458/1536
2017
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NATIONAL PEANUT BOARD/SOUTHEAST PEANUT RESEARCH INITIATIVE - Final Report Summary

PROJECT TITLE - Adapting the hull-scrape technique to current cultivars and near release peanut lines

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Cooperating: Corley Holbrook, USDA–Tifton; Tim Brenneman, Albert Culbreath, Peggu Ozias-Akins, Scott Monfort UGA- Tifton Kris Balkcom (Auburn), David Wright and Diane Roland (UFL), Chris Butts and Marshall Lamb, USDA- NPL, Dawson, GA

Summary : To enhance the performance of the Hull-Scrape technique on new cultivars grown in the Southeast we conducted experiments during the 2015-2017 growing seasons. In 2017, we also included the impact of two levels of fungicide treatments (premium and moderate) on weekly pod development of 7 cultivars using the Hull-Scape procedure, from 65 DAP to 163 DAP and yield and grade at weekly digging dates beginning at 114 and ending 163 DAP in 2016, and at 130 – 165 DAP in 2017.

The seven peanut varieties we researched in 2017 are listed below, and the two fungicide programs were chlorothalonil every 2 or 4 weeks – each with 2 sprays of Convoy. The rainfall and humidity resulting from Hurricane Irma really increased disease pressures. The penalty for harvesting one or two weeks early or one or two weeks late varied by variety, with the more disease resistant varieties preforming significantly better. Vine condition is very important when determining when to dig. Our conclusions on the varieties we have multiple years of experience using Hull Scrape predications are:

GA 06G The Hull Scrape chart generally predicts harvest **accurate to 6 days earlier** than optimum of 135- 150 DAP. *Yet poor disease control will push best harvest date earlier and the penalty for missing this date will be greater. The optimum yield in 2016 was dug at 142 DAP - 6605 lbs/a with a grade of 78. In 2017 the highest yield occurred at 151 DAP – 5494 lbs/a - grade of 75.*

TifNV High O/L Hull Scrape predicted harvest **10 days earlier** than optimum of 144-156 DAP. *Yet poor disease control will push best harvest date earlier. However, the penalty for missing this date will be less than most varieties. The optimum yield in 2016 was dug 156 DAP - 7107 lbs/a – with a grade of 80. . In 2017 the highest yield occurred at 144 DAP – 5542 lbs/a with a grade of 71.*

GA 14N The Hull Scrape chart is predicting harvest **accurately to 7 days earlier** than optimum (generally 146-156 DAP). *Yet poor disease control will push the best harvest date earlier and the penalty for missing this date will be greater. The optimum yield in 2016 was dug 156 DAP - 6082 lbs/a with a grade of 83. In 2017 the highest yield occurred at 151 DAP– 4593 lbs/a with a grade of 75.*

TUFRunner 297 The Hull Scrape Chart predicted harvest date **accurately-**142 DAP. *Yet poor disease control will push best harvest date earlier and the penalty for missing this date will be something you don't want to experience. The optimum yield in 2016 was dug 144 DAP- 6904 lbs/a – with a grade of 83. In 2017 the highest yield occurred at 144 DAP – 5949 lbs/a with a grade of 74.*

Tifguard- The Hull Scrape chart predicted **7 – 10 days earlier** than optimum (135 -149 DAP). *Poor disease control will push best harvest date earlier. Yet the penalty for missing this date will be less than most other varieties. The optimum yield in 2016 was dug 149 DAP - 6970 lbs/a with a grade of 81.*

GA 12Y Hull Scrape predicted harvest **10 - 21 days earlier** than optimum of (148 - 156 DAP). *Poor disease control will push best harvest date earlier. Yet the penalty for missing this date will be less than most other varieties. The optimum yield in 2016 was dug 156 DAP - 7251 lbs/a with a grade of 80.*

More information on the disease ratings and yield penalty for missing the optimum dig date, by variety, are available in the full report.

NATIONAL PEANUT BOARD/SOUTHEAST PEANUT RESEARCH INITIATIVE – 2017-18 Final Report

PROJECT TITLE - Adapting the hull-scrape technique to current cultivars and near release peanut lines

RES. AGR. NO.: PID #458 PROJECT LEADER: Craig Kvien – UGA - Tifton

Cooperating: Corley Holbrook, USDA–Tifton; Tim Brenneman, Albert Culbreath, Peggy Ozias-Akins, Scott Monfort UGA- Tifton Kris Balkcom (Auburn), David Wright and Diane Roland (UFL), Chris Butts and Marshall Lamb, USDA- NPL, Dawson, GA

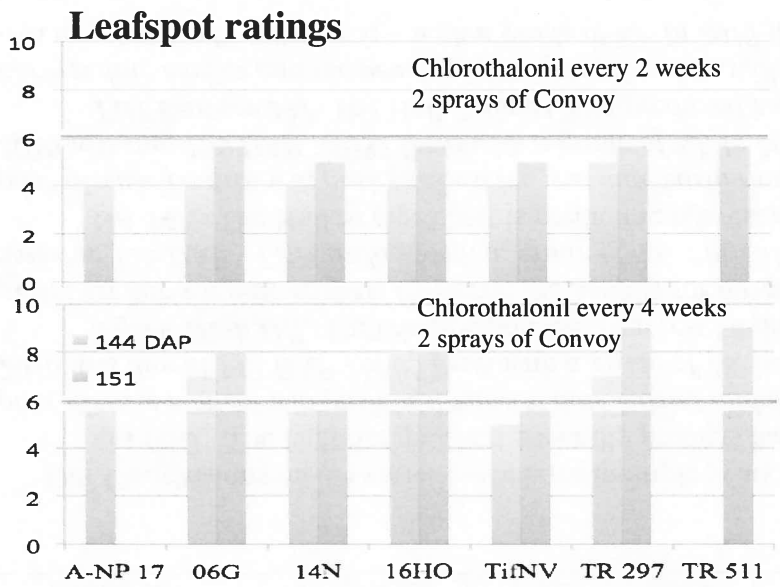
GACCP Budget No.: SID #GA-177, BID # 1536

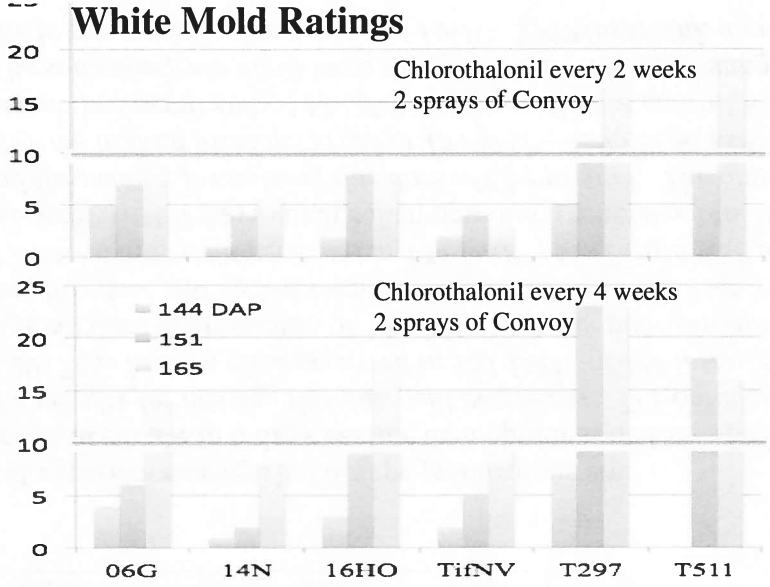
Objectives: The Hull-Scrape Technique has worked reasonable well on most varieties released during the past 30 years. Yet several recently released varieties are showing large differences in pod stem strength, the way the colors in the middle of the hull develop, and in disease resistance, making a harvest prediction with the current profile board less accurate. By improving Hull-Scrape Technique for these varieties, growers will harvest more pods at little to no extra cost.

Procedures: To enhance the performance of the Hull-Scrape technique on new cultivars grown in the Southeast we conducted experiments during the 2015-2017 growing seasons. Because disease incidence and control is very important in determining when to dig we chose a field with a poor rotation (peanuts in 2016) and we included the impact of two levels of fungicide treatments (cholothalonil every 2 weeks and chlorothalonil every 4 weeks – both also received two applications of Convoy). We measured weekly pod development of the 7 cultivars using the Hull-Scape procedure, from 65 DAP to 163 DAP and yield and grade at weekly digging dates beginning at 114 and ending 163 DAP in 2016, and at 130 – 165 DAP in 2017. The seven peanut varieties we researched in 2017 are O6G, TifNV, GA14N, GA 16HO, TufRunner 297, TufRunner 511, and AU-NPL 17.

Results and Discussion:

The rainfall and humidity resulting from Hurricane Irma, along with the poor rotation, really increased disease pressures in 2017, and made field operations more difficult. The penalty for harvesting one or two weeks early or one or two weeks late varied by variety, with the more disease resistant varieties preforming better. When compared to yields in 2016, the yields in 2017 were reduced by 1,000 lbs/ acre or more. Of the varieties tested, TifNV, GA14N and GA 12Y were generally most resistant to disease. The leafspot and white mold ratings (lower numbers are better) and the yields by harvest date follow.





2017	2 Week cholorthalonil + 2 Convoy Yield (lbs/ac)						4 Week chlorothalonil + 2 Convoy Yield (lbs/ac)				
Variety/ Dig .....Date	130 DAP	144 DAP	151 DAP	158 DAP	165 DAP		130 DAP	144 DAP	151 DAP	158 DAP	165 DAP
AU-NPL 17		5266		4564				5634		4121	
GA06G	4604	4656	5494	4491	3002		5055	5189	4476	3486	2077
GA14N	4218	4157	4581	3313	3239		3052	4521	4593	3926	2185
GA16HO	5506	5300	5561	5452	3855		5269	5093	4904	3631	1382
TifNV	5070	5542	5132	5328	4036		4952	5548	4773	4427	2601
TUFRunner 297	5052	5949	4962	3647	2482		5627	4570	3473	2184	1066
TUFRunner 511	5225		4376		1888		5204		3271		1117

2017 Fungicide programs - Chlorothalonil every 2 weeks + 2 sprays of Convoy and Chlorothalonil every 4 weeks + 2 sprays of Convoy. Green highlight indicates the dig date resulting in the highest yield.

Better rotation and weather in 2016 produced higher yields in 2016 (plots in both 2017 and 2016 were irrigated). In many cases, the best harvest date in 2016 resulted in yields 1,000 lbs/a more when compared to the best harvest date for the same variety in 2017.

2016 Maturity Test Yield by Diging Date (Lb/Ac)								
Entry#	114 DAP	121 DAP	128 DAP	135 DAP	142 DAP	149 DAP	156 DAP	163 DAP
Tifguard	5092	5398	5228	5823	6090	6970	5948	6370
TifNV	5287	5742	6009	6322	6814	6573	7107	6510
GA06G	5118	5992	5931	5756	6605	6419	6535	6269
GA09B	4957	4979	5250	5194	5891	6010	5762	5894
GA12Y	3837	5480	5093	6617	6414	7079	7251	7006
GA13M	3789	5319	5247	5961	6088	6358	6800	6615
GA14N	4405	4472	4540	5244	5640	5865	6082	5948
TUFRunner 297	4779	5955	5764	6706	6904	6893	6485	6436
TUFRunner 727	4555	5380	5422	6121	6005	6430	6392	5941
Florun 157	3932	4327	4322	5119	4853	4942	5113	4503

Our **Conclusions** on the varieties we have multiple years of experience using Hull Scrape predications are:

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We also noted that:

- Disease resistant cultivars and improved fungicide programs enable the plant to develop and hold more pods.
- The Hull Scrape technique must be used with other data (disease control, expected weather …) to improve accuracy.
- When diseases are well controlled, the penalty for digging early was greater than the penalty for digging late.
- Cultivars with some disease resistance like TifNV, GA 12Y, GA 14N, TUFRunner 297 had smaller yield penalties for being one week early or late when compared to other varieties.
- Growing degree days did not accurately predict the best harvest date.
- During the 2018 season, we will continue to look at the impact of disease control on harvest maturity over time.

Proper harvest scheduling can result in yield increases of 20% or more when compared to digging dates only 14 days before or after optimum. Along with an assessment of the maturity profile, disease control, weather and labor and equipment are key to establishing the best harvest date for a field.

Special thanks for their support to the National Peanut Board, the Georgia Peanut Commission, GA and AL Crop Improvement and FL Foundation Seed Producers, The State of Georgia and USDA- ARS and USDA -NIFA.