatment provided a commercially acceptable level of Phytophthora control. No phytotoxicity was observed. In the table, treatments are sorted by disease severity on 10 Aug.

Treatment and rate of product per acre	Application no. <sup>y</sup>	Disease severity <sup>z</sup> (%)		
		27-Jul	3-Aug	10-Aug
<b>MELCAST<sup>x</sup></b>				
Presidio 4SC 4 fl oz	1			
Ranman 3.33SC 2.75 fl oz	2			
Ridomil Gold 4SL 0.97 pt	2			
Revus 2.08SC 8 fl oz	3			
Zampro 4.33SC 14 fl oz	4			
Orondis Ultra 280SC 9.6 fl oz	5	4.2 a <sup>w</sup>	37.6 a	52.2 b
Actigard 50WG 1 oz	1, 6			
Ranman 3.33SC 2.75 fl oz	2, 7			
Ridomil 4SL 0.97 pt	2, 7			
Presidio 4SC 4 fl oz	3			
V-10208 4SC 0.25 lb	4			
Orondis Ultra 280SC 9.6 fl oz	5	15.0 a	45.1 a	69.3 ab
Forum 4.17SL 6 fl oz	1, 6			
K-Phite 7SL 1 qt	2, 7			
Presidio 4SC 4 fl oz	3			
Zampro 4.33SC 14 fl oz	4			
Ranman 3.33SC 2.75 fl oz	5	13.7 a	55.2 a	69.9 ab
Zampro 4.33SC 14 fl oz	1, 3, 5			
Orondis Ultra 280SC 9.6 fl oz	2, 5	8.8 a	59.1 a	73.3 ab
Ridomil Gold 4SL 0.97 pt	1-7	6.6 a	56.2 a	83.9 ab
Non-treated	N/A	16.8 a	59.5 a	84.3 ab
Forum 4.17SL 6 fl oz	1, 6			
Presidio 4SC 4 fl oz	2, 7			
K-Phite 7SL 1 qt	3			
Ranman 3.33SC 2.75 fl oz	4			
Ridomil Gold 4SL 0.97 pt	4			
Revus 2.08SC 8 fl oz	5	14.0 a	48.0 a	87.1 a
Actigard 50WG 1 oz	1, 6			
K-Phite 7SL 1 qt	2, 7			
Revus 2.08SC 8 fl oz	3			
Presidio 4SC 4 fl oz	4			
Zampro 4.33SC 14 fl oz	5	10.9 a	54.5 a	88.4 a

<sup>z</sup> Disease rating scale based on percentage of diseased fruit per plot caused by *P. capsici*.

<sup>y</sup> Application dates: 1=24 Jun, 2=1 Jul, 3=8 Jul, 4=15 Jul, 5=22 Jul, 6=29 Jul, 7=5 Aug.

<sup>x</sup> MELCAST Application dates: 1=24 Jun, 2=5 Jul, 3=15 Jul, 4=22 Jul and 5=5 Aug.

<sup>w</sup> Treatments followed by the same letter(s) within a column are not statistically different ( $P=0.05$ , Waller-Duncan  $k=100$ ).