

Evaluation of pesticides for management of thrips and tomato spotted wilt in dryland peanut, 2018.

‘TUFRunner 511’ peanuts were planted at Edisto Research and Education Center in Blackville, SC on 26 Apr, at a rate of 5.5 seed/ft and depth of 2-in under dryland conditions. Soil type was a Barnwell sandy loam. Rotation history was cotton for the previous two years. Plots were four 40-foot single rows on 38 in. centers with treatments replicated four times and applied according to a randomized complete block design. Standard practices were used to manage tillage, weeds, fungal diseases and nutrition. Admire Pro and Velum Total were applied with a D2 orifice set to deliver 8.7 gal/A at 32 psi in-furrow. Thimet was applied with a SmartBox calibrated to deliver 4.7 lb/A in-furrow. Orthene was applied using two DG8002 nozzles/row (19-in spacing) delivering 15 gal/A on 8 May (11 days after planting [DAP]) for at-crack applications and 18 May (21 DAP). Thrips damage was rated 13 Jun (48 DAP) using a 0 to 10 scale where 0 = no injury and 10 = dead plants. Phytotoxicity was also rated 13 Jun using a visual percentage scale, based on severity. Tomato spotted wilt stunting was rated by visually estimating the % of row exhibiting stunting symptoms of the disease (based on loci counts per row where 1 locus was \leq 1 ft of consecutive tomato spotted wilt stunted plants) on 23 Aug (119 DAP). Ratings of % of row exhibiting symptoms or signs of stem rot (based on loci counts per row where 1 locus was \leq 1 ft of consecutive stem rot damaged plants or signs per row) were taken 21 Sep. The trial was dug and inverted on 21 Sep and harvested 25 Sep (moisture adjusted to 10%). SAS 9.4 PROC GLIMMIX was used to determine effects of treatments, with mean separations compared according to Fisher’s Protected LSD at $\alpha = 0.05$. Yield data was modeled according to a negative binomial distribution. Average monthly temperatures for the growing season are as follows: 61.3°F (Apr), 74°F (May), 80.1°F (Jun), 80.4°F (Jul), 79.9°F (Aug), and 79.6°F (Sep).

Phytotoxicity responses were low (less than 6%) and were characteristic of Thimet. Thrips pressure was low overall in the trial. All treatments exhibited significantly less spotted wilt stunting compared to the untreated check. The second highest grouping for spotted wilt stunting contained most remaining treatments, except for the half rate of Admire Pro + Thimet, Thimet + polymer, and Thimet (<6% incidence). Stem rot incidence was moderately low and did not significantly vary among treatments ($P > 0.05$). Except for Thimet followed by Orthene at cracking, all treatments had significantly greater yield than the untreated check. More than half of the treatments were in the upper grouping for yield (> 5170 lb/A). Data from the trial does not support a benefit to combined and concurrent in-furrow application of phorate (Thimet) and imidacloprid-based (Admire Pro or Velum Total) treatments.

Treatment and rate/A (Timing ^z)	Phytotoxicity % severity	Thrips damage (0-10 scale) ^y	TSW % stunting ^x	Stem rot % incidence ^x	Yield (lb/A) ^w
Untreated	0.0 c ^u	2.8 a	21.4 a	5.6	4590 e
Thimet 4.7 lb (A)	1.3 bc	2.5 ab	4.6 d	9.4	5078 abcd
Ag Logic 5 lb (A)	1.3 bc	1.8 cd	7.6 bcd	7.8	5064 abcd
Admire Pro 10 fl oz (A)	0.0 c	1.5 de	10.9 bcd	11.3	5423 ab
Thimet 4.7 lb (A) + Orthene 12 oz wt (C)	2.5 abc	2.3 abc	7.6 bcd	7.5	5043 bcd
Thimet 4.7 lb (A) + Orthene 12 oz wt (B)	2.5 abc	2.0 bcd	6.9 bcd	7.8	4782 de
Admire Pro 10 fl oz (A) + Orthene 12 oz wt (B)	0.0 c	1.8 cd	10.2 bcd	11.6	5178 abcd
Admire Pro 10 fl oz (A) + Orthene 12 oz wt (C)	2.5 abc	1.8 cd	12.2 bc	13.8	5291 abc
Admire Pro 10 fl oz (A) + Thimet 4.7 lb (A)	2.5 abc	1.5 de	12.8 b	8.1	5360 abc
Velum Total 18 fl oz (A)	0.0 c	1.5 de	11.8 bc	6.9	5471 a
Thimet 4.7 lb (A) + Polyacrylate 2 lb (A)	3.8 ab	1.5 de	4.6 d	8.1	5260 abc
Admire Pro 10 fl oz (A) + Polyacrylate 2 lb (A)	0.0 c	1.0 e	8.6 bcd	9.4	5318 abc
Polyacrylate Check 2 lb (A)	0.0 c	1.8 cd	11.8 bc	6.9	4998 cd
Admire Pro 10 fl oz (A) + Thimet 4.7 lb (A) + Orthene 12 oz wt (C)	1.3 bc	1.5 de	7.2 bcd	9.1	5381 abc
Velum Total 18 fl oz (A) + Thimet 4.7 lb (A)	5.0 a	1.0 e	9.2 bcd	8.1	5405 abc
Admire Pro 5 fl oz (A) + Thimet 4.7 lb (A)	3.8 ab	1.8 cd	5.6 cd	7.8	5100 abcd

^z Timing correspond to A = 26 April (in-furrow), B = 8 May (at-crack), C = 18 May.

^y Thrips damage was based on a 0 to 10 scale where 0 = no visible thrips damage and 10 = plant death.

^x TSW stunting and stem rot incidence and are expressed as the percent of the number of respective symptomatic loci per 80 ft of row (1 locus = ≤ 1 ft of consecutive symptoms per disease and included signs for stem rot).

^w Yield data was modeled according to a negative binomial distribution with inverse-link means of the original scale presented. Means followed by the same letter are not significantly different according to Fisher's Protected LSD ($\alpha = 0.05$).