

Gummy stem blight management on watermelon, Kinston, NC 2023.

The experiment was conducted at the Cunningham Research Station in Kinston, NC. Experimental plots were single raised beds on 5-ft centers covered with white plastic mulch; 14-ft long with 5-ft fallow borders on each end. Watermelon was transplanted to the field on 12 May (2-ft in-row spacing, seven plants/plot). Irrigation and fertilization (4-0-8, N-P-K) were applied via drip tape. Three treatments and the non-treated control were tested in a randomized complete block design with four repetitions. Fungicide treatments were applied using a CO₂-pressurized backpack sprayer equipped with a single-nozzle, handheld boom with a hollow cone nozzle (TXVS-26) delivering 40 gal/A at 35 psi. Applications were made on Jul 6, Jul 14, Jul 21, Jul 26, Aug 3, and Aug 8. Disease severity per plot was assessed every week from 6 Jul to 24 Aug. Data were analyzed in the software ARM (Gylling Data Management, Brookings, SD) using analysis of variance (AOV) and Fisher's protected least significant differences (LSD) test to separate means.

Gummy stem blight was first detected on 6 Jul at approximately 2% disease severity in the field. No phytotoxicity was observed in the experiment. Disease severity data obtained 23 Jul, seven weeks after transplant, was significantly reduced for treatments Quadri Top and Mettle compared to the non-treated control. Disease severity in plots treated with Affiance were not statistically different from the non-treated control or Mettle treatments. The area under the disease progress curve (AUDPC) values for all treatments were statistically different from the non-treated control.

Treatments	Rate	Disease Severity ^z (%) 23 Jul	AUDPC ^y
Non-treated control	–	48.8 a ^x	3189.75 a
Affiance	12 fl oz/a	42.5 ab	2341.13 b
Mettle	8 fl oz/a	36.3 bc	2350.13 b
Quadris Top	14 fl oz/a	26.3 c	1879.75 b

^zDisease rating based on percent necrotic foliage per plot caused by *S. cucurbitacearum* on 23 Jul.

^yArea under the disease progress curve. $AUDPC = \sum_{i=1}^{n-1} \frac{y_i + y_{i+1}}{2} x(t_{i+1} - t_i)$

^xTreatments followed by the same letter(s) within a column are not statistically different ($P=0.05$, Fisher's Protected LSD).