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2016

NATIONAL PEANUT BOARD/SOUTHEAST PEANUT RESEARCH INITIATIVE
QUARTERLY PROGRESS REPORT FOR WORK -

Final report Summary

DONE UNDER RESEARCH AGREEMENT

INSTITUTION: University of Georgia

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

RES. AGR. NO.: PID #458

PROJECT LEADER: Craig Kvien

GACCP Budget No.:

SID #GA-177, BID # 1452

EXPIRATION DATE:
12-31-2017

NPB CONTACT: Bob Parker/Maria Mehok
NPB Budget No.:

To enhance the performance of the Hull-Scrape technique on new cultivars grown in the Southeast we conducted experiments during the 2015 and 2016 seasons. In 2016 the Hull-Scrape Board predicted the best digging date for 06G and TUFRunner 287 accurately. For Tifguard, GA 14N and TUFRunner 727 add another 7 days to the Hull Scrape prediction and dig on that date. For TifNV, GA 09B and 12Y add another 10 days to that prediction and dig on that date. Since the hull of GA 13M never seems to develop a dark black coloration we found it best to hull scrape that variety from 114 to 121 days after planting and then dig on that prediction. Of course, the predictions are made based on the assumption that the crop and its canopy is in excellent condition and the weather, equipment and labor also looks good. When disease was well controlled, the penalty for digging early was greater than the penalty for digging late. Some cultivars, like GA 12Y, GA 14N, TUFRunner 297 had less than a 5% penalty for being one week early or late. Other cultivars, like Tifguard the penalty for being one week early or late was around 15%. Growing degree days did not accurately predict the best harvest date.

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To enhance the performance of the Hull-Scrape technique on new cultivars grown in
the Southeast we conducted experiments during the 2015 and 2016 seasons measuring:

- Weekly pod development of 7 cultivars using the Hull-Scrape procedure, from 65 DAP to 163 DAP.
- Yield and grade at each of 8 digging dates (6 reps/) beginning 114 DAP and ending 163 DAP.
- Growing degree days at each digging date using data from a nearby weather station.

The Best harvest date for a peanut field will balance:

- Expected weight gain from immature pods
- Expected weight loss from mature pods lost to soil
- The state of Leaf and Limb disease
- Past and expected weather
- Labor, equipment, soil conditions,
and everything else ...

In 2016 all cultivars produced higher yields over a longer period than in 2015, due
in part, to improved environmental conditions and a stronger fungicide program. The 2016
season resulted in varieties producing higher yields over a longer period, and we believe these
results were due, in part, to environmental conditions and a stronger fungicide program.
Growing degree days was not an accurate predictor of harvest date; for example in 2015 the
optimum harvest date came at 2,628 growing degree days; In 2016 the optimum digging date
was at 2,777 growing degree days.

As noted in the table below, in 2016 the Hull-Scrape Board predicted the best digging
date for 06G and TUFRunner 287 accurately. For Tifguard, GA 14N and TUFRunner 727 we
add another 7 days to the Hull Scrape prediction and dig on that date. For TifNV, GA 09B and
12Y add another 10 days to that prediction and dig on that date. Since the hull of GA 13M
never seems to develop a dark black coloration we found it best to hull scrape that variety
from 114 to 121 days after planting and then dig on that prediction. Of course, the predictions
are made based on the assumption that the crop and its canopy is in excellent condition and
the weather, equipment and labor also looks good.

Summary of Hull Scrape Predictions

	2015 Optimum Predicted	2016 Optimum Predicted
GA 06G	135 DAP 6 E -193 lbs	142 DAP Accurate
GA 14N	148 DAP Accurate	156 DAP 7 E -315 lbs
TUFRunner	297	142 DAP Accurate
TifGuard	135 DAP 10 E -790 lbs	149 DAP 7 E -880 lbs
GA 12Y	148 DAP 21 E -936 lbs	156 DAP 10 E -600 lbs
TifNV		156 DAP 10 E -380 lbs
13M	135 DAP 9 L -150 lbs	156 DAP Accurate

The table below shows the yield penalty for harvesting too early or too late. The optimum harvest date is shown in green. The penalty for digging GA 06G a week or two later than optimum, was much less (5%), than it was for being a week or two early (10%). The yield results by digging date for 10 test varieties is below.

2016 Maturity Yield Test by Digging Date (lbs/A)

Entry#	114 DAP	121 DAP	128 DAP	135 DAP	142 DAP	149 DAP	156 DAP	163 DAP
Tifguard	-1878**	-1572	-1742	-1147	-880	6970*	-1022	-600
TifNV	-1820	-1365	-1098	-785	-293	-534	7107	-597
GA06G	-1487	-613	-674	-849	6605	-186	-70	-336
GA09B	-1053	-1031	-760	-816	-119	6010	-248	-116
GA12Y	-3414	-1771	-2158	-634	-837	-172	7251	-245
GA13M	-3011	-1481	-1553	-839	-712	-442	6800	-185
GA14N	-1577	-1610	-1542	-838	-442	-217	6082	-134
TUF 297	-2125	-949	-1140	-198	6904	-11	-419	-468
TUF 727	-1875	-1050	-1008	-309	-425	6430	-38	-489
Flo157	-1187	-792	-797	5119	-266	-177	-6	-616

*Green background highlights the highest yield in lbs/A for each variety over all digging dates

**Cells before and after the green highlighted cell give the difference in yield from the high yield date - calculated as yield at best date (shown in green)- yield at other date = difference

In 2016, we used a premium fungicide page, did a reasonable job irrigating and the harvest season was abnormally dry. Good disease control, irrigation and varieties with a moderate amount of disease resistance enables growers to extend their harvest window with less yield penalty. Our 2015 tests were conducted using a reasonable (chlorothalonil & tebuconazole), yet not premium fungicide program. Some varieties were affected more than others, GA 12Y remained strong, GA 13M suffered from leafspot late in the season, and GA 09B from White Mold, and these conditions resulted in an earlier harvest with lower yields and a greater yield penalty if the optimum digging date was missed.