

CROP ROTATION SYSTEMS FOR SOUTH TEXAS PEANUT PRODUCTION

W. James Grichar ¹, A. J. Jaks ², and Lawrence L. Falconer ³**Introduction**

Rotation systems in peanut help to reduce diseases as well as improve soil quality and can result in an increase in peanut yields. Over the past few years, more cotton continues to be planted in the south Texas peanut growing region and the general consensus is that this trend in increased cotton acreage will continue over the next few years. As these acres increase, growers continue to question the effects of a cotton-peanut rotation on disease development and peanut yield and quality. These growers have seen reports from the southeast and other peanut growing regions on the benefits of a cotton-peanut rotation but there has been little or no work in the southwest, specifically south Texas, evaluating the effects of a rotation system. Therefore, research information is needed on the effects of rotation on peanut yield and quality in the south Texas area.

Materials and Methods

This was the second year for this crop rotation study (Table 1). Plots were

Rotation system	Year			
	2005	2006	2007	2008
1	Peanuts	Peanuts	Peanuts	Peanuts
2	Corn	Peanuts	Corn	Peanuts
3	Cotton	Peanuts	Cotton	Peanuts
4	Cotton	Cotton	Peanuts	Peanuts
5	Milo	Peanuts	Milo	Peanuts
6	Corn	Cotton	Peanuts	Peanuts

established with cotton or peanuts planted in the respective plots. Plots that contained peanuts were sub-divided into Folicur/no Folicur plots to determine peanut response to fungicide for control of soil-borne diseases. Cotton (G-9058F) was planted on April 6, 2006 while peanuts (Tamrun OL01) were planted on June 6, 2006. Both were planted with a Monosem vacuum planter and maintained weed-free throughout the growing season with herbicides respective to each crop. Supplemental irrigation was applied throughout the growing season as needed. Peanut leafspot was managed with 3 applications of Bravo Weatherstik applied strategically throughout the growing season.

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Folicur at 7.2 oz/A was applied 3 times (Aug 9, 22, Sept 6) to specific plots within peanut planted plots.

Cotton was hand-picked twice to determine yield while peanuts were dug on Nov 6 and combined on Nov 13. Samples were cleaned of foreign material to determine yield and grade.

Results and Discussion

For the 2006 growing season, rotation systems 1, 2, 3, and 5 were planted to peanut while rotation systems 4 and 6 were planted to cotton (Table 2). In rotation

Rotation system	Year		
	2005	2006	
		Fungicide	No fungicide
1	2791 lbs/A (Peanuts)	3004 lbs/A	2615 lbs/A
2	85.0 bu/A (Corn)	3461 lbs/A	3148 lbs/A
3	1304 lbs/A (Seed cotton)	3090 lbs/A	2895 lbs/A
4	1245 lbs/A (Seed cotton)	1729 lbs/A (Seed cotton)	
5	2780 lbs/A (Milo)	2955 lbs/A	2771 lbs/A
6	68.7 bu/A (Corn)	2284 lbs/A (Seed cotton)	

^a Crops planted in 2005 and other than peanut in 2006 are in parenthesis.
^b Plots planted to peanuts in 2006 are divided into Foliar/no Foliar. Bravo Weatherstik at 1.5 pt/A was applied 3 times to all peanut plots. Folicur at 7.2 oz/A was applied to fungicide plots 3 times during the growing season.

system 1, where peanut followed peanut, the use of Folicur resulted in a yield of 3004 lbs/A while plots which did not receive Folicur yielded 2615 lb/A. In system 2, where peanut followed corn, peanut plots sprayed with Folicur yielded 3461 lbs/A while those plots which were not sprayed with Folicur yielded 3148 lbs/A. In system 3, where peanut followed cotton, Folicur treated plots yielded 3090 lbs/A while non-Folicur treated plots yielded 2895 lbs/A. In system 5, where peanut followed milo, Folicur treated plots yielded 2955 lbs/A while non-Folicur treated plots yielded 2771 lbs/A. Thus far, the best rotation to use in peanut would be corn>cotton,milo. Peanuts planted following corn yielded 300 to 400 lbs higher than when peanut followed cotton or milo. All peanut rotation systems which included Folicur yielded better than plots which did not receive Folicur. Where cotton followed cotton, seed cotton yields were 1729 lbs/A while cotton following corn yielded 2284 lbs/A of seed cotton.

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