

Evaluation of pesticides for management of thrips and tomato spotted wilt on 'TUFRunner 511' peanut, 2017.

'TUFRunner 511' peanuts were planted at Edisto Research and Education Center in Blackville, SC on 27 April at a rate of 5.8 seed/ft. Soil type was a Barnwell loamy sand. Rotation history was corn, cotton, and peanut in 2016, 2015, and 2014, respectively. Plots were four 40-foot rows on 38 in. centers with treatments replicated four times and applied according to a randomized complete block design. Blocks were separated by 10-ft alleys. Standard practices to manage tillage, weeds, insects, 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. Orthene, Exirel and Radiant were applied using two DG8002 nozzles/row (19 in. spacing) delivering 15 gal/A. Granular Aquasorb and AgLogic were applied with a Microsem box calibrated to deliver 2 and 5 lb/A, respectively. Thimet was applied with a SmartBox calibrated to deliver 4.7 lb/A. Thrips damage was rated 17 May, 25 May, and 30 May using a 0 to 10 scale where 0 = no injury and 10 = dead plants. Tomato spotted wilt (TSW) 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 12 Jun, 5 Jul, and 7 Sep. 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 were modeled according to a negative binomial distribution. Average monthly temperatures for the growing season were as follows: 68.2 (Apr), 71.4 (May), 76.8 (Jun), 79.5 (Jul), 79.0°C (Aug), 74.1 (Sep), and 66.0°F (Oct).

On 17 May, the untreated control had the most thrips damage, whereas the AgLogic treatment had the least thrips damage. The same general trend was observed in the latter two thrips damage ratings, with Admire Pro + Radiant and Thimet + Orthene having the lowest damage ratings during the final assessment. Radiant, Orthene and Exirel performed fairly similar with regards to thrips damage. For TSW stunting, there was some drought stress during the 7 Sep rating which confounded ratings during that time; thus the second rating would generally be regarded as more representative. During the second TSW rating, the statistically lowest TSW stunting was observed in the Thimet treatments, as well as with AgLogic. The grouping with the most stunting was made up of the imidacloprid-based treatments (Admire Pro and Velum Total), as well as the two-broadcast-application Exirel treatment. The inclusion of the Aquasorb marginally increased stunting with Admire Pro and marginally decreased stunting with Thimet, though these differences were not significant. There was a fair amount of variability in the yield data from this study. The numerically highest yielding treatment was Thimet + post-emergence Orthene, followed by Thimet + Exirel at crack and then AgLogic. Also in the upper grouping were the repeat treatments of Radiant and Exirel, Admire Pro + Aquasorb (which was not statistically different from Admire Pro alone) and Admire Pro + Orthene. The untreated control also fell into the upper statistical grouping for yield. The lowest yielding grouping was comprised of Velum Total, Admire Pro, two applications of Orthene, Thimet + Aquasorb (which was not statistically different from Thimet alone), and Admire Pro paired with either Exirel or Radiant approximately 21 days after planting.

Treatment and rate/A	Timing ^z	Thrips damage (0-10 scale) ^y			TSW % stunting ^x			Yield (lb/A) ^w
		17 May	25 May	30 May	12 Jun	5 Jul	7 Sep	
Untreated check		7.0 a	7.8 a	8.0 a	5.8 cde	34.2 cde	30.8 dc	4859 abcd
Thimet 4.7 lb	A	4.8 def	4.0 def	6.0 b	4.5 defgh	25.7 efg	23.7 de	4571 bcd
AgLogic 5 lb	A	2.0 h	3.0 h	4.3 de	2.6 fgi	26.0 efg	22.8 de	5230 abc
Admire Pro 10 fl oz	A	5.5 cd	5.0 bc	5.8 bc	5.4 cdefh	44.7 ab	40.4 abc	4387 bcde
Thimet 4.7 lb	A	3.8 g	3.3 gh	3.8 ef	2.6 fgi	21.7 fg	9.9 f	5812 a
Orthene 12 oz	C							
Thimet 4.7 lb	A	4.3 fg	3.5 fgh	4.3 de	3.2 efghi	20.1 g	23.4 de	4567 bcd
Exeril 13.5 fl oz	C							
Admire Pro 10 fl oz	A	6.0 bc	3.5 fgh	4.5 de	7.4 bcd	42.4 abc	35.9 bc	4744 abcd
Orthene 12 oz	C							
Admire Pro 10 fl oz	A	5.8 bc	4.3 de	3.0 f	9.6 bh	46.1 a	47.4 a	3750 e
Radiant 1.5 fl oz	C							
Admire Pro 10 fl oz	A	5.3 cde	3.8 efg	4.5 de	4.2 efg	47.0 a	42.3 ab	4093 de
Exeril 13.5 fl oz	C							
Radiant 1.5 fl oz	BD	6.0 bc	5.3 b	5.3 bcd	2.2 ghi	35.5 bcde	34.9 bc	4963 abcd
Orthene 12 oz	BD	5.3 cde	5.0 bc	4.8 cde	2.9 efghi	31.9 def	23.7 de	4367 cde
Exeril 13.5 fl oz	BD	6.5 ab	5.5 b	4.3 de	4.8 defgh	41.1 abcd	36.5 bc	4955 abcd
Thimet 4.7 lb	A	4.5 efg	3.8 efg	4.8 cde	0.3 i	23.7 fg	18.3 fe	4314 cde
Aquasorb 3005 K2 2 lb	A							
Admire Pro 10 fl oz	A	5.5 cd	5.0 bc	5.8 bc	13.8 a	47.4 a	47.4 a	4746 abcd
Aquasorb 3005 K2 2 lb	A							
Velum Total 18 fl oz	A	4.3 fg	4.3 de	4.5 de	8.3 bc	42.4 abc	39.4 abc	4507 bcde
Thimet 4.7 lb	A	4.3 fg	4.5 cd	5.3 bcd	1.6 hi	20.7 g	15.1 fe	5522 ab
Exeril 13.5 fl oz	B							

^z Timings correspond to A = 27 Apr (in-furrow), B = 10 May (at crack), C = 18 May, D = 22 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 is expressed as the percent of the number of stunted loci per 80 ft of row (1 locus = \leq 1 ft of consecutive stunted section of plants).

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