

PEANUT (*Arachis hypogaea* 'NC V-11')  
Sclerotinia blight; *Sclerotinia minor*

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### **Application time and sequence of fungicide treatments for controlling Sclerotinia blight of peanut, 2005.**

A field site in Bertie County, North Carolina with a history of Sclerotinia blight was used for this experiment. Plots consisted of four 36-in. rows, 50 ft long, with 10-ft planted alleys between plots. The experimental design was a randomized complete block with six replicates. Peanuts were planted on 5 May using a conventional two-row tractor-mounted planter set to dispense a minimum of four seeds per linear ft. Temik 15G at 6.6 lb/A was applied in-furrow at planting for insect control. Standard production practices as described by the North Carolina Cooperative Extension Service were followed throughout the growing season. Standard fungicide treatments included Omega 500F at 16 fl oz/A applied three times at 21-day intervals (positive control) and an untreated check (negative control). Thirteen experimental treatments used varying sequences of alternating Endura, Omega 500F, or no fungicide on each of the first two applications out of three possible fungicide application dates as allowed by the product labels. The post harvest interval (PHI) for Omega 500F is 30 days whereas that for Endura is 14 days. Therefore, treatments on the third application date (often late in the season) included only Endura or no fungicide. Rates of Endura and Omega 500F for the experimental treatments were 9 oz/A and 24 fl oz/A, respectively. First application was made 62 days after planting (DAP) with subsequent applications at 21-day intervals. Incremental increase of disease incidence was monitored on the two center rows of each plot, with ratings beginning on 25 Jul and continuing at 1 to 2-wk intervals for 10-wk. Peanuts were dug on 3 Oct and harvested on 17 Oct.

Weather throughout the season was dry and hot, causing disease incidence to be markedly less than in previous years. Significant differences in final AUDPCs were noted with highest AUDPCs observed for two treatments in which Omega 500F was applied at application one and no fungicide was applied at application two (Table 1). Treatments in which either fungicide was applied at application one and two had significantly less disease than the previously mentioned treatments (Table 1). When effects of both fungicides were pooled, contrasts on AUDPC data indicated that there was no advantage to using a fungicide at application one (Table 2). When Omega 500F was used for the first application, AUDPC was significantly higher than in plots where no fungicide was used (Table 2). AUDPCs did not differ significantly when Endura was used at application one vs. no fungicide (Table 2). At application two, either fungicide significantly decreased final AUDPC compared to plots where no fungicide was applied (Table 2). For the final application, fungicide (Endura) did not significantly decrease final AUDPC levels (Table 2). Yields were not significantly different for any treatment (Table 1). Contrasts comparing yield of Omega 500F vs. Endura and fungicide vs. no fungicide at all three application intervals also were not significant (Table 2).

**Table 1**

Treatment sequence and rate/A <sup>Z</sup>	Final AUDPC <sup>Y</sup>	Yield <sup>X</sup> (lb/A)
Untreated Check (neg. cont.).....	88.8 abc	3319
Omega 500F 16 fl oz; Omega 500F 16 fl oz; Omega 500F 16 fl oz (pos. cont.).	6.8 c	3656
Endura 9 oz; No fungicide; No fungicide.....	50.9 abc	3456
Endura 9 oz; No fungicide; Endura 9 oz.....	31.4 bc	3782
Endura 9 oz; Omega 500F 24 fl oz; No fungicide.....	26.3 bc	3765
Endura 9 oz; Endura 9 oz; No fungicide.....	16.7 c	3390
Endura 9 oz; Omega 500F 24 fl oz; Endura 9 oz.....	14.6 c	3852
Omega 500F 24 fl oz; No fungicide; No fungicide.....	254.7 a	3812
Omega 500F 24 fl oz; No fungicide; Endura 9 oz.....	195.9 ab	3330
Omega 500F 24 fl oz; Omega 500F 24 fl oz; No fungicide.....	76.5 abc	3817
Omega 500F 24 fl oz; Endura 9 oz; No fungicide.....	52.9 abc	3617
No fungicide; Endura 9 oz; No fungicide.....	75.2 abc	3300
No fungicide; Endura 9 oz; Endura 9 oz.....	39.6 abc	3571
No fungicide; Omega 500F 24 fl oz; Endura 9 oz.....	16.3 c	3622
No fungicide; Omega 500F 24 fl oz; No fungicide.....	1.3 c	3315

<sup>Z</sup> Treatments sequences are denoted as application one; application two; application three. All treatments were initiated 62 DAP. Subsequent applications for all treatments were made at 21-day intervals.

<sup>Y</sup> Area under the disease progress curve data were square root transformed for analysis and means were back-transformed for presentation. Means followed by the same letter are not significantly different according to Waller-Duncan K-ratio t test with k=100; MSD 9.7; R<sup>2</sup>=0.50; CV=97.

<sup>X</sup> Mean yields were not significantly different according to F test at P=0.22; R<sup>2</sup>=0.26; CV=16; LSD=654.

**Table 2**

Contrast <sup>Z</sup>	df	Final AUDPC <sup>Y</sup> <i>Contrast Estimate</i>	Yield (lb/A) <sup>X</sup> <i>Contrast Estimate</i>
<b>First Application Effects</b> .....	(4)		
1. No fungicide vs. fungicide.....	1	-1.53 ns	-222.57 ns
2. Omega 500F vs. Endura.....	1	4.56 **	-2.63 ns
3. No fungicide vs. Omega 500F only.....	1	-4.69 **	-194.61 ns
4. No fungicide vs. Endura only.....	1	-0.13 ns	-197.24 ns
<b>Second Application Effects</b> .....	(4)		
1. No fungicide vs. fungicide.....	1	5.25 **	-50.78 ns
2. Omega 500F vs. Endura.....	1	-2.34 ns	201.73 ns
3. No fungicide vs. Omega 500F only.....	1	6.43 **	-76.20 ns
4. No fungicide vs. Endura only.....	1	4.09 *	125.53 ns
<b>Third Application Effects</b> .....	(1)		
1. No fungicide vs. fungicide.....	1	1.45 ns	-103.22 ns

<sup>Z</sup> All treatments were initiated at 62 DAP. Subsequent applications for all treatments were made at 21-day intervals.

<sup>Y</sup> Area under the disease progress curve data were square root transformed for analysis and presentation. The symbol (\*) denotes a significant contrast for  $P \leq 0.05$ ; (\*\*) denotes a significant contrast for  $P \leq 0.01$ ; ns denotes no significance.

<sup>X</sup> The symbol (\*) denotes a significant contrast for  $P \leq 0.05$ ; (\*\*) denotes a significant contrast for  $P \leq 0.01$ ; ns denotes no significance.