Grower Application of AU-Pnut Fungicide Spray Advisory On Peanut in South Texas

A. J. Jaks, B. A. Besler and W. J. Grichar [1]

SUMMARY

Early leaf spot was very prevalent in the test field. Unsprayed check plots rated 8.6 on a 1-10 scale for leaf spot severity. The Atascosa County grower applied three fungicide sprays as advised by the AU-Pnut advisory. The grower on his own schedule applied four fungicide sprays. Four out of five planned sprays were applied randomly on another program. All yields were significantly higher from all programs over the unsprayed plots. There was no significant difference in yield between plots sprayed by advisory or either of the other four spray programs. The AU-Pnut advisory program would have resulted in a one-spray savings in fungicide and application costs for the producer.

INTRODUCTION

At present there is no peanut fungicide advisory program in use in Texas, although these advisories are used effectively in other peanut production areas of the country. Growers in south Texas do not apply seven fungicide sprays on a calendar schedule as in common in some other regions. Fungicide use in south Texas may vary from two to five sprays per season depending on the weather. Periods of high humidity with leaf wetness under favorable temperatures can result in foliar disease infection of leaf spot and rust. On the other hand, hot, dry weather with minimal leaf wetness and lower humidity does not favor foliar infection. Under favorable periods of infection weather, using an advisory will result in timely use of fungicides. Fungicide spray advisories will not be issued under poor infection weather periods. Timing of fungicide sprays is critical when fewer sprays are applied, as is the case in south Texas. Use of an advisory on as "as needed" basis can result in savings for the producer in fungicide and application costs. For example, based on one south Texas producer's production costs, using Folicur 3.6F plus ground application costs per acre would be $20.00/acre x 200 acres = $4000.00. Fungicide application by air costs would be greater. Use of the AU-Pnut fungicide advisory program may offer producers, consultants, and farm managers a useful tool in determining when to apply costly fungicides. Basic use of this program is not cost inhibitive. It involves use of a rain gauge and maintaining a record of rainfall and irrigation date amounts and recording the dates of sprays applied.

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[1]Senior Research Associate's and Research Scientist, Texas Agricultural Experiment Station, Beeville

MATERIALS AND METHODS

The test was conducted in an Atascosa County, Texas grower's field. The peanut variety Tamrun OLO1 was used in this study. The test plots were arranged in a randomized complete block with four replications. Test plots were two rows, each 20 feet long spaced 36-inches apart. Adjacent test rows from the growers field in which his spray program and the AU-Pnut were located, respectively, were identified. Comparison plots, which included a four-spray program and unsprayed plots, were located in a separate area adjacent to the grower's program area. Grower treatments by his program and AU-Pnut advisory were applied with a tractor-mounted sprayer. Comparison treatments were applied with a CO_2 pressurized small plot sprayer. The grower applied four fungicide sprays on his own program. Bravo WS (1.5 pt./A) was applied in a band application at 54 and 109 days after planting. Folicur 3.6F (7.2 fl. oz/A) was applied in a band application at 83 and 92 days after planting as part of this program. Under the AU-Pnut advisory program, the grower applied three fungicide sprays. Each spray was applied in a band application across the row. Bravo WS (1.5 pt./A) was applied at 54 days after planting and Folicur 3.6F (7.2 fl. oz/A) was applied at 90 and 111 days after planting. The other comparison four-spray treatments were Echo 720 (1.5 pt./A) applied in a band spray at 48 days after planting and again as a broadcast spray at 105 days after planting. Folicur 3.6F (7.2 fl. oz/A) was applied broadcast at 70 and 90 days after planting. Standard grower practices were followed for land preparation, fertility and weed control. Circle pivot provided supplemental irrigation water during the growing season. Assessment of leaf spot disease was made using the Florida leaf spot scale where 1= no disease, and 10=plants dead, completely defoliated from leaf spot. Soilborne disease (Southern blight) was evaluated by counting disease target sites per plot (40 linear feet of row with a diseased area on pods/stems, which was equal to 1 ft. or less each, of affected row following inversion of plants at digging). Plots were dug, inverted, dried in the field and combined. Plot samples were then force air dried to 10% moisture, cleaned of debris and weighed to determine yield per acre. Pod samples were removed from cleaned plot peanuts to determine grade and economic value. Disease ratings, yield, grade and economic value were analyzed statistically.

RESULTS AND DISCUSSION

Early leaf spot was epidemic in the test location with untreated plots rating an 8.6 out of a possible 10 for severity. Early leaf spot was the predominant pathogen. Although foliar disease levels were slightly elevated with the three spray AU-Pnut program treatment, there was no statistical difference in yield from any of the programs, which received four sprays (Table 1). In relation, all yields were significantly higher from all schedules over untreated plots. There was no significant difference between any of the programs in dollar value per acre, and all programs were significantly worth more than the untreated plots. No significance from any of the programs including the untreated was noted for peanut grade. Higher levels of soilborne disease were apparent in each of the growers applied programs over the comparison four-spray program and even the

untreated check. This was probably due to higher levels of Southern blight in the areas where the growers programs were located. Disease pressure can change from year to year depending on climatic conditions within a field or location. This is true of not only foliar disease but soilborne diseases as well. Past research experience has shown that fungicides applied for foliar diseases by advisory, also provided control of soilborne diseases provided the fungicide selected for use also had activity against soilborne disease. Any advisories issued between 50-100 days after planting should result in use of a fungicide that provides control of soilborne as well as foliar diseases. The advisories for sprays from planting up to 50 days and for sprays from 100 days up to two weeks prior to digging could use a protective fungicide primarily or exclusively for foliar disease control. Continuation of this research is needed in south Texas to test these programs in order to generate data that can be used to make sound decisions.

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Table 1. Fungicide Advisory Data from Atascosa County, Texas, 2003.

Treatment/Program/Application Type	Timing[2] DAP	Leaf spot[3] 22 Sep	Target sites[4] 6 Oct	Yield lb/A	Grade	$/Acre[5]
Untreated Control.....	------	8.6 a[1]	7.8 c	2591 b	77 a	468.99 b
4 SPRAY COMPARE						
Echo 720 1.5 pt. (Band).....	48	4.8 d	4.5 d	3925 a	77 a	713.00 a
Folicur 3.6F 7.2 fl. oz. (Broadcast)	70,90					
Echo 720 1.5 pt. (Broadcast)	105					
AU-Pnut 3 SPRAY/GROWER						
Bravo WS 1.5 pt. (Band).....	54	6.5 b	10.0 b	3607 a	77 a	658.38 a
Folicur 3.6 F 7.2 fl. oz. (Band)	90,111					
4 SPRAY GROWER						
Bravo WS 1.5 pt. (Band).....	54	5.8 c	12.0 a	3635 a	78 a	663.53 a
Folicur 3.6 F 7.2 fl. oz.(Band)	83,92,109					

[1] Means in a column followed by the same letter indicates Duncan's Multiple Range groupings of treatments, which do not differ significantly ($P \leq 0.05$).
[2] Timing = Days after planting (DAP)
[3] Leaf spot disease rating based on Florida leaf spot assessment scale (1 = no disease, 10 = plants dead, completely defoliated from leaf spot).
[4] Soilborne disease target sites based on the number of Southern blight infection sites less than or equal to 1.0 ft. of damaged pods/stems in 40.0 ft. of row.
[5] Dollar per Acre values based on loan rate values for peanut grading values.