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Evaluation of Foliar Fertilizer and other Additives on Peanut Crop Response and Economic Returns

(citations
see below)

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Introduction

Producers annually apply various combinations of yield enhancing agents including foliar fertilizers and other plant growth regulators in the hopes of improving plant growth and performance. The products often include the addition of a micronutrient (especially iron). Iron chlorosis is commonly observed across the peanut growing region of Texas. Growers will often apply a foliar fertilizer containing iron and in many cases other micronutrients. In addition, plant growth regulators may be applied to boost early season plant vigor and growth. While these applications may temporarily improve plant growth and/or appearance they may not benefit peanut yield or quality. Many of these products have never been tested in a replicated experiment by an unbiased representative, especially over multiple years and locations. Therefore, there is little or no data to determine if the products actually improve a producer's bottom line. As peanut profitability continues to tighten it is imperative that each input applied by a producer provides an economical return. Location and environment will most likely effect the performance of these products. Therefore the goal of this project through multiple year and location testing is to determine when and where these products might be most economically and effectively applied.

Discussion

Field studies were conducted in Dawson (AG-CARES), Lamb (2 locations), Terry, and Wilbarger counties. Twelve treatments were applied at each location: untreated (no foliar product, Peanut Gro 4-2-1 at 1 qt pr/A POST3, CoRoN at 3 gal pr/A POST2, Elemax Nutrient Concentrate at 1 qt pr/A + CoRoN at 1 gal pr/A POST2, Tracite Iron 5% 1 qt pr/A POST3, Cotton & Peanut Mix 1 gal pr/A POST3, Quick Boost Ultra at 1 gal pr/A POST3, Humic Acid at 1 gal pr/A POST10, Fulvic Acid at 1 gal pr/A POST10, Liquid Chicken at 1 gal pr/A POST10, Humic Acid at 0.6 gal pr/A POST10 + Fulvic Acid at 0.1 gal pr/A POST10 + Liquid Chicken at 0.3 gal pr/A POST10, Humic Acid at 1 gal pr/A + Foliar (varied by location). The foliar product at AG-CARES and Wilbarger was Elemax Nutrient Concentrate at 1 qt pr/A + CoRoN at 1 gal pr/A POST2, at Lamb-1 was Peanut Gro 4-2-1 at 1 qt pr/A POST3, at Lamb-2 was Tracite Iron 5% 1 qt pr/A POST3, and at Terry was Cotton & Peanut Mix 1 gal pr/A POST3. The exception to this list was that Tracite Iron 5% and Quick Boost Ultra were not applied at the Wilbarger location. The

following spray regime was used: the first treatment was applied starting in the middle of June (corresponding with early bloom). POST2 applications would have received 2 applications, POST3 applications would have received 3 applications, and POST10 applications would have received 10 applications. Follow up applications were applied on a 7 to 10 day schedule after the initial application applied in mid-June. All treatments were applied broadcast in 15 gallons per acre water carrier. All treatments were applied with a 0.25 % v/v non-ionic surfactant except Humic Acid, Fulvic Acid, and Liquid Chicken. No treatment applied affected yields or grades at any location when compared to where no foliar product was applied. Sound mature kernels and sound splits were also not effected. None of the foliar products affected extra large kernels at the Virginia market-type location either.

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Foliar Product Evaluation Trials - 2005

Treatment	Rate	Timing	AG-Cares			Yield (lb/A)	Terry	Wilbarger
			Lamb-1	Lamb-2	Terry			
Untreated			4825	4211	3469	1373	6496	
Peanut Gro 4-2-1	1 qt/A	POST3	4558	4175	3267	1114	6774	
CoRoN	3 gal/A	POST2	4935	3630	3509	1668	6141	
Elemax Nutrient Conc	1 qt/A	POST2	4599	3775	3469	1163	6387	
CoRon	1 gal/A							
Tracite Iron 5%	1 qt/A	POST3	4809	4175	3630	1239		
Cotton & Peanut Mix	1 gal/A	POST3	4643	3630	3428	1015	6976	
Quick Boost Ultra	1 gal/A	POST3	4716	4610	3549	1007		
Humic Acid	1 gal/A	POST10	4375	4683	3711	1245	5955	
Fulvic Acid	1 gal/A	POST10	4187	4501	3307	1045	5824	
Liquid Chicken	1 gal/A	POST10	4386	4283	3791	1365	5917	
Humic Acid	0.6 gal/A	POST10	4072	4175	3590	1447	6103	
Fulvic Acid	0.1 gal/A							
Liquid Chicken	0.3 gal/A							
Humic Acid	1 gal/A	POST	4842	4574	3590	1193	5579	
+ Foliar								
LSD (P=.10)			NS	NS	NS	NS	NS	
Standard Deviation			454	570	301	456	663	
CV			10	14	9	37	11	
Test Mean			4579	4202	3526	1240	6215	

Foliar Product Evaluation Trials - 2005

Treatment	Rate	Timing	AG-Cares				Terry	Wilbarger
			Lamb-1	Lamb-2	Grade	(%)		
Untreated			76	72	74	76	71	
Peanut Gro 4-2-1	1 qt/A	POST3	76	70	73	76	70	
CoRoN	3 gal/A	POST2	76	71	75	76	71	
Elemax Nutrient Conc	1 qt/A	POST2	77	73	73	75	72	
CoRon	1 gal/A							
Tracite Iron 5%	1 qt/A	POST3	77	71	72	75		
Cotton & Peanut Mix	1 gal/A	POST3	76	72	72	75	72	
Quick Boost Ultra	1 gal/A	POST3	76	71	74	75		
Humic Acid	1 gal/A	POST10	76	72	73	76	71	
Fulvic Acid	1 gal/A	POST10	76	71	73	75	72	
Liquid Chicken	1 gal/A	POST10	77	70	73	76	71	
Humic Acid	0.6 gal/A	POST10	76	72	73	76	72	
Fulvic Acid	0.1 gal/A							
Liquid Chicken	0.3 gal/A							
Humic Acid	1 gal/A	POST	7	7	7	7	73	
+ Foliar								
LSD (P=.10)			NS	NS	NS	NS	NS	
Standard Deviation			1	1	1	1	1	
CV			1	2	2	2	2	
Test Mean			76	71	73	76	72	