PEANUT (*Arachis hypogaea* 'Georgia 06G and TUFRunner 511')
Tomato spotted wilt; *Tomato spotted wilt virus*

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Evaluation of insecticide efficacy and variety resistance for management of thrips and tomato spotted wilt on peanut, 2015.

'Georgia 06G' and 'TUFRunner 511' peanuts were planted at Edisto Research and Education Center in Blackville, SC on 30 April at a rate of 5 seed/ft. Soil type was a Barnwell loamy sand. Rotation history was corn, cotton, and peanut in 2014, 2013, and 2012, respectively. Plots were four 40-foot rows on 38 in. centers with treatments replicated 13 times in total over three fields and applied according to a split plot design (variety was main plot and pesticide treatment was sub-plot). Blocks were separated by 10-ft alleys. Thimet was applied with a SmartBox calibrated to deliver 4.7 lb/A. Admire Pro, Wrangler and Velum Total were applied with a D2 orifice set to deliver 8.7 gal/A at 32 psi. Propulse was applied with two DG8002 nozzles/row (19-in. spacing) delivering 15 gal/A at 50 psi. Plant emergence was rated by counting the number of plants per row-feet on 12 May. Thrips damage was rated 22 May and 2 Jun using a 0 to 10 scale where 0 = no injury and 10 = dead plants. Phytotoxicity was rated 22 May. 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 19 Aug and 16 Sep. Two yield rows per plot were dug 16 Sep and combined 23 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 are as follows: 68.0 (Apr), 73.9 (May), 82.0 (Jun), 84.0 (Jul), 81.0 (Aug), and 75.9°F (Sep). Statistical analysis was performed separately by variety.

For both varieties, thrips damage was consistently greatest in the untreated check, with all treatments having significantly less damage. Stunting from TSW was consistently lowest in Thimet-containing treatments and greatest in imidacloprid-containing treatments. Further details focus on the 16 Sep TSW rating. In Georgia 06G plots, the only treatments with significantly less stunting than the untreated check were Thimet + Propulse and Thimet alone treatments. In TUFRunner 511 plots, TSW stunting was 11.4% in the untreated check, which was statistically similar to all other treatments, with the exception of Velum Total, Admire Pro + Propulse, and Admire Pro which had significantly greater stunting. These three treatments, as well as Wrangler, all had significantly more stunting than the Thimet + Propulse and Thimet alone treatments. Phytotoxicity was either 0.0% (TUFRunner 511) or nearly 0.0% (Georgia 06G) for all treatments excluding Thimet. The most phytotoxicity (leaflet chlorosis) was seen in the Thimet followed by Propulse and Thimet alone treatments, which were both statistically more than all other treatments excluding Thimet. For Georgia 06G, yield was significantly greatest in the Thimet + Propulse treatment and least in the untreated control. Admire Pro alone and Wrangler were the only treatments with yields not significantly greater than the untreated control. For TUFRunner 511, yield was also greatest in the Thimet + Propulse treatment and least in the untreated check, though this was not statistically significant. Nematodes were not present to a meaningful degree in any of the fields used for this study.

			Thrips damage (0 to 10 scale)[y]		TSW % stunting[x]			
Variety, treatment and rate/A	Timing[z]	Emergence (plants/ft)	22 May	2 Jun	19 Aug	16 Sep	Phytotoxicity (%)	Yield (lb/A)
Georgia 06G								
Untreated check	N/A	11.0 a	4.8 a	8.4 a	6.6 a	9.7 a	0.4 b	4091 d
Thimet 20G 4.7 lb	A	10.5 ab	2.4 b	4.4 b	2.7 b	5.1 b	28.9 a	4426 ab
Admire Pro 10.5 fl oz	A	9.7 b	1.8 c	3.7 d	7.1 a	12.4 a	0.2 b	4167 cd
Velum Total 18 fl oz	A	9.7 b	2.1 bc	3.7 d	7.7 a	12.0 a	0.2 b	4436 ab
Thimet 20G 4.7 lb	A	11.2 a	2.4 b	4.2 bc	3.7 b	5.1 b	31.1 a	4567 a
Propulse 13.6 fl oz	B							
Wrangler 12 fl oz	A	10.2 ab	2.0 c	3.5 d	6.9 a	12.7 a	0.0 b	4135 d
Admire Pro 10.5 fl oz	A	9.8 b	2.0 c	3.8 cd	6.6 a	9.7 a	0.5 b	4354 bc
Propulse 13.6 fl oz	B							
TUFRunner 511								
Untreated check	N/A	10.6 a	5.5 a	8.7 a	8.6 c	11.4 bc	0.0 b	4552
Thimet 20G 4.7 lb	A	9.7 ab	2.4 bc	4.4 b	7.0 c	9.6 c	8.2 a	4770
Admire Pro 10.5 fl oz	A	10.3 a	1.8 d	3.3 cd	9.0 bc	17.3 a	0.0 b	4712
Velum Total 18 fl oz	A	9.1 b	2.1 bcd	3.5 cd	10.4 abc	17.8 a	0.0 b	4685
Thimet 20G 4.7 lb	A	10.6 a	2.4 b	4.6 b	7.9 c	8.7 c	6.5 a	4853
Propulse 13.6 fl oz	B							
Wrangler 12 fl oz	A	9.7 ab	2.1 cd	3.2 d	12.6 ab	14.9 ab	0.0 b	4576
Admire Pro 10.5 fl oz	A	10.5 a	2.2 bc	3.7 c	13.1 a	17.9 a	0.0 b	4674
Propulse 13.6 fl oz	B							

[z] Timings correspond to A = 30 April and B = 22 May.
[y] Thrips damage was based on 0 to 10 scale where 0 = no visible thrips damage and 10 = plant death.
[x] TSW stunting expressed as the % of the number of stunted loci per 80 ft of row (1 locus = $\leq$ 1 ft of consecutive stunted plants).
Means within a column followed by the same letter are not significantly different according to Fisher's Protected LSD at $\alpha = 0.05$.
Yield data was modeled according to a negative binomial distribution with inverse-link means of the original scale presented.