THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

2011
PEANUT UPDATE

Learning for Life

2011 PEANUT UPDATE

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INTRODUCTION

The members of the University of Georgia Extension Peanut Team are pleased to present the *2011 Peanut Update*. The purpose of this publication is to provide peanut producers with new and timely information that can be used to make cost-effective management decisions in the upcoming growing season. Contact your local county extension agent for additional information, publications, or field problem assistance.

John P. Beasley, Jr., Editor

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*Printing of the *2011 Peanut Update* was made possible through the generosity and a grant provided by the **Georgia Peanut Commission**

2011 Peanut Outlook and Cost Analysis

Nathan B. Smith and Amanda R. Smith

Peanut Supply and Demand Highlights

- **US and GA Acreage Increased** - Peanut plantings rose by 16% in 2010 for the US (1.29 million planted) and by 11% in Georgia (565,000 planted). After U.S. acreage dropping to the lowest level since 1915, peanut growers increased acreage last year in response to better prices. Georgia did not increase acreage as much as rest of the states, rather cotton acreage rose by 30% to 1.33 million acres.

- **Production Up to almost 2 million tons** - Total U.S. peanut production for 2010 increased 7.3% to total 1.981 million tons according to the last NASS estimate of 2010. Georgia peanut growers produced 48% of the U.S. production (952,000 tons). When the final estimates are released mid-January 2011, Georgia will likely be raised to over 1 million tons. The average yield for the U.S. is shown to be 3,142 pounds per acre and Georgia was pegged at 3,400. Both these yields are expected to be raised.

- **Domestic Consumption of Peanuts Drives the Market** - Total use of peanuts is expected to rise again for the 2010/11 crop marketing year. Over 2.12 million tons are forecast to be consumed led by domestic food use of peanuts. Domestic food use grew by 4% last year and appears to be on a path to 3% growth in 2011. Peanut butter use continues to grow in use in the current slow economy.

- **Export Uses Holds Steady** – Exports of U.S. peanuts are pegged to remain steady at 275,000 tons. Exports dropped last year as prices rose during an economic slowdown in Europe. The U.S. dollar grew in value relative to the Euro. Projected exports would represent about 14% of total use of peanuts.

- **Carryover Stocks Falling** – Ending stocks that are carried over into the next marketing year have gone from a near record 1.065 million tons in 2009 to 915,000 tons in 2010. Another 110,000 tons is expected to be drawn down in 2011 and this figure could drop even more if quality issues continue to surface from the 2010 crop.

- **More Peanuts to be Crushed** – Crush is projected to increase by 10% in 2011. The 2010 crop was up in Seg. 2 and 3 peanuts, thus the expectation of a larger crush. The figure could grow if aflatoxin is found in more warehouses later in the year.

- **Higher Prices As Peanuts Try to Compete** – 2011 peanut contracts came out early, before the end of 2010, at $550 per ton. If cotton remains 90 cent or above, this will be a floor price. Cotton and corn prices will be strong pushing peanuts up and the industry probably doesn't want to fall below 2 million tons.

2011 Cost and Returns Potential

The start of 2011 is looking promising from a returns perspective as prices are approaching 2008 levels for the grains and soybeans while cotton hit historical highs for price after harvest. Peanuts are being pulled higher by the price of other crops. Grower prices will be the highest since the elimination of the quota program in 2002. Given tight fundamentals for Georgia's major row crops, prices will be highly sensitive to production and weather fluctuations. Yields were down in 2010 as a result of late season drought but overall peanut yields held up better than expected in Georgia. Irrigated yields have been strong with newly released varieties. The question for 2011 is will other crops pull acres from peanuts? Returns to irrigated production appear to be competitive with cotton while non-irrigated may need higher prices to keep from going to cotton. Credit availability is still a major concern as banks have tightened their lending limits and terms and rates could rise to offset losses in other sectors of banks' portfolios. Variable costs are expected to rise in 2010 budgets as fuel and fertilizer prices are on the rise. Seed prices for major crops aren't expected to increase by much if at all. Peanut seed could be the exception.

<u>Seed, Fertilizer and Chemicals</u> - Seed cost is raised for 2011, however, the increase is due to larger seeded varieties rather than price. Price is kept the same as 2010 at 75 cents per pound in the peanut budgets. It is possible seed prices could be raised in 2011 but prices have not been announced as of the beginning of January. Shelled prices are higher than this time last year, however, prices paid for farmer stock seed were less than current farmer stock prices. The peanut industry will not want to lose acres so the assumption is seed price will not be increased. Fertilizer prices began rise in 2010 but are shown up only 4% for peanuts as many peanut growers have kept nutrient levels up with rotation, generally not using fertilizer on peanuts other than gypsum and lime. Chemical costs in general have been on the rise for brand name products, but the alternative of generics such as chlorothalonil and tebuconazole are widely utilized by growers. Thus, total chemicals is down due to cheaper spray programs.

<u>Cost of Borrowed Funds</u> – The interest rate charged is dependent upon what lending institutions pay for funds they lend. Traditionally loans are based on the prime rate plus 1 to 2 percent. As the prime lending rate has dropped recently banks have adjusted the margin with some going to 3 points above prime.

Farmers in good financial standing should be able to qualify for near the same rates as 2010 on operating loans. The 2001 rate is estimated in the budget at 6.5%. Credit availability is still a concern for growers as lenders maintain tighter limits and utilize FSA guaranteed loans.

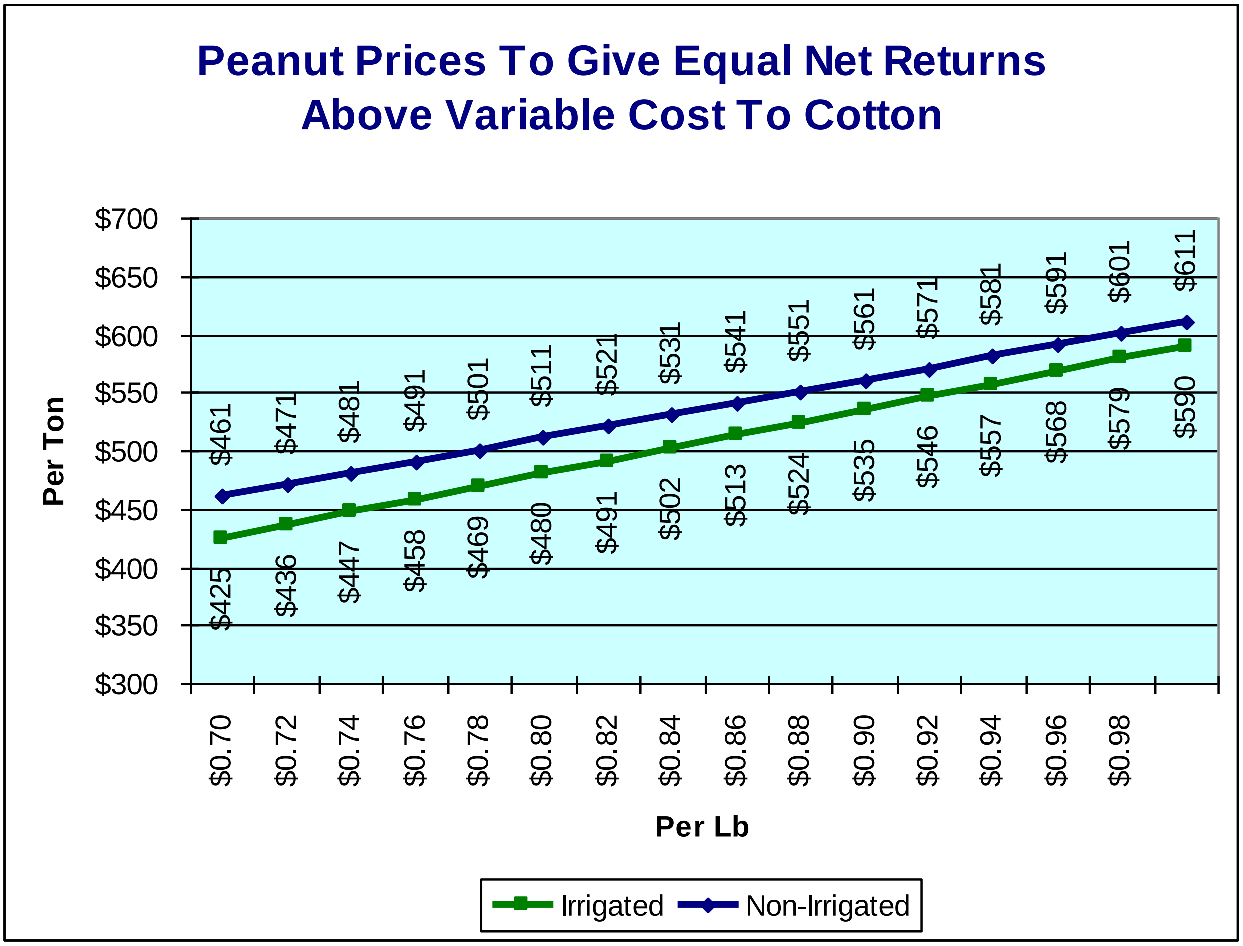
<u>Fuel and Energy Costs</u> – Energy prices are on the rise and have increased more than expected with increased demand globally and in U.S. with a early and cold winter. Fuel and oil prices are expected to continue to rise in 2011. The budgeted price for diesel was $2.85 per gallon in the December 2011 budget. The price is revised up to reflect growing global demand to $3.00 per gallon. The irrigated peanut budget charges an average of $10 per acre inch of water reflecting a 50/50 ratio of diesel and electric power sources.

<u>Labor and Repairs</u> – Operator labor rates are raised to $11.25 per hour in the 2011 budget while machinery repairs are increased reflecting higher cost of equipment and parts.

<u>Breakeven Yield and Price</u> – Note the Sensitivity Analysis table on the second page of the budgets. The table shows the return above variable cost with varying yields and prices. At the budgeted yield, non-irrigated peanut requires $384 per ton to cover variable costs for conventional and $396 per ton strip tillage. Irrigated peanut requires $314 per ton to cover variable costs for conventional and $318 per ton for strip tillage. In order to cover all costs excluding a land charge, the breakeven price is $458 for strip tillage and $464 per ton for conventional in non-irrigated peanut and $512 for strip tillage and $513 per ton for conventional in irrigated peanut.

2011 Crop Comparisons

Roles have reversed from 2008 for cotton and peanuts as acreage is expected to rise for cotton in response to higher prices while peanut price follow in order not to loss many acres. The chart below was first derived in last years peanut update when cotton was at 70 cents per pound. The chart is updated now that cotton is at 90 cents per pound. At 90 cent cotton and updated variable costs for peanut and cotton, peanuts would need $443 per ton for 2,800 dryland peanut production (versus 700 pound cotton) and $431 per ton for 4,000 pound irrigated production (versus 1,100 pound cotton).



Peanut Variable Cost: Irrigated $640 per acre, Non-Irrigated $565 per acre
Cotton Variable Cost: Irrigated $560 per acre, Non-Irrigated $410 per acre

The 2011 Peanut Enterprise Budgets for South Georgia can be found online at http://www.caes.uga.edu/?tiny=JLBBTR

The South Georgia Row Crop Comparison Tool has also been updated and is available online at: http://www.caes.uga.edu/?tiny=TY3II9
Contact your local county Cooperative Extension agent for help in accessing and using these tools for your operation.

This tool enables a grower to compare the costs and expected returns of the major row crops in Georgia in a side-by-side manner. The cost and return estimates in the tool are based upon the UGA Row Crop Enterprise Budgets. The budget estimates are intended as only a guideline as individual operations and local input prices vary across the state. Growers are encouraged to enter their own numbers into the budgets to determine their expected costs and returns. A sensitivity analysis is added to the Crop Comparison Tool in 2010 to allow a grower to see how variations in yield and prices will impact their net return over operating expenses. The table below gives an example of expected returns for peanuts at $550 per ton compared to what the market potential is indicating for cotton, corn and soybeans in early January. Given these expected prices and costs, cotton, corn and peanuts show the highest return above variable cost for 2011. The prices in Table 1 and 2 reflect expected average price compare favorably with cotton. Actual returns would change as price, yield and cost changes.

Table 1. Comparison of Per Acre Return Above Variable Cost for Non-Irrigated Crops.

	Expected Price	Expected Yield	Variable Cost*	Return Above VC
Peanut	$550	2800	$537	$233
Cotton	$0.92	700	$409	$235
Corn	$5.50	85	$284	$184
Sorghum	$5.17	65	$213	$123
Soybean	$11.00	30	$225	$105

2011 University of Georgia cost enterprise budgets.

Table 2. Comparison of Per Acre Return Above Variable Cost for Irrigated Crops.

	Expected Price	Expected Yield	Variable Cost*	Return Above VC
Peanut	$550	4000	$638	$462
Cotton	$0.92	1100	$531	$481
Corn	$5.50	185	$573	$444
Sorghum	$5.17	100	$293	$224
Soybean	$11.00	55	$306	$229

2011 University of Georgia cost enterprise budgets.

*Remember these are *returns above variable costs*, fixed costs including land cost and a management return must be paid out of the remaining income.

Peanut, Non Irrigated
4-Row Combine, 6-Row Equipment
South Georgia, 2011

Estimated Costs and Returns

Expected Yield: **1.4** Ton

Variable Costs	**Unit**	**Amount**	**$/Unit**	**Cost/Acre**	**$/Ton**
Seed	pound	130	$ 0.75	$ 97.50	$ 69.64
Inoculant	pound	5	$ 1.40	$ 7.00	$ 5.00
Lime/Gypsum [a]	ton	0.5	$ 98.50	$ 49.25	$ 35.18
Fertilizer					
Phosphate	pound	0	$ 0.45	$ -	$ -
potash	pound	0	$ 0.50	$ -	$ -
Boron	pound	0.5	$ 6.25	$ 3.13	$ 2.23
Weed Control	acre	1	$ 54.45	$ 54.45	$ 38.89
Insect Control	acre	1	$ 54.50	$ 54.50	$ 38.93
Disease Control [b]	acre	1	$ 41.92	$ 41.92	$ 29.94
Preharvest Machinery					
Fuel	gallon	9.2	$ 2.85	$ 26.31	$ 18.80
Repairs and Maintenance	acre	1	$ 15.46	$ 15.46	$ 11.04
Harvest Machinery					
Fuel	gallon	10.8	$ 2.85	$ 30.64	$ 21.89
Repairs and Maintenance	acre	1	$ 27.54	$ 27.54	$ 19.67
Labor	hour	2.9	$ 11.25	$ 32.39	$ 23.14
Crop Insurance [c]	acre	1	$ 34.50	$ 34.50	$ 24.64
Land Rent	acre	1	$ -	$ -	$ -
Interest on Operating Capital	percent	$ 237.29	6.5%	$ 15.42	$ 11.02
Cleaning	ton	0.5	$ 12.00	$ 5.60	$ 4.00
Drying	ton	0.9	$ 30.00	$ 28.00	$ 20.00
GPC & GPPA State	ton	1.4	$ 3.00	$ 4.20	$ 3.00
NPB Checkoff	dollars	$ 0.01	497	$ 4.97	$ 3.55
Total Variable Costs:				**$ 532.78**	**$ 380.56**

Fixed Costs					
Machinery Depreciation, Taxes, Insurance and Housing					
Preharvest Machinery	acre	1	$ 44.57	$ 44.57	$ 31.84
Harvest Machinery	acre	1	$ 84.60	$ 84.60	$ 60.43
General Overhead	% of VC	$ 532.78	5%	$ 26.64	$ 19.03
Management	% of VC	$ 532.78	5%	$ 26.64	$ 19.03
Owned Land Cost, Taxes, Cash Payment, etc.	acre	1	$ -	$ -	$ -
Other ____________________	acre	1	$ -	$ -	$ -
Total Fixed Costs				**$ 182.45**	**$ 130.32**
Total Costs Excluding Land				**$ 715.23**	**$ 510.88**
Your Profit Goal			**$**	________	**/Ton**
Price Needed for Profit			**$**		**/Ton**

[a] Lime/gypsum application is prorated at 0.5 ton to equal 1.5 ton application every 3 years.

[b] If soilborne disease threatens to be severe, additional application of soilborne fungicide may be recommended, add $15-20/spray. If leafspot threatens to be severe, additional application of chlorothalonil may be recommended at 3/4 pint ($3-5/ac). A nematicide (where needed) = $50-75/ac.

[c] Assumes Yield Protection at 70% coverage. Revenue Protection at 70% coverage adds $4-9/ac.

Sensitivity Analysis of Peanut, Non Irrigated

Net Returns Above Variable Costs Per Acre

Varying Prices and Yields (Ton)

	-25%	-10%	Expected	+10%	+25%
Pounds/Acre	2,100	2,520	2,800	3,080	3,500
Price \ Ton/Acre	1.1	1.3	1.4	1.5	1.8
$375	**-$139.03**	**-$60.28**	**-$7.78**	**$44.72**	**$123.47**
$425	**-$86.53**	**$2.72**	**$62.22**	**$121.72**	**$210.97**
$475	**-$34.03**	**$65.72**	**$132.22**	**$198.72**	**$298.47**
$525	**$18.47**	**$128.72**	**$202.22**	**$275.72**	**$385.97**
$575	**$70.97**	**$191.72**	**$272.22**	**$352.72**	**$473.47**

Estimated Labor and Machinery Costs per Acre

Preharvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [d] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Heavy Disk 27' with Tractor (180-199 hp) MFWD 190	13.2	2	0.19	1.48	$ 2.89	$ 8.40
Plow 4 Bottom Switch with Tractor (180-199 hp) MFWD 190	2.3	1	0.54	4.20	$ 5.60	$ 16.90
Disk & Incorporate 32' with Tractor (180-199 hp) MFWD 190	15.3	1	0.08	0.64	$ 1.57	$ 4.10
Field Cultivate Fld 32' with Tractor (180-199 hp) MFWD 190	21.4	1	0.06	0.46	$ 0.82	$ 3.50
Plant & Pre-Rigid 6R-36 with Tractor (120-139 hp) 2WD 130	8.9	1	0.14	0.75	$ 1.89	$ 5.26
Spray (Broadcast) 60' with Tractor (120-139 hp) 2WD 130	35.5	9	0.32	1.70	$ 2.69	$ 6.42
Total Preharvest Values			1.32	9.23	$ 15.46	$ 44.57

Harvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [d] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Peanut Dig/Inverter 4R-36 with Tractor (180-199 hp) MFWD 190	3.1	1	0.41	3.20	$ 7.54	$ 17.80
Pull-type Peanut Combine 4R-36 with Tractor (180-199 hp) MFWD 190	2.2	1	0.57	4.48	$ 16.04	$ 56.27
Peanut Wagon 21' with Tractor (120-139 hp) 2WD 130	2.2	1	0.57	3.07	$ 3.95	$ 10.53
Total Harvest Values			1.56	10.75	$ 27.54	$ 84.60

[d] Includes unallocated labor factor of 0.25. Unallocated labor factor is percentage allowance for additional labor required to move equipment and hook/unhook implements, etc.

Peanut, Irrigated
4-Row Combine, 6-Row Equipment
South Georgia, 2011

Estimated Costs and Returns

Expected Yield: **2.0** Ton

Variable Costs	Unit	Amount	$/Unit	Cost/Acre	$/Ton
Seed	pound	130	$ 0.75	$ 97.50	$ 48.75
Inoculant	pound	5	$ 1.40	$ 7.00	$ 3.50
Lime/Gypsum [a]	ton	0.5	$ 98.50	$ 49.25	$ 24.63
Fertilizer					
Phosphate	pound	0	$ 0.45	$ -	$ -
potash	pound	0	$ 0.50	$ -	$ -
Boron	pound	0.5	$ 6.25	$ 3.13	$ 1.56
Weed Control	acre	1	$ 39.70	$ 39.70	$ 19.85
Insect Control	acre	1	$ 54.50	$ 54.50	$ 27.25
Disease Control [b]	acre	1	$ 83.45	$ 83.45	$ 41.73
Preharvest Machinery					
Fuel	gallon	9.2	$ 2.85	$ 26.31	$ 13.16
Repairs and Maintenance	acre	1	$ 15.46	$ 15.46	$ 7.73
Harvest Machinery					
Fuel	gallon	10.8	$ 2.85	$ 30.64	$ 15.32
Repairs and Maintenance	acre	1	$ 27.54	$ 27.54	$ 13.77
Labor	hour	2.9	$ 11.25	$ 32.39	$ 16.20
Irrigation [c]	acre	5	$ 10.00	$ 50.00	$ 25.00
Crop Insurance [d]	acre	1	$ 27.50	$ 27.50	$ 13.75
Land Rent	acre	1	$ -	$ -	$ -
Interest on Operating Capital	percent	$ 272.19	6.5%	$ 17.69	$ 8.85
Cleaning	ton	0.7	$ 12.00	$ 8.00	$ 4.00
Drying	ton	1.3	$ 30.00	$ 40.00	$ 20.00
GPC & GPPA State	ton	2.0	$ 3.00	$ 6.00	$ 3.00
NPB Checkoff	dollars	$ 0.01	710	$ 7.10	$ 3.55
Total Variable Costs:				**$ 623.17**	**$ 311.58**

Fixed Costs	Unit	Amount	$/Unit	Cost/Acre	$/Ton
Machinery Depreciation, Taxes, Insurance and Housing					
Preharvest Machinery	acre	1	$ 44.57	$ 44.57	$ 22.29
Harvest Machinery	acre	1	$ 84.60	$ 84.60	$ 42.30
Irrigation [c]	acre	1	$ 110.00	$ 110.00	$ 55.00
General Overhead	% of VC	$ 623.17	5%	$ 31.16	$ 15.58
Management	% of VC	$ 623.17	5%	$ 31.16	$ 15.58
Owned Land Cost, Taxes, Cash Payment, etc.	acre	1	$ -	$ -	$ -
Other ___________________	acre	1	$ -	$ -	$ -
Total Fixed Costs				**$ 301.49**	**$ 150.74**
Total Costs Excluding Land				**$ 924.65**	**$ 462.33**
Your Profit Goal			**$**	__________	**/Ton**
Price Needed for Profit			**$**		**/Ton**

[a] Lime/gypsum application is prorated at 0.5 ton to equal 1.5 ton application every 3 years.

[b] If soilborne disease threatens to be severe, additional application of soilborne fungicide may be recommended, add $15-20/spray. If leafspot threatens to be severe, additional application of chlorothalonil may be recommended at 3/4 pint ($3-5/ac). A nematicide (where needed) = $50-75/ac.

[c] Average of diesel and electric irrigation application costs. Electric is estimated at $7/appl and diesel is estimated at $13/appl when diesel costs $2.85/gal.

[d] Assumes Yield Protection at 70% coverage. Revenue Protection at 70% coverage adds $4-9/ac.

Sensitivity Analysis of Peanut, Irrigated

Net Returns Above Variable Costs Per Acre

Varying Prices and Yields (Ton)

		-25%	-10%	Expected	+10%	+25%
	Pounds/Acre	3,000	3,600	4,000	4,400	5,000
Price	**\ Ton/Acre**	1.5	1.8	2.0	2.2	2.5
$375		**-$60.67**	**$51.83**	**$126.83**	**$201.83**	**$314.33**
$425		**$14.33**	**$141.83**	**$226.83**	**$311.83**	**$439.33**
$475		**$89.33**	**$231.83**	**$326.83**	**$421.83**	**$564.33**
$525		**$164.33**	**$321.83**	**$426.83**	**$531.83**	**$689.33**
$575		**$239.33**	**$411.83**	**$526.83**	**$641.83**	**$814.33**

Estimated Labor and Machinery Costs per Acre

Preharvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [e] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Heavy Disk 27' with Tractor (180-199 hp) MFWD 190	13.2	2	0.19	1.48	$ 2.89	$ 8.40
Plow 4 Bottom Switch with Tractor (180-199 hp) MFWD 190	2.3	1	0.54	4.20	$ 5.60	$ 16.90
Disk & Incorporate 32' with Tractor (180-199 hp) MFWD 190	15.3	1	0.08	0.64	$ 1.57	$ 4.10
Field Cultivate Fld 32' with Tractor (180-199 hp) MFWD 190	21.4	1	0.06	0.46	$ 0.82	$ 3.50
Plant & Pre-Rigid 6R-36 with Tractor (120-139 hp) 2WD 130	8.9	1	0.14	0.75	$ 1.89	$ 5.26
Spray (Broadcast) 60' with Tractor (120-139 hp) 2WD 130	35.5	9	0.32	1.70	$ 2.69	$ 6.42
Total Preharvest Values			1.32	9.23	$ 15.46	$ 44.57

Harvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [e] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Peanut Dig/Inverter 4R-36 with Tractor (180-199 hp) MFWD 190	3.1	1	0.41	3.20	$ 7.54	$ 17.80
Pull-type Peanut Combine 4R-36 with Tractor (180-199 hp) MFWD 190	2.2	1	0.57	4.48	$ 16.04	$ 56.27
Peanut Wagon 21' with Tractor (120-139 hp) 2WD 130	2.2	1	0.57	3.07	$ 3.95	$ 10.53
Total Harvest Values			1.56	10.75	$ 27.54	$ 84.60

[e] Includes unallocated labor factor of 0.25. Unallocated labor factor is percentage allowance for additional labor required to move equipment and hook/unhook implements, etc.

Peanut, Non Irrigated
4-Row Combine, 6-Row Equipment
South Georgia, 2011

Estimated Costs and Returns

Expected Yield: **1.4** Ton

Variable Costs	Unit	Amount	$/Unit	Cost/Acre	$/Ton
Seed	pound	130	$ 0.75	$ 97.50	$ 69.64
Inoculant	pound	5	$ 1.40	$ 7.00	$ 5.00
Lime/Gypsum [a]	ton	0.5	$ 98.50	$ 49.25	$ 35.18
Fertilizer					
Phosphate	pound	0	$ 0.45	$ -	$ -
potash	pound	0	$ 0.50	$ -	$ -
Boron	pound	0.5	$ 6.25	$ 3.13	$ 2.23
Weed Control	acre	1	$ 54.45	$ 54.45	$ 38.89
Insect Control	acre	1	$ 54.50	$ 54.50	$ 38.93
Disease Control [b]	acre	1	$ 41.92	$ 41.92	$ 29.94
Preharvest Machinery					
Fuel	gallon	9.2	$ 2.85	$ 26.31	$ 18.80
Repairs and Maintenance	acre	1	$ 15.46	$ 15.46	$ 11.04
Harvest Machinery					
Fuel	gallon	10.8	$ 2.85	$ 30.64	$ 21.89
Repairs and Maintenance	acre	1	$ 27.54	$ 27.54	$ 19.67
Labor	hour	2.9	$ 11.25	$ 32.39	$ 23.14
Crop Insurance [c]	acre	1	$ 34.50	$ 34.50	$ 24.64
Land Rent	acre	1	$ -	$ -	$ -
Interest on Operating Capital	percent	$ 237.29	6.5%	$ 15.42	$ 11.02
Cleaning	ton	0.5	$ 12.00	$ 5.60	$ 4.00
Drying	ton	0.9	$ 30.00	$ 28.00	$ 20.00
GPC & GPPA State	ton	1.4	$ 3.00	$ 4.20	$ 3.00
NPB Checkoff	dollars	$ 0.01	497	$ 4.97	$ 3.55
Total Variable Costs:				**$ 532.78**	**$ 380.56**

Fixed Costs	Unit	Amount	$/Unit	Cost/Acre	$/Ton
Machinery Depreciation, Taxes, Insurance and Housing					
Preharvest Machinery	acre	1	$ 44.57	$ 44.57	$ 31.84
Harvest Machinery	acre	1	$ 84.60	$ 84.60	$ 60.43
General Overhead	% of VC	$ 532.78	5%	$ 26.64	$ 19.03
Management	% of VC	$ 532.78	5%	$ 26.64	$ 19.03
Owned Land Cost, Taxes, Cash Payment, etc.	acre	1	$ -	$ -	$ -
Other ________________	acre	1	$ -	$ -	$ -
Total Fixed Costs				**$ 182.45**	**$ 130.32**
Total Costs Excluding Land				**$ 715.23**	**$ 510.88**
Your Profit Goal				**$ ________**	**/Ton**
Price Needed for Profit				**$**	**/Ton**

[a] Lime/gypsum application is prorated at 0.5 ton to equal 1.5 ton application every 3 years.

[b] If soilborne disease threatens to be severe, additional application of soilborne fungicide may be recommended, add $15-20/spray. If leafspot threatens to be severe, additional application of chlorothalonil may be recommended at 3/4 pint ($3-5/ac). A nematicide (where needed) = $50-75/ac.

[c] Assumes Yield Protection at 70% coverage. Revenue Protection at 70% coverage adds $4-9/ac.

Sensitivity Analysis of Peanut, Non Irrigated

	Net Returns Above Variable Costs Per Acre *Varying Prices and Yields (Ton)*				
	-25%	-10%	Expected	+10%	+25%
Pounds/Acre	2,100	2,520	2,800	3,080	3,500
Price \ Ton/Acre	1.1	1.3	1.4	1.5	1.8
$375	**-$139.03**	**-$60.28**	**-$7.78**	**$44.72**	**$123.47**
$425	**-$86.53**	**$2.72**	**$62.22**	**$121.72**	**$210.97**
$475	**-$34.03**	**$65.72**	**$132.22**	**$198.72**	**$298.47**
$525	**$18.47**	**$128.72**	**$202.22**	**$275.72**	**$385.97**
$575	**$70.97**	**$191.72**	**$272.22**	**$352.72**	**$473.47**

Estimated Labor and Machinery Costs per Acre

Preharvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [d] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Heavy Disk 27' with Tractor (180-199 hp) MFWD 190	13.2	2	0.19	1.48	$ 2.89	$ 8.40
Plow 4 Bottom Switch with Tractor (180-199 hp) MFWD 190	2.3	1	0.54	4.20	$ 5.60	$ 16.90
Disk & Incorporate 32' with Tractor (180-199 hp) MFWD 190	15.3	1	0.08	0.64	$ 1.57	$ 4.10
Field Cultivate Fld 32' with Tractor (180-199 hp) MFWD 190	21.4	1	0.06	0.46	$ 0.82	$ 3.50
Plant & Pre-Rigid 6R-36 with Tractor (120-139 hp) 2WD 130	8.9	1	0.14	0.75	$ 1.89	$ 5.26
Spray (Broadcast) 60' with Tractor (120-139 hp) 2WD 130	35.5	9	0.32	1.70	$ 2.69	$ 6.42
Total Preharvest Values			1.32	9.23	$ 15.46	$ 44.57

Harvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [d] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Peanut Dig/Inverter 4R-36 with Tractor (180-199 hp) MFWD 190	3.1	1	0.41	3.20	$ 7.54	$ 17.80
Pull-type Peanut Combine 4R-36 with Tractor (180-199 hp) MFWD 190	2.2	1	0.57	4.48	$ 16.04	$ 56.27
Peanut Wagon 21' with Tractor (120-139 hp) 2WD 130	2.2	1	0.57	3.07	$ 3.95	$ 10.53
Total Harvest Values			1.56	10.75	$ 27.54	$ 84.60

[d] Includes unallocated labor factor of 0.25. Unallocated labor factor is percentage allowance for additional labor required to move equipment and hook/unhook implements, etc.

Peanut, Irrigated, Strip Tillage
4-Row Combine, 6-Row Equipment
South Georgia, 2011

Estimated Costs and Returns

Expected Yield: **2.0** Ton

Variable Costs	Unit	Amount	$/Unit	Cost/Acre	$/Ton
Seed	pound	130	$ 0.75	$ 97.50	$ 48.75
Inoculant	pound	5	$ 1.40	$ 7.00	$ 3.50
Cover Crop Seed	bushel	1.5	$ 16.50	$ 24.75	$ 12.38
Lime/Gypsum [a]	ton	0.5	$ 98.50	$ 49.25	$ 24.63
Fertilizer					
Phosphate	pound	0	$ 0.45	$ -	$ -
potash	pound	0	$ 0.50	$ -	$ -
Boron	pound	0.5	$ 6.25	$ 3.13	$ 1.56
Weed Control	acre	1	$ 55.20	$ 55.20	$ 27.60
Insect Control	acre	1	$ 54.50	$ 54.50	$ 27.25
Disease Control [b]	acre	1	$ 83.45	$ 83.45	$ 41.73
Preharvest Machinery					
Fuel	gallon	5.2	$ 2.85	$ 14.84	$ 7.42
Repairs and Maintenance	acre	1	$ 9.05	$ 9.05	$ 4.53
Harvest Machinery					
Fuel	gallon	10.8	$ 2.85	$ 30.64	$ 15.32
Repairs and Maintenance	acre	1	$ 27.54	$ 27.54	$ 13.77
Labor	hour	2.4	$ 11.25	$ 27.04	$ 13.52
Irrigation [c]	acre	4	$ 10.00	$ 40.00	$ 20.00
Crop Insurance [d]	acre	1	$ 27.50	$ 27.50	$ 13.75
Land Rent	acre	1	$ -	$ -	$ -
Interest on Operating Capital	percent	$ 275.70	6.5%	$ 17.92	$ 8.96
Cleaning	ton	0.7	$ 12.00	$ 8.00	$ 4.00
Drying	ton	1.3	$ 30.00	$ 40.00	$ 20.00
GPC & GPPA State	ton	2.0	$ 3.00	$ 6.00	$ 3.00
NPB Checkoff	dollars	$ 0.01	710	$ 7.10	$ 3.55
Total Variable Costs:				**$ 630.41**	**$ 315.21**
Fixed Costs					
Machinery Depreciation, Taxes, Insurance and Housing					
Preharvest Machinery	acre	1	$ 24.40	$ 24.40	$ 12.20
Harvest Machinery	acre	1	$ 84.60	$ 84.60	$ 42.30
Irrigation [c]	acre	1	$ 110.00	$ 110.00	$ 55.00
General Overhead	% of VC	$ 630.41	5%	$ 31.52	$ 15.76
Management	% of VC	$ 630.41	5%	$ 31.52	$ 15.76
Owned Land Cost, Taxes, Cash Payment, etc.	acre	1	$ -	$ -	$ -
Other ___________________	acre	1	$ -	$ -	$ -
Total Fixed Costs				**$ 282.04**	**$ 141.02**
Total Costs Excluding Land				**$ 912.45**	**$ 456.23**
Your Profit Goal			**$**	___________	**/Ton**
Price Needed for Profit			**$**		**/Ton**

[a] Lime/gypsum application is prorated at 0.5 ton to equal 1.5 ton application every 3 years.

[b] If soilborne disease threatens to be severe, additional application of soilborne fungicide may be recommended, add $15-20/spray. If leafspot threatens to be severe, additional application of chlorothalonil may be recommended at 3/4 pint ($3-5/ac). A nematicide (where needed) = $50-75/ac.

[c] Average of diesel and electric irrigation application costs. Electric is estimated at $7/appl and diesel is estimated at $13/appl when diesel costs $2.85/gal.

[d] Assumes Yield Protection at 70% coverage. Revenue Protection at 70% coverage adds $4-9/ac.

Sensitivity Analysis of Peanut, Irrigated, Strip Tillage

Net Returns Above Variable Costs Per Acre

Varying Prices and Yields (Ton)

	-25%	-10%	Expected	+10%	+25%
Pounds/Acre	3,000	3,600	4,000	4,400	5,000
Price \ Ton/Acre	1.5	1.8	2.0	2.2	2.5
$375	**-$67.91**	**$44.59**	**$119.59**	**$194.59**	**$307.09**
$425	**$7.09**	**$134.59**	**$219.59**	**$304.59**	**$432.09**
$475	**$82.09**	**$224.59**	**$319.59**	**$414.59**	**$557.09**
$525	**$157.09**	**$314.59**	**$419.59**	**$524.59**	**$682.09**
$575	**$232.09**	**$404.59**	**$519.59**	**$634.59**	**$807.09**

Estimated Labor and Machinery Costs per Acre

Preharvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [e] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Grain Drill 15' with Tractor (120-139 hp) 2WD 130	8.0	1	0.16	0.84	$ 1.79	$ 5.00
Spray (Broadcast) 60' with Tractor (120-139 hp) 2WD 130	35.5	1	0.04	0.19	$ 0.30	$ 0.71
Subsoiler low-till 6 shank with Tractor (180-199 hp) MFWD 190	9.8	1	0.13	1.00	$ 1.44	$ 4.59
Plant & Pre-Rigid 6R-36 with Tractor (180-199 hp) MFWD 190	8.9	1	0.14	1.10	$ 2.23	$ 6.26
Spray (Broadcast) 60' with Tractor (120-139 hp) 2WD 130	35.5	11	0.39	2.08	$ 3.29	$ 7.84
Total Preharvest Values			0.85	5.21	$ 9.05	$ 24.40

Harvest Operations

Operation	Acres/ Hour	Number of Times Over	Labor Use [e] (hrs/ac)	Fuel Use (gal/ac)	Repairs ($/ac)	Fixed Costs ($/ac)
Peanut Dig/Inverter 4R-36 with Tractor (180-199 hp) MFWD 190	3.1	1	0.41	3.20	$ 7.54	$ 17.80
Pull-type Peanut Combine 4R-36 with Tractor (180-199 hp) MFWD 190	2.2	1	0.57	4.48	$ 16.04	$ 56.27
Peanut Wagon 21' with Tractor (120-139 hp) 2WD 130	2.2	1	0.57	3.07	$ 3.95	$ 10.53
Total Harvest Values			1.56	10.75	$ 27.54	$ 84.60

[e] Includes unallocated labor factor of 0.25. Unallocated labor factor is percentage allowance for additional labor required to move equipment and hook/unhook implements, etc.

Climate and Peanuts in 2011

Mark Boudreau

A precipitous drop in the temperature of the tropical Pacific Ocean last summer, one of the most rapid on record, signaled a shift from the El Niño climatic condition to La Niña. Whereas El Niño brought us the cold, wet conditions we experienced last winter, La Niña is expected to produce just the opposite: An unusually warm and dry winter in the peanut belt of southern Georgia and Alabama and northern Florida. This pattern is predictable only into the early spring, so we have little idea what the planting and growing season itself will be like, but farmers should consider some of the possible ramifications of a mild, dry winter.

For example, there is not likely to be good recharge of soil moisture or aquifers before planting, unfortunately following a droughty season in 2010. Kill off of insect pests and weed seed may be diminished this winter. Dry weather is generally unfavorable for disease, but peanuts are planted too late for La Nina to have much of an impact in this regard. However, there is an historical correlation between La Nina and low levels of tomato spotted wilt virus.

Several tools are available on line to aid in decision-making related to weather and climate. The Georgia Automated Environmental Monitoring Network (AEMN, at www.georgiaweather.net) has a great deal of current information for over 80 sites in Georgia, including soil moisture and soil temperature at three depths. The potential impacts of La Nina at each of these locations may be found at AgroClimate.org, a product of the Southeast Climate Consortium. Three tools are of note for peanut producers at this site: (1) The Climate Risk tool (http://agroclimate.org/tools/climaterisk/) will tell you what the monthly precipitation, minimum temperatures, and maximum temperatures have been like historically during La Nina, El Nino, and neutral (neither La Nina or El Nino) years. (2) The County Yield Database (http://agroclimate.org/tools/countyyield/) allows you to compare peanut yields in your county among the La Nina, El Nino, and neutral years. (3) The Yield Risk Forecast tool (http://agroclimate.org/tools/yieldrisk/) is a versatile application which uses a peanut growth model to not only predict yields based on the El Nino/La Nina cycle for specific locations, but also allows you to compare different planting dates, soil types, and rainfed vs. irrigated practices.

Though no tool is able to predict exactly what will happen on your farm in 2011, a look at the types of weather and crop yields associated with La Nina vs. other years at your location can help you see what outcomes are more or less likely, and plan accordingly to minimize your exposure to risk.

UNIVERSITY OF GEORGIA PEANUT BREEDING PROGRAM

Bill Branch

Editor's Note: The information below provided by Dr. Bill Branch, UGA Peanut Breeder, is a listing and description of the cultivars that have been released from his program since the release of Georgia Green in 1995. Georgia-01R is not listed. **Producers need to keep in mind that in 2011 the only cultivars from the list below that will be commercially available are: Georgia-06G, Georgia Greener, Georgia-07W, and a very minimal amount of Georgia-02C.** The entire list with descriptions is provided to demonstrate the success of the UGA Peanut Breeding program in developing and releasing outstanding cultivars for the industry. The data at the end of the article is from Dr. Branch's trials. Yield and grade data on peanut cultivars from The University of Georgia's official Statewide Variety Trials are available at www.swvt.uga.edu.

"GEORGIA GREEN" is a tomato spotted wilt virus (TSWV)-resistant runner-type peanut variety that was released in 1995 by the Georgia Agricultural Experiment Stations. It was developed at the University of Georgia, Coastal Plain Experiment Station in Tifton, Georgia. Georgia Green is highly productive, and has very good stability across many different environments. After more than a decade of research tests, Georgia Green still maintains a stable high level of resistance to TSWV. It also has a high level of Rhizoctonia limb rot resistance which most other varieties do not have.

Georgia Green has had a significantly positive impact by remaining highly productive over several years and a wide-range of environments (irrigated and dryland production, single or twin rows, conventional as well as reduced tillage.) Georgia Green has many other good attributes and desirable traits for the peanut growers. It has regular runner seed size which saves growers in seed costs, and it has a medium maturity which is about 2-3 weeks earlier than the later maturing runner varieties.

For the consumer, Georgia Green offers very good flavor and nutritional qualities similar to the all-time best U. S. standard Florunner variety. In a recent large-scale multiple state and year study, Georgia Green was found to be comparable or better in roasted peanut flavor and taste in comparison to Florunner. Overall, the Georgia Green peanut variety continues to benefit the whole peanut industry (growers, shellers, manufacturers, and consumers).

"GEORGIA-02C" is a high-oleic runner-type variety that was released in 2002 by the Georgia Agricultural Experiment Stations. It was also developed at the University of Georgia, Coastal Plain Experiment Station at Tifton, GA. Georgia-02C has a wider maturity range than Georgia Green with seed and pod size slightly larger. It also has the high oleic and low linoleic fatty acid oil chemistry with spreading runner growth habit. Georgia-02C has resulted in higher TSMK grades and dollar value returns per acre than all of the other high-oleic varieties. Georgia-02C has excellent TSWV resistance as well as CBR resistance.

"GEORGIA-03L" is a large-podded runner-type peanut variety that was released in 2003 by the Georgia Agricultural Experiment Stations. It was developed at the University of Georgia, Coastal Plain Experiment Station in Tifton. Georgia-03L has similar maturity as Georgia Green with pods and seed significantly larger. Georgia-03L also has a high level of resistance to tomato spotted wilt virus (TSWV) and moderate resistance to both early and late leafspot as well as soilborne diseases: white mold or stem rot and CBR. It has a high percentage of large smooth bright pods with an intermediate runner growth habit and pink seedcoat color. Georgia-03L is highly productive, and was found to be higher in yield than Georgia Green and C-99R. Georgia-03L combines disease resistance with large pods, medium maturity, and excellent yields. It has very good stability and a wide range of adaptability throughout the major peanut production areas.

"GEORGIA VALENCIA" is the newest valencia-type peanut variety that was released in 2000 by the Georgia Agricultural Experiment Stations. **"GEORGIA RED"** is a similar valencia-type variety that was jointly released by the Georgia Agricultural Experiment Stations and USDA-ARS in 1986. Both Georgia Valencia and Georgia Red are excellent choices for the fresh-market boiling trade in the Southeast because of their high yield performance, large fruit size, and compact bunch growth habit. In Georgia Peanut Variety Tests, the nine-year (2001-2009) average performance shows Georgia Valencia and Georgia Red to have higher yields, grades, and dollar values compared to Valencia McRan, New Mexico Valencia C, New Mexico Valencia A, H & W Val 101, and H & W Val 102. Both Georgia Valencia and Georgia Red also have better disease tolerance with similar maturity as these other valencia varieties.

"GEORGIA-04S" is the newest high-oleic small-seeded peanut variety that was released in 2004 by the Georgia Agricultural Experiment Station. Georgia-04S is intended for the same confectionary or candy market as used by spanish-types. However, Georgia-04S would also be excellent for the roasted or peanut butter trade as well. It has pods and seed size similar to other spanish market type varieties. Georgia-04S has shown a significantly higher yield, TSMK grade, and dollar value per acre compared to all other leading spanish varieties during the past ten-year (2000-2009) in Georgia. Georgia-04S also has significantly better tomato spotted wilt virus (TSWV) resistance than these other spanish varieties.

"GEORGIA-06G" is a new high-yielding, TSWV-resistant, runner-type peanut variety that was released in 2006. It was developed by Dr. Bill Branch at the University of Georgia, Coastal Plain Experiment Station in Tifton, GA. Georgia-06G has a high level of resistance to tomato spotted wilt virus (TSWV). In multilocation tests conducted in Georgia during the past several years, Georgia-06G was likewise found to be among the lowest in TSWV disease incidence and highest in yield, grade, and dollar value return per acre compared to all of the other runner-types. Georgia-06G is a large-seeded runner-type variety with growth habit and medium maturity similar to Georgia Green. It also has very good stability and a wide-range of adaptability.

"GEORGIA GREENER" is a new high-yielding, TSWV-resistant, runner-type peanut variety that was released in 2006. It was developed by Dr. Bill Branch at the University of Georgia, Coastal Plain Experiment Station in Tifton, GA. Georgia Greener has a high level of resistance to tomato spotted wilt virus (TSWV) and CBR resistance. In multilocation tests conducted in Georgia during the past several years, Georgia Greener was found to be among the lowest in TSWV disease incidence and highest in yield, grade, and dollar value return per acre compared to all of the other runner-types. Georgia Greener is more of a regular runner-type seed size variety with growth habit and medium maturity similar to Georgia Green. It also has very good stability and a wide-range of adaptability.

"GEORGIA-07W" is a new high-yielding, TSWV-resistant, white mold-resistant, runner-type peanut variety that was released in 2007. It was developed at the University of Georgia, Coastal Plain Experiment Station in Tifton, GA. Georgia-07W has a high level of resistance to both diseases, tomato spotted wilt virus (TSWV) and white mold or stem rot. In multilocation tests conducted in Georgia during the past several years, Georgia-07W was found to be among the lowest in TSWV incidence and total disease incidence, highest in yield, grade, and dollar value return per acre. Georgia-07W is a large-seeded runner-type variety with a runner growth habit and medium maturity. It also has very good stability and a wide-range of adaptability.

"GEORGIA-08V" is a new high-yielding, high-oleic, TSWV-resistant, large-seeded, virginia-type peanut variety that was released by the Georgia Agricultural Experiment Station in 2008. It was developed at the University of Georgia, Coastal Plain Experiment Station, Tifton, GA. Georgia-08V has the high-oleic (O) and low linoleic (L) fatty acid ratio for improved oil quality. During the past four-years (2006-09) averaged over multilocations tests in Georgia, Georgia-08V had significantly less TSWV disease incidence, higher yield and percent ELK, larger seed size, and greater dollar value return per acre compared to Gregory, Perry, and CHAMPS. Georgia-08V has also showed significantly higher yield, ELK percentage, and dollar value than **Georgia Hi-O/L**, and was also found to have the largest seed size of all of the virginia-type varieties tested, including **Georgia-05E**.

"GEORGIA-09B" is a new high-yielding, high-oleic, Tomato spotted wilt virus (TSWV)-resistant, medium-seeded, runner-type peanut variety that was released in 2009. It was developed at the University of Georgia, Coastal Plain Experiment Station, Tifton, GA. Georgia-09B originated from the first backcross made with 'Georgia Green', as the recurrent parent. During three years (2006-08) averaged over 27 multilocation tests in Georgia, Georgia-09B had significantly less TSWV disease incidence, higher yield and percent TSMK grade, larger seed size, and greater dollar value return per acre compared to Georgia Green. Georgia-09B has also showed significantly higher TSMK grade percentage than ‘Florida-07’and higher dollar value than ‘York’, ‘AT-3085RO’, and ‘McCloud’, and was found to have a medium runner seed size as compared to the larger high-oleic, runner-type varieties, Florida-07, AT-3085RO, and McCloud. Georgia-09B combines the excellent roasted flavor of Georgia Green with the high-oleic trait for longer shelf-life and improved oil quality of peanut and peanut products.

“GEORGIA-10T” is a high-yielding, Tomato spotted wilt virus (TSWV) resistant, large-seeded, runner-type peanut variety that was released by the Georgia Agricultural Experiment Stations in 2010. It was developed at the University of Georgia, Coastal Plain Experiment Station, Tifton, GA. During three-years (2007-09) averaged over 20 multilocation tests in Georgia, Georgia-10T had significantly less mid-season TSWV incidence and late-season total disease (TD) incidence, higher yield, grade, and dollar value return per acre compared to Georgia-01R. However, Georgia-10T is most similar to Georgia-01R in later maturity. During the past two-years (2008-09) at multilocations in Georgia when planted early (mid-April) to increase TSWV disease pressure, Georgia-10T was again found to be among the lowest in TSWV incidence and TD incidence, highest in pod yield, highest in TSMK grade, and highest in dollar value return per acre compared to 18 and 21 other runner genotypes in 2008 and 2009, respectively. Georgia-10T should be an excellent variety for an earlier planting option in the southeast.

Table 1. Three-Year Average Dollar Value Return per Acre of 12 Runner-Type Peanut Varieties across Multilocations in Georgia, 2008-10.

Runner Variety	Gross Dollar Values ($/a) 2008	2009	2010	3-Yr Mean
Georgia-10T	871	831	731	811
Georgia-07W	868	836	730	811
Georgia-06G	853	808	754	805
*Georgia-09B	806	781	726	771
Georgia Greener	823	761	714	766
*Florida-07	800	791	695	762
*Georgia-02C	822	781	643	749
*McCloud	750	718	684	717
Tifguard	764	715	673	717
Georgia-03L	770	709	664	714
AP-4	754	731	630	705
Georgia Green	685	649	654	663

* High-Oleic Varieties

Table 2. Three-Year Average Yield (lb/a) of Runner-Type Peanut Varieties under Irrigation and Nonirrigation at Multilocations in Georgia, 2008-10.

Runner	Tifton		Plains		Midville	
Variety	Irrig.	Nonirrig	Irrig.	Nonirrig	Irrig.	Nonirrig
Georgia-10T	5485	4575	4181	3022	5723	3743
Georgia-07W	5391	4473	4520	3213	5551	4478
Georgia-06G	5459	4224	4833	3134	5744	4418
Georgia-09B	5193	3533	4719	3215	5935	4621
Georgia Greener	5149	3828	4871	3314	5476	4200
Florida-07	5680	4079	4540	3416	5937	4547
Georgia-02C	4455	4271	4682	2856	5116	4315
McCloud	5205	4005	4018	3179	5542	4264
Tifguard	5133	4089	4087	2976	5175	3960
Georgia-03L	4702	4135	4605	2948	5314	4282
AP-4	4738	3791	4117	3059	5107	4122
Georgia Green	4532	3116	4261	2628	4866	4116

Table 3. Nine-Year Average Yield, Grade, Seed Size and Dollar Value of Five Valencia-Type Peanut Varieties in Georgia, 2001-09.

Valencia Variety	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
Georgia Valencia	2553 a	58 b	808 c	410 a
Georgia Red	2041 b	63 a	981 b	361 b
N.M. Val. C.	1569 c	57 bc	1218 a	249 c
Val. McRan	1582 c	55 cd	1204 a	246 c
N.M. Val. A.	1526 c	54 d	1260 a	234 c

Means within the same column followed by the same letter do not differ significantly at P≤0.05.

Table 4. Ten-Year Average Yield, Grade, Seed Size and Dollar Value of Five Spanish-Type Peanut Varieties in Georgia, 2000-09.

Spanish Variety	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
*Georgia-04S	3869 a	71 a	1140 a	777 a
Tamspan 90	2870 b	66 b	1144 a	548 b
*OLin	2207 c	65 bc	1187 a	410 c
Spanco	1913 d	62 d	1187 a	345 d
Pronto	1847 d	64 cd	1139 a	345 d

Means within the same column followed by the same letter do not differ significantly at P≤0.05.
*** High-Oleic**

Table 5. Four-Year (39 Tests) Average Disease Incidence, Pod Yield, TSMK Grade, ELK Grade, Seed Count, and Dollar Values of Georgia-08V vs. Three other Virginia-Type Peanut Varieties In Georgia, 2006-09.

Virginia Variety	Disease (%)	Yield (lb/a)	TSMK (%)	ELK (%)	Seed (no./lb)	Value ($/a)
*Georgia-08V	34 c	4300 a	72 a	52 a	480 d	794 a
CHAMPS	48 b	3718 b	68 b	36 c	518 c	651 b
Gregory	49 b	3553 c	65 c	40 b	550 b	602 c
Perry	58 a	3356 d	68 b	37 c	569 a	593 c

Means within the same column followed by the same letter do not differ significantly at P≤0.05.
*** High-Oleic**

Table 6. Ten-Year (63 Tests) Average Field Performance of Three Runner-Type Peanut Varieties at Multilocations in Georgia, 2000-09.

Runner Variety	Disease (%)	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
Georgia-03L	24 c	4245 a	72 b	688 b	866 a
Georgia Green	32 b	3809 b	73 a	835 a	805 b
C-99R	37 a	3866 b	73 a	684 b	796 b

Means within the same column followed by the same letter do not differ significantly at P≤0.05.

Table 7. Seven-Year (65 Tests) Average Disease Incidence, Yield, Grade, Seed Size, and Dollar Value of Four Runner-Type Peanut Varieties at Multilocations in Georgia, 2003-09.

Runner Variety	Disease (%)	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
Georgia-06G	24 c	4409 a	75 a	662 c	803 a
Georgia Greener	26 c	4256 a	75 a	721 b	777 a
Georgia Green	37 b	3648 b	73 b	829 a	657 b
C-99R	42 a	3712 b	73 b	675 c	661 b

Means within the same column followed by the same letter do not differ significantly at P≤0.05.

Table 8. Three-Year (30 Tests) Average Disease Incidence, Pod Yield, TSMK Grade, Seed Count, and Dollar Values of Six High-Oleic Runner-Type Varieties at Multilocations in Georgia, 2007-09.

Runner Variety	Disease (%)	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
*Georgia-02C	27 d	4236 b	76 a	752 b	791 a
*Georgia-09B	30 c	4274 b	74 b	725 c	779 a
*Florida-07	35 b	4487 a	71 cd	612 f	779 a
*York	29 c	4153 bc	72 c	786 a	729 b
*AT-3085RO	35 b	4101 bc	70 d	678 d	714 b
*McCloud	42 a	3974 c	72 c	633 e	705 b

Means within the same column followed by the same letter do not differ significantly at P≤0.05.
*** High-Oleic**

Table 9. Three-Year (20 Tests) Average Disease Incidence, Pod Yield, TSMK Grade, Seed Count, and Dollar Value of Georgia-10T vs. Georgia-01R at Multilocations in Georgia, 2007-09.

Runner Variety	Disease (%)	Yield (lb/a)	TSMK (%)	Seed (no./lb)	Value ($/a)
Georgia-10T	17 b	4786 a	79 a	665 a	897 a
Georgia-01R	31 a	4361 b	76 b	695 a	796 b

Means within the same column followed by the same letter do not differ significantly at P≤0.05.

CULTIVAR OPTIONS FOR 2011

John P. Beasley, Jr.

Based on feedback from seed suppliers there will be seed of six peanut cultivars available for producers on a commercial basis in 2011. The cultivars available this year are: Georgia-06G, Georgia Greener, Tifguard, Florida-07, Georgia-07W, and Georgia-02C. Seed supply of Georgia-02C will be very limited so the majority of the seed will come from the first five cultivars listed. Over 70-75% of the seed supply will be in Georgia-06G.There could possibly be very minimal amounts of AT 215 available from Golden Peanut.

According to figures from the Georgia Crop Improvement Association, the largest percentage of acreage planted in 2010 for seed production for 2011 was Georgia-06G with about 67% (Table 1 below). That was followed by Georgia Greener and Tifguard at 10 and 7%, respectively. This indicates we could expect 80 - 85% of the planted acreage in the Southeast U.S. in 2010 to be planted among those three cultivars. The table below provides the acreage planted in 2010 in Georgia for Foundation, Registered, and Certified seed supply in 2011.

Table 1. Acreage Planted in Georgia in 2010 to produce Foundation, Registered, and Certified Seed for 2011.

Cultivar	Acreage	% of Acreage
Georgia-06G	75,460	67.4
Georgia Greener	11,523	10.3
Tifguard	8,229	7.4
Florida-07	7,411	6.6
Georgia-07W	6,311	5.6
Georgia-02C	2,125	1.9
Georgia-09B	366	
AT-215	300	
Georgia Green	159	
Georgia-10T	3	
TOTAL	111,887	

Source: Georgia Crop Improvement Association

Acreage planted for seed increase of Georgia-07W and Georgia Greener increased from the previous year indicating these two cultivars are gaining in popularity while acreage of Florida-07 and Tifguard dropped from the previous year's seed increase. Acreage planted for seed increase of Georgia-06G increased by the largest amount from the previous year. Acreage dedicated to seed supply of Georgia Green was reduced dramatically, indicating this cultivar is being phased out.

The University of Georgia has released two new cultivars over the past two years. Georgia-09B was released in 2009 and Georgia-10T was released in 2010. As can be noted in the table above, acreage of these cultivars, especially Georgia-10T, is extremely limited. In fact DO NOT expect any commercial seed of Georgia-10T and not much, if any, of Georgia-09B as the seed of these two new cultivars will be dedicated to seed increase. The University of Florida has announced the release of FloRun™ '107' for 2011 but the seed supply on this new release is also very limited and will be targeted toward Foundation and Registered seed increase in 2011 for developing a seed supply for 2012 .

What cultivar do I select?

What should producers look for in a cultivar when trying to decide which one or ones to plant on their farm? Obviously, the first characteristics a producer should look for in a cultivar are yield and grade. Fortunately, most of the new cultivars that have been released over the past three years have a higher yield potential than Georgia Green. In the UGA Statewide Variety Trials and in small plot and on-farm large plot trials we have seen Georgia-06G, Florida-07, Tifguard, Georgia Greener, and Georgia-07W consistently out yield Georgia Green. The grades of these cultivars, with the exception of Florida-07, have been equal to or better than Georgia Green.

Disease resistance is another important trait to look for in a cultivar. The reason Georgia Green was such a success when it was released in the mid 1990's was that it had a better level of resistance to spotted wilt disease, caused by tomato spotted wilt virus (TSWV) than the other cultivars that were being planted at that time. The peanut breeding programs in the southeast U.S. have released numerous cultivars the past 10 years with much better resistance to TSWV. Resistance to leaf spots, white mold, CBR, and peanut root- knot nematode now exist in one or more cultivars. If a producer has a field with a history of CBR, then Georgia-02C or Georgia Greener are the best options. Tifguard has a very high level of resistance to peanut root-knot nematode and should be the cultivar planted in fields with a history or large population of this pest. Utilize ***Peanut Rx*** and the Index Values to determine a cultivars level of disease resistance or tolerance as they compare to one another. This tool allows a producer to select a cultivar, or cultivars, based on the expected disease problem within a given field, based on expected field and environmental conditions.

Maturity range will also dictate if a producer wants to select a certain cultivar. Currently there is one early maturing cultivar, AT 215, but the seed supply on it will be extremely limited. It works well in a late planting situation like we experienced in 2009. Georgia Greener and Tifguard have what we call the "normal" or medium maturity range. In other words, under normal growing conditions in which there are no factors delaying or speeding up maturation, these cultivars are ready for harvest in 135-140 days after planting. Georgia-06G, Florida-07, and Georgia-07W all mature about 7-10 days later than Georgia Green. Our experience with Georgia-06G is that it can mature about the same as Georgia Greener and Tifguard and in some cases it matures about 7-10 days later, similar to Florida-07 and Georgia-07W. The one late maturing cultivar we currently produce is Georgia-02C and as mentioned above, seed supply will be very limited in 2011. It typically takes 2-3 weeks later to mature than Georgia Green or Georgia Greener. It is recommended DO NOT plant Georgia-02C after May 15.

Cultivar Maturity Ranges relative to Georgia Green (135-140 days after planting under normal growing conditions)

10-14 days early	Same as Georgia Green	7-10 days later	2-3 weeks later
AT 215	Georgia Greener	Georgia-06G	Georgia-02C
	Tifguard	Florida-07	
	Georgia-06G	Georgia-07W	

Seed availability is another issue with selecting a cultivar. When a new cultivar is released there is usually a very limited supply of seed. It typically takes 2-3 years to build the seed supply of a new cultivar release before there is an adequate supply to meet producers' demands. For example, the University of Georgia released Georgia-09B in November 2009 and Georgia-10T in November 2010. There was only 366 acres of this new release planted in 2010 so it will be at least another year or two before there is adequate seed available for commercial production. There was only 3 acres of Georgia-10T in Foundation seed production in 2010 so it could take several more years of seed increase to get this cultivar to level of seed for commercial production.

Demand for a cultivar is another factor. Currently, there are no cultivars that are not accepted by the shelling industry or manufacturers, with the exception of Georgia-02C, which is accepted by all processors except M&M/Mars. With the very limited seed supply of Georgia-02C this should not be a problem for producers in 2011.

One other factor that might have a bearing on cultivar selection is seed size. Several of the new cultivar releases have considerably larger seed size than Georgia Green. These cultivars include Georgia-06G, Florida-07, Tifguard, and Georgia-07W. There seed size results in it taking 30 or more pounds per acre to plant when sown at the same seed per foot of row rate as Georgia Green. For example, when planting Georgia Green at 6 seed per foot of row it typically requires 105-110 pounds per acre. At the same 6 seed per foot of row rate, Georgia-06G, Tifguard, Georgia-07W, and Florida-07 will end up planting 140+ pounds per acre. At approximately $0.75 per pound for seed it costs about $20-25 more per acre to plant large-seeded runner cultivars than Georgia Green. Georgia Greener and Georgia-02C have what we refer to as “medium” size seed, similar to what the Florunner cultivar had and planting those at 6 seed per foot of row will result in planting about 120-125 pounds per acre, or about 10-15 pounds per acre more than Georgia Green.

Update on Seeding Rates for Peanut

R. Scott Tubbs and John P. Beasley

As peanut budgets continue to be tight, it is imperative for growers to maximize yield and grade while minimizing input costs in order to gain the greatest net profit margin as is possible. Investigations continue to evaluate the potential of reducing seeding rates in order to lower seed costs at planting. A reduction in seeding rate can be an opportunity to save money on input costs as long as yield and grade of peanut are not drastically reduced. Naturally, final plant stands and not the seeding rates themselves are the major factor determining final outputs. However, when quality seed are planted and good planting practices are used, the seeding rate will usually directly affect final plant stands, with higher seeding rates resulting in denser plant stands and lower seeding rates ending with sparser plant stands. Yet, research has demonstrated that there is an optimum plant stand to shoot for, and that a denser stand will not always result in greater yields. This is often due to plant competition for space, light, water, nutrients, and other beneficial resources that are needed to maximize yield potential. This intra-row competition plays a large role in maximizing peanut stands and yields, and its magnitude will differ depending on whether peanuts are planted in single rows or in twin rows, as will be discussed later.

Since peanut is bought on a weight basis, and not by seed quantity like with some other commodities, the seed size becomes a very important variable in determining the cost per acre to plant. Thus, adjusting seeding rates can mean greater savings with some varieties than it will with others, as larger seeded varieties will cost more than smaller seeded varieties on a per seed basis. So each seed that is not planted means a greater savings with large-seeded varieties than with smaller-seeded varieties. As an example, the three leading varieties planted in 2010 (Florida-07, Georgia-06G, and Tifguard) are all considered large-seeded, and will be used in comparison to the most recent industry standard variety (Georgia Green) which is considered small-seeded. Using values calculated from the University of Georgia (UGA) Statewide Variety Testing Program, these large-seeded varieties average between 620-650 seed per pound while Georgia Green has around 815 seed per pound. Therefore, when planting at the UGA Extension recommended rate of six seed per foot (SPF) of row, you are planting approximately 133-140 pounds of seed per acre with the large seeded varieties, whereas only 107 pounds per acre are needed for Georgia Green, or an equivalent sized smaller variety. Using an arbitrary seed price of $0.68 per pound, it costs around $91-96 per acre for these large-seeded varieties, and just under $73 per acre to plant a small seeded variety at six SPF of row. But if you reduce the seeding rate by one SPF of row, it would then cost $76-80 per acre for the large seeded varieties (a savings of $15-16 dollars per acre, depending on the variety), but would cost nearly $61 per acre for the small seeded variety (saving only $12 per acre). Thus, an equivalent reduction in seeding rate results in a greater savings with larger-seeded varieties than with smaller seeded varieties. Of course, the higher the cost of the seed, the more pronounced these values become, and in recent years, the cost on a per acre basis have been well over $20 per acre for each one SPF that a seeding rate is altered.

When comparing peanuts in twin rows vs. a single-row planting pattern, each individual plant is spread out with more room to grow and there is less intra-row competition with adjacent plants for necessary resources. Again using six SPF of row as an example, in single row pattern, there is a seed placed every two inches apart in a linear row. In most twin row plantings, an adjacent parallel planted row is spaced about seven inches away from the initial row, and half of the seed are planted in each of these parallel "twins". Thus, the total plant population in a given area remains the same as with an equivalent single row planting, but now half of the seed are planted in a row seven inches away, and therefore, the most adjacent seed within the same drill row is now four inches apart instead of just two. This creates less intra-row competition and often results in less mortality of slightly weaker plants from a more aggressive neighboring plant. Whereas in single rows, there is much more of a "survival of the fittest" scenario that occurs within a field as the plants mature, expand, and compete for resources.

Experiments

To determine the effect of various seeding rates on varieties in both single and twin rows, multiple experiments have been conducted in South Georgia. At the Southwest Georgia Research and Education Center in Plains, GA, a trial was conducted in 2008 and 2009 to evaluate seven peanut varieties using three seeding rates (5.3 SPF, 6.0 SPF, and 7.0 SPF) in both single and twin row patterns. The varieties tested in this location included Georgia Green, Florida-07, Georgia-06G, Tifguard, Georgia-03L, AP-3, and AT 3085RO. Another trial comparing single and twin rows at three seeding rates (5.1 SPF, 5.7 SPF, and 6.0 SPF) was initiated in 2010 in Tifton, GA evaluating what should be some of the most commercially relevant runner varieties available in the southeast over the next several years. These include Georgia-06G, Georgia-07W, Georgia-09B, Georgia Greener, '27-1516' (unreleased advanced breeding line), and 'UF 08301' which will be released under the variety name 'FloRun™107'. Another experiment was conducted at the Attapulgus Research and Education Center in Attapulgus, GA during 2008 and 2010, which compared five seeding rates (5.2 SPF, 6.2 SPF, 7.0 SPF, 8.2 SPF, and 8.8 SPF), but only in twin row pattern.

Yield

These results are reported based on the row pattern x seeding rate treatment factor interactions for the sake of consistency. This does not necessarily mean a statistical interaction was observed in all cases, but reporting the data in this manner shows trends in the results from different experiments which cannot be combined for statistical reasons. In Figures 1-3, yield results are displayed for the various seeding rates in single and twin row patterns. At

Plains, GA in 2008, yields were higher in twin rows than in single rows regardless of seeding rate or variety (twin = 5504 lb/ac; single = 5020 lb/ac; least significant difference [LSD] = 156), but it can be seen in Figure 1 that there was little difference in yield at the three seeding rates in single rows, while there was a slight dip in yield at the lowest seeding rate (5.2 SPF) for twin rows, albeit this was not a statistical difference. In 2009 at Plains, GA there was again a significant difference in yield between row patterns regardless of seeding rate and variety (twin = 4591 lb/ac; single = 4307 lb/ac; LSD = 194). However, when broken out by row pattern, it can again be observed in Figure 2 that there was only a minor fluctuation in yields in single row pattern, but a larger gap in yield existed between the low seeding rate (5.2 SPF) and the highest yielding rate (7.0 SPF).

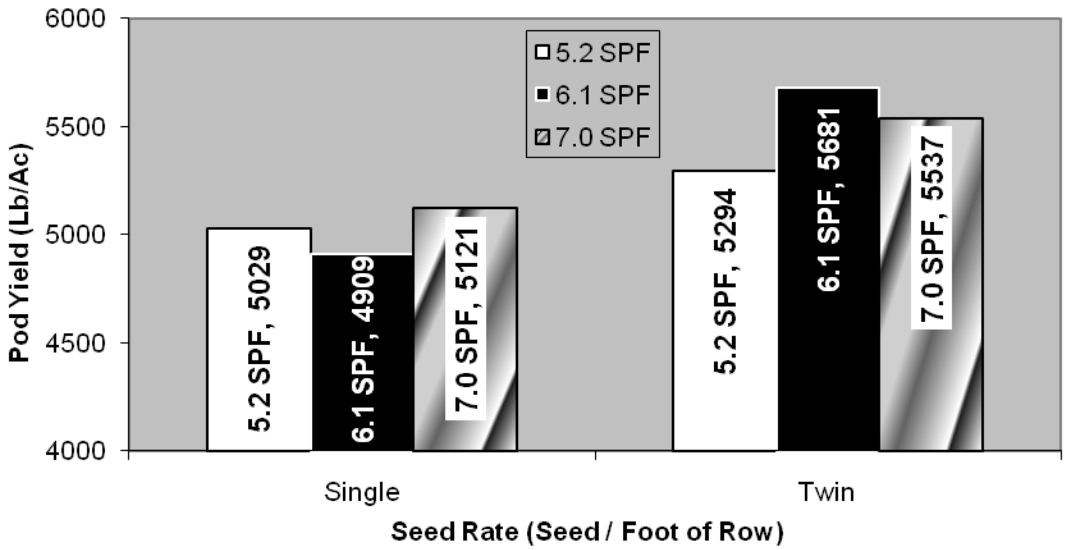


Fig. 1. Pod yield of peanut for three seeding rates in single and twin row patterns, Plains, GA 2008. $LSD_{.05}$ **= 766**

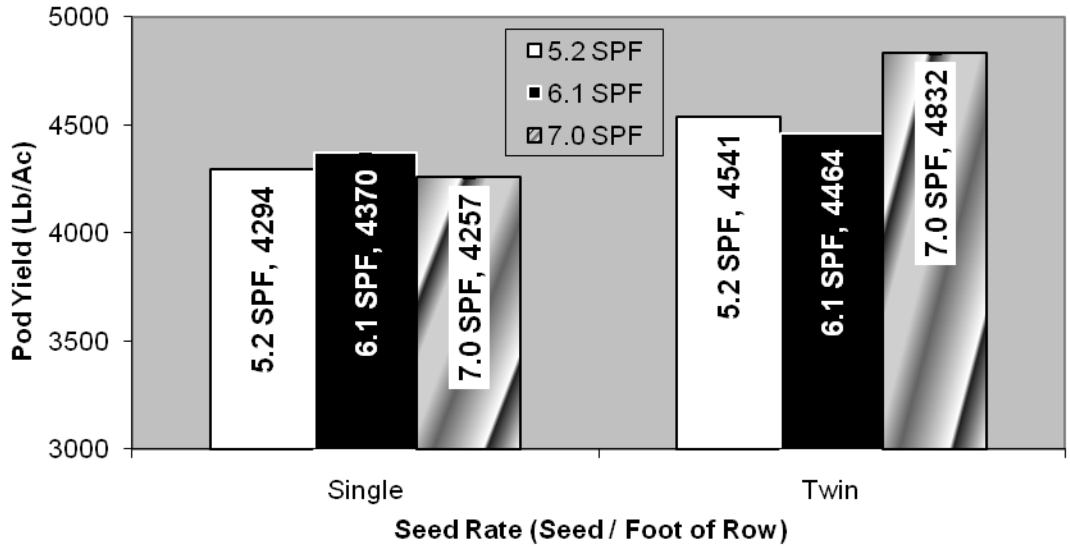


Fig. 2. Pod yield of peanut for three seeding rates in single and twin row patterns, Plains, GA 2009. **$LSD_{.05}$ = 376**

With the newer cultivars at Tifton in 2010, there was not a pronounced difference between single and twin row patterns. But the same seeding rate trend within each row pattern could be seen in this trial as was seen in the two previous years at Plains. Very little separation occurred in single row pattern while the low seeding rate (5.1 SPF) was slightly suppressed in comparison to the higher rates (Fig. 3). This again did not translate to a statistical difference, but the consistent trend being observed in all cases is that there is a greater concern over yield reduction by decreasing seeding rate in twin row pattern than doing so in single row pattern.

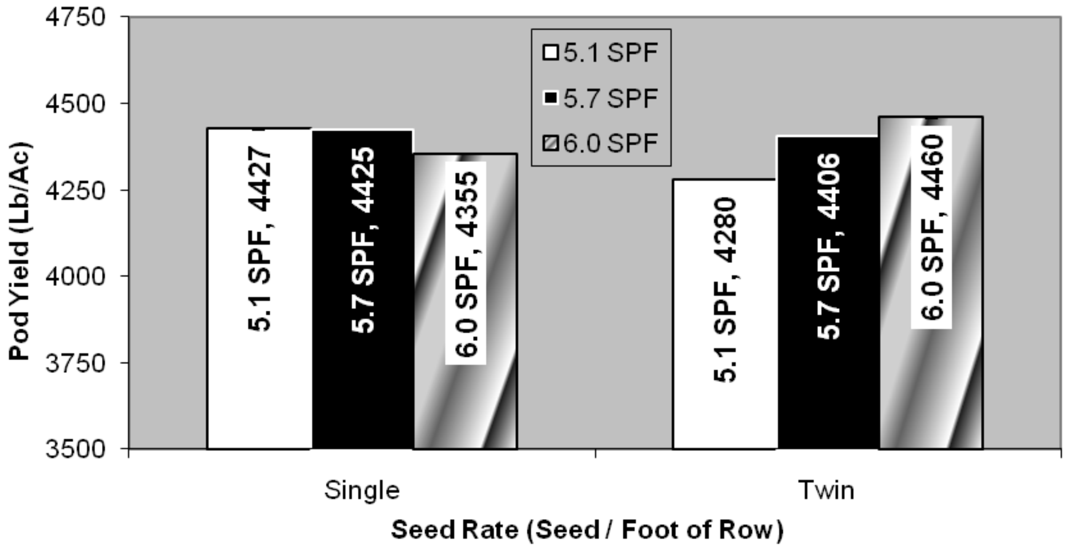


Fig. 3. Pod yield of peanut for three seeding rates in single and twin row patterns, Tifton, GA 2010. $\mathbf{LSD_{.05} = 284}$

At the standard peanut loan rate of $355 / ton, there are gross earnings of $17.75 per 100 pounds of yield. It was previously established that a reduced seeding rate of one SPF would save approximately this same amount of money at relatively normal seed prices. However, since it is very difficult to detect a statistical difference in yield as low as 100 lb/ac without extremely high levels of replication, it would be nearly impossible to make a statistically relevant claim of “break-even” economics in terms of yield vs. cost savings. However, when looking at the above results from a profitability standpoint, knowing that the LSD values are well above the yields needed to justify an economical change in recommending a seeding rate, it can be noted that in all three cases there would be a net gain by the farmer by reducing seeding rate from around six SPF to around five SPF in single row pattern. However, in twin row pattern, there were no instances where the savings in seed cost from reducing seed rate were fiscally sound, because yield declines would have been even more costly than the extra seed expense at planting.

Relationship with Plant Stand

Yields can be directly affected by plant stand, but a denser stand does not necessarily mean a higher yield will be achieved. As previously discussed, by spreading out the placement of seed in the field with a twin row pattern, plant stands tend to be denser than in single row pattern at an equivalent seeding rate, for two primary reasons. Spreading the plants out causes less competition and thus lower plant mortality rates. However, the seed plates at planting also have to spin more rapidly in single row pattern than in twin row pattern, which causes more skips merely due to equipment error. Final plant stands from these three experiments display the differences between row patterns very definitively (Figs. 4-6). However, it can likewise be noted that the reduction in final plant stand is not as drastic in single row pattern than it is in twin row pattern when going from the recommended seeding rate of six SPF down to five SPF. This is partially because plants have already thinned themselves out in single row pattern, and because the intra-row competition simply makes it more difficult to attain a plant stand above 4 plants per foot in single row pattern no matter how high the seeding rate is set. In 2008 at Plains, there was only a 0.2 plants per foot reduction in stand when dropping from 6.1 to 5.2 SPF at planting, while there was a 0.5 plants per foot decline at the equivalent seeding rates in twin rows (Fig. 4).

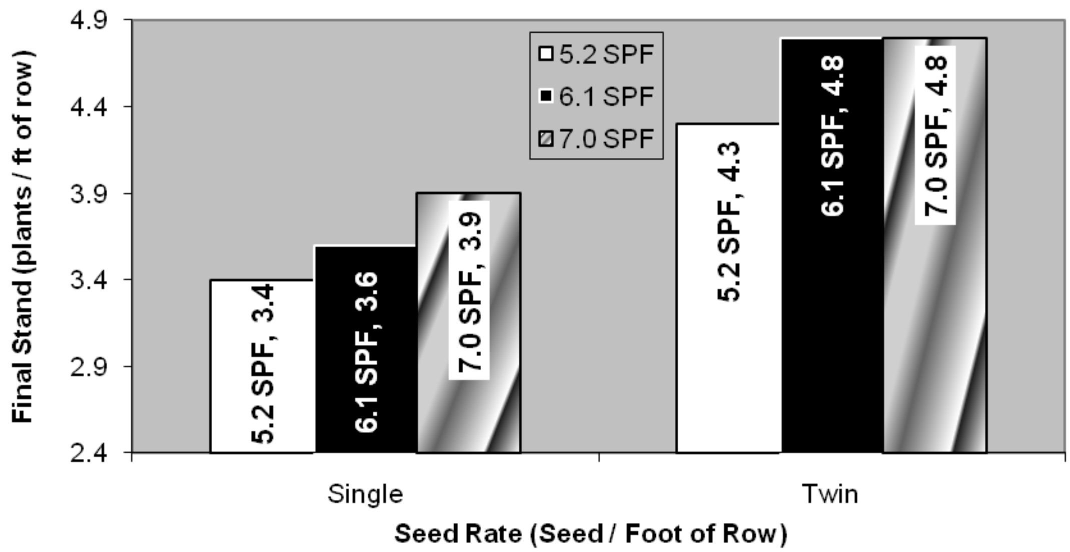


Fig. 4. Final plant stand of peanut for three seeding rates in single and twin row patterns, Plains, GA 2008. **$LSD_{.05}$ = 0.4**

The 2009 Plains trial resulted in very similar data, with only a 0.2 plants per foot regression from 6.1 to 5.2 SPF in single rows, but a 0.6 plants per foot fall out in twin rows (Fig. 5).

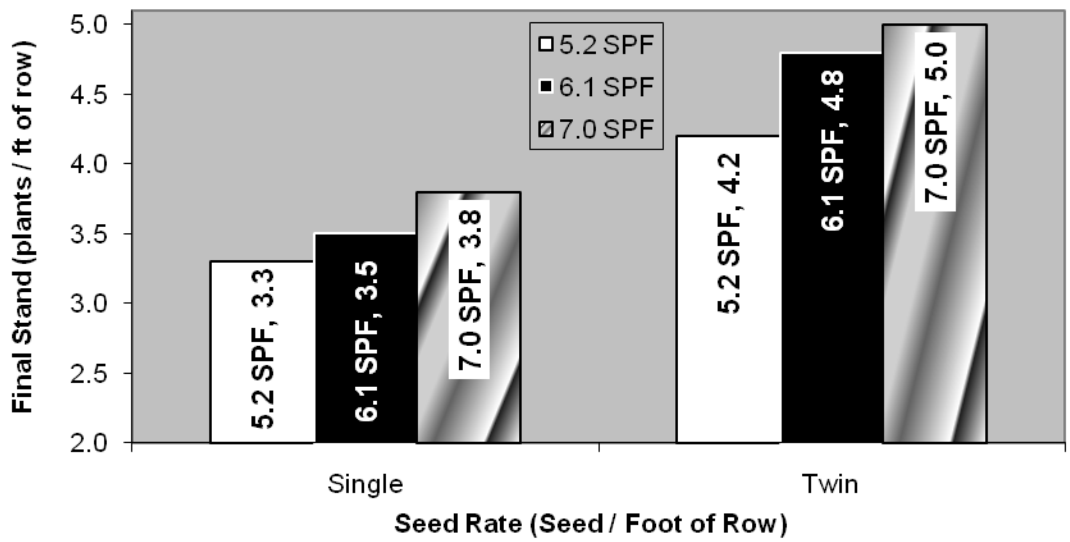


Fig. 5. Final plant stand of peanut for three seeding rates in single and twin row patterns, Plains, GA 2009. **$LSD_{.05}$ = 0.7**

In Tifton for 2010, the reduction in stand when going from 6.0 SPF to 5.1 SPF was again much greater in twin rows with a 0.7 plants per foot decline, than in single rows which resulted in only 0.4 fewer plants per foot of row (Fig. 6).

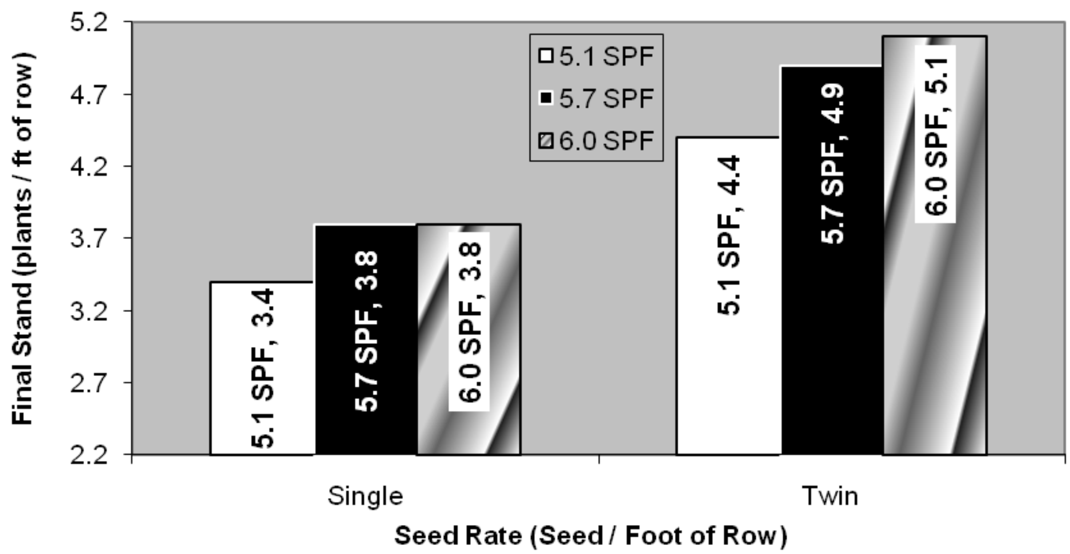


Fig. 6. Final plant stand of peanut for three seeding rates in single and twin row patterns, Tifton, GA 2010. **$LSD_{.05}$ = 0.4**

These results show that small reductions in stand in single row pattern are not enough to decrease yield. Because of a greater level of intra-row competition and stands already nearing a plateau of maximized sustainable plant stand, there is greater potential benefit from reducing seeding rate in single row pattern than there is in twin rows. With twins, the larger drops in plant stand and economically detrimental losses in yield when compared to maximum yields in each experiment show that a reduced seeding rate in twin row pattern is a much riskier endeavor to try and save money on seed costs, since it will not often result in a profitable net return. This poses the question of “perhaps even higher seeding rates should be recommended in twin row pattern in order to maximize stand and yield potential from the extra space cushion”. An additional trial at Attapulgus, GA may offer some insight as to why this may not be beneficial.

Much higher seeding rates were used in the Attapulgus location on twin row pattern only to determine if recommended seeding rates might be too low for twin row plantings. In both years of the experiment, yields were not increased at seeding rates above the UGA Extension recommended rate of 6.0 SPF (Fig. 7). For 2010, there was even a downward trend in yield as seeding rates went above 6.0 SPF, although no significant differences were observed. Yet, when factoring in the additional seed costs to plant at levels higher than the recommended rate, it really would not make sense to spend more money to plant seed that will give no added benefit, and in some cases may be detrimental (i.e. white mold / southern stem rot incidence has a tendency to spread more rapidly at denser plant populations under heavy pressure situations).

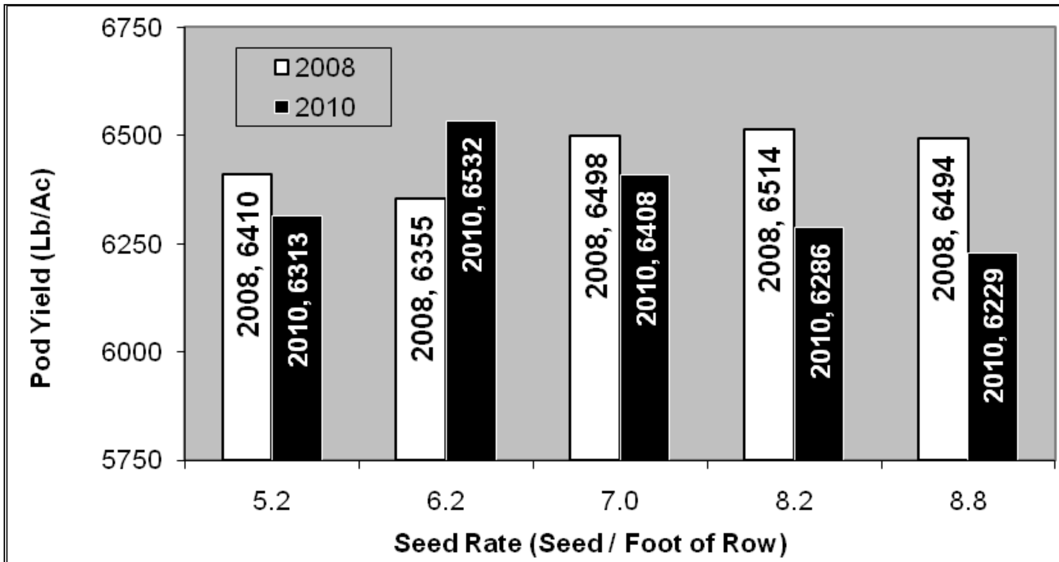


Fig. 7. Yield for five seeding rates in twin row pattern, Attapulgus, GA 2008, 2010. $LSD_{.05}$ = 289 ('08); 344 ('10)

The final plant stands did have a tendency to increase in this trial as seeding rate increased (Fig. 8). However, the yield data affirm that an increase in plant stand does not always mean a greater yield will occur, and there is an optimum level to shoot for in order to maximize outputs with minimized inputs so a maximized profit can be attained.

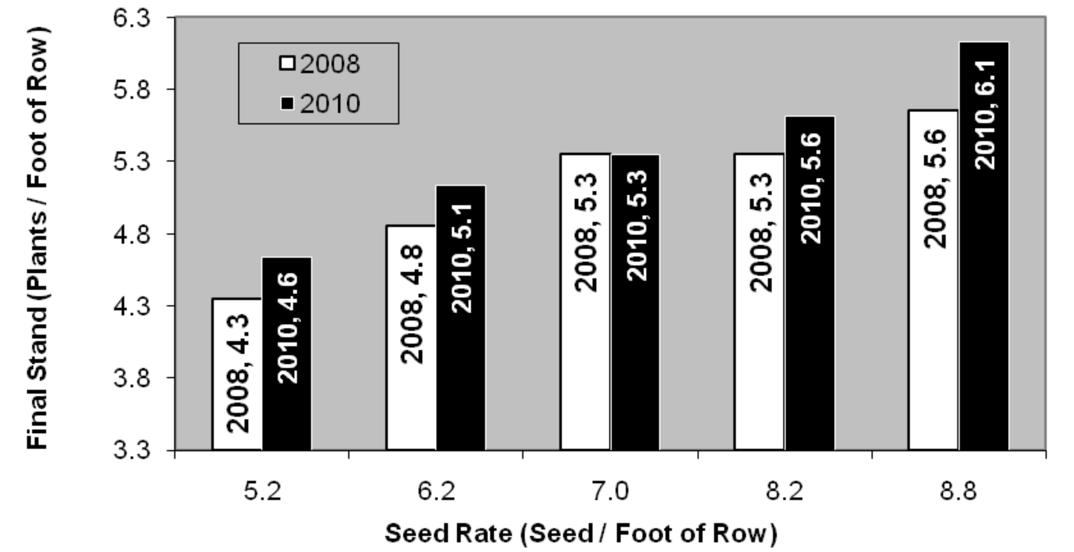


Fig. 8. Final plant stand for five seeding rates in twin row pattern, Attapulgus, GA 2008, 2010. $LSD_{.05}$ **= 0.3 ('08); 0.3 ('10)**

Summary

UGA Extension recommendations are to achieve a final plant stand of around 4 plants per foot of row. These data tend to defend that claim, although it appears from these results that a final plant stand between 3 and 4 plants per foot will suffice in single row pattern, whereas a slightly higher final stand (4.8 plants per foot or more) may be necessary in twin rows to achieve maximum yield. However, these elevated plant population levels in twin row pattern should be achievable without increasing seeding rates above UGA Extension recommendations of six SPF (three SPF per adjacent twin row). But in single row pattern, a reduced seeding rate as low as five SPF at planting should achieve 3 to 4 plants per foot of row when good planting practices are followed (maintain an appropriate speed, use quality seed, plant into soil with enough moisture for seedlings to emerge, etc.). Thus, a reduced seeding rate in single row pattern can increase profits by lowering seed cost at planting while still maximizing yield.

Initial thoughts may seem counter-intuitive to reduce seeding rates in single rows but not in twin rows when single rows already result in a lower plant stand to begin with. However, knowing that increasing plant stand does not automatically mean increased yields, especially at very dense populations, it becomes critical to only plant the amount of seed necessary to optimize plant stand. Anything above that level is a waste of seed since it will not result in improved yields, and will only end up reducing net profit. This is true regardless of whether planting in single or twin row pattern.

Soil Fertility Update

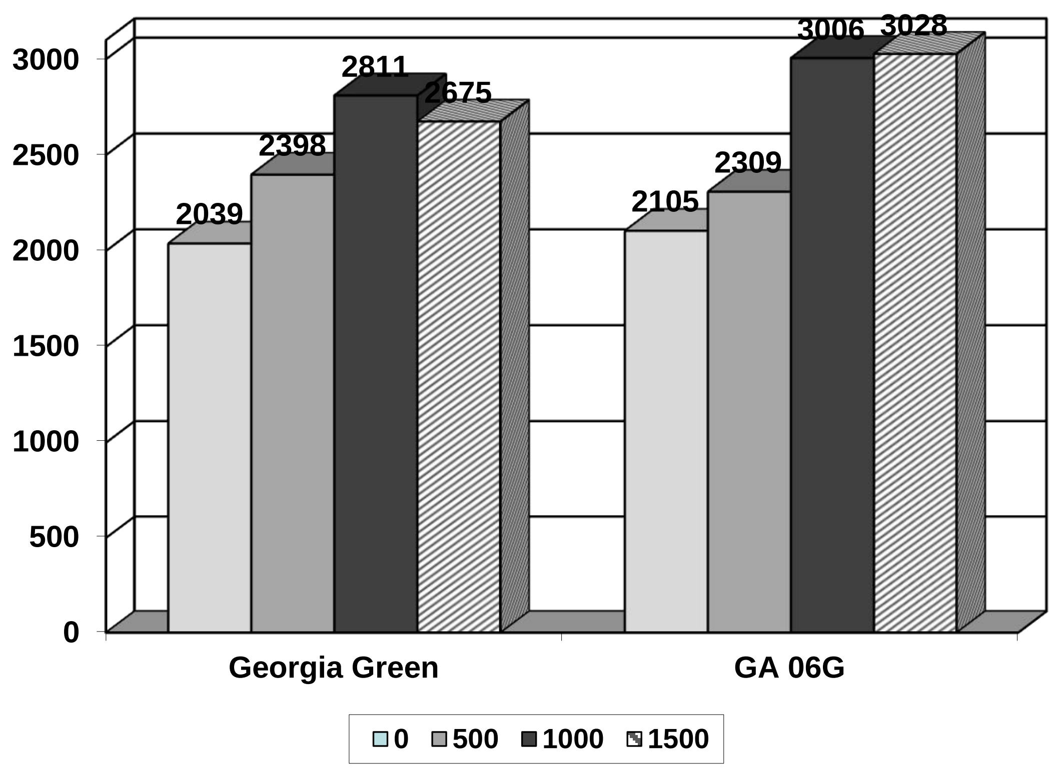
Glen Harris

1. <u>2010 Calcium Rate Studies (with John Beasley)</u> – The calcium rate studies using gypsum at bloom time conducted in 2009 (see 2009 Peanut Update) were repeated at similar sites in 2010. Yield results for 2010 at each site are shown below. Based on this yield data (and from 2009), the current recommendations for calcium on peanuts will not be changed. While it is true that calcium nutrition for large-seeded peanuts, especially Georgia-06G, is more critical compared to small-seeded runners like Georgia Green, the actual recommendations are the same.

   Peanut samples from the studies below are currently being analyzed for grade, germination and calcium content (ppm Ca) and will be reported at a later date. Soil samples were also taken from the pegging zone at the time gypsum was applied, then again at mid-season and at harvest.

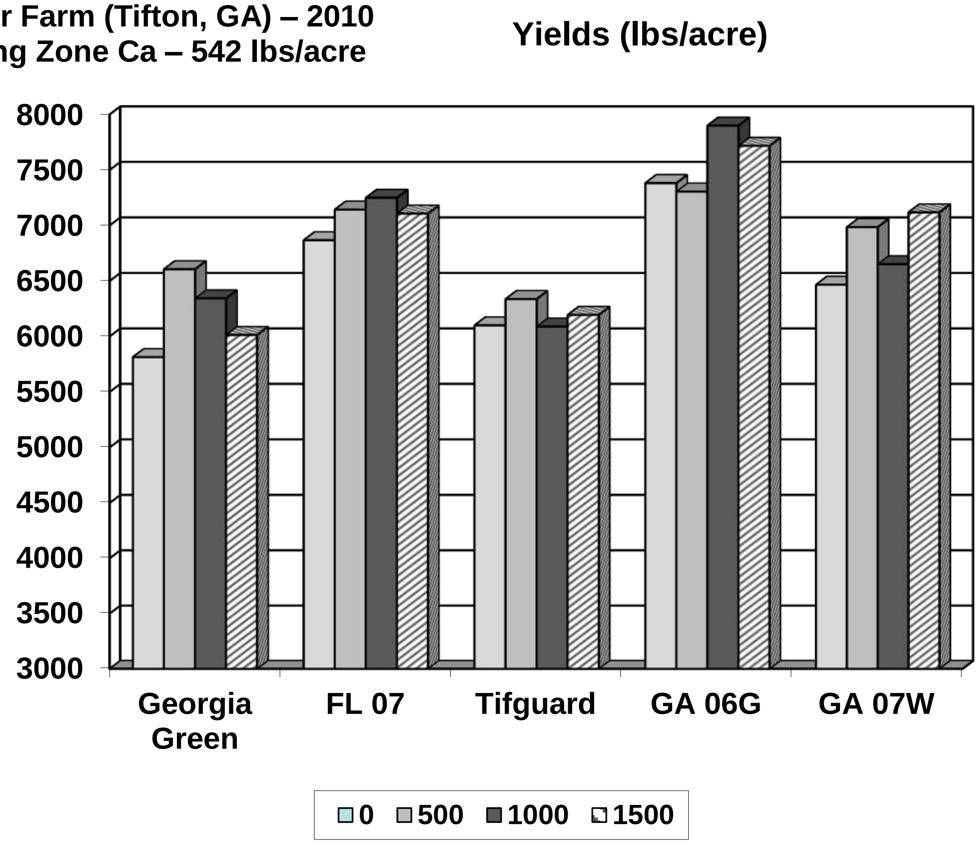
   Comments about each site, including the initial pegging zone calcium level can be found underneath each graph.

Calcium (Gypsum) Rate
ABAC (Julie Howe) – 2010
Pegging Zone Ca - 494 lbs/acre

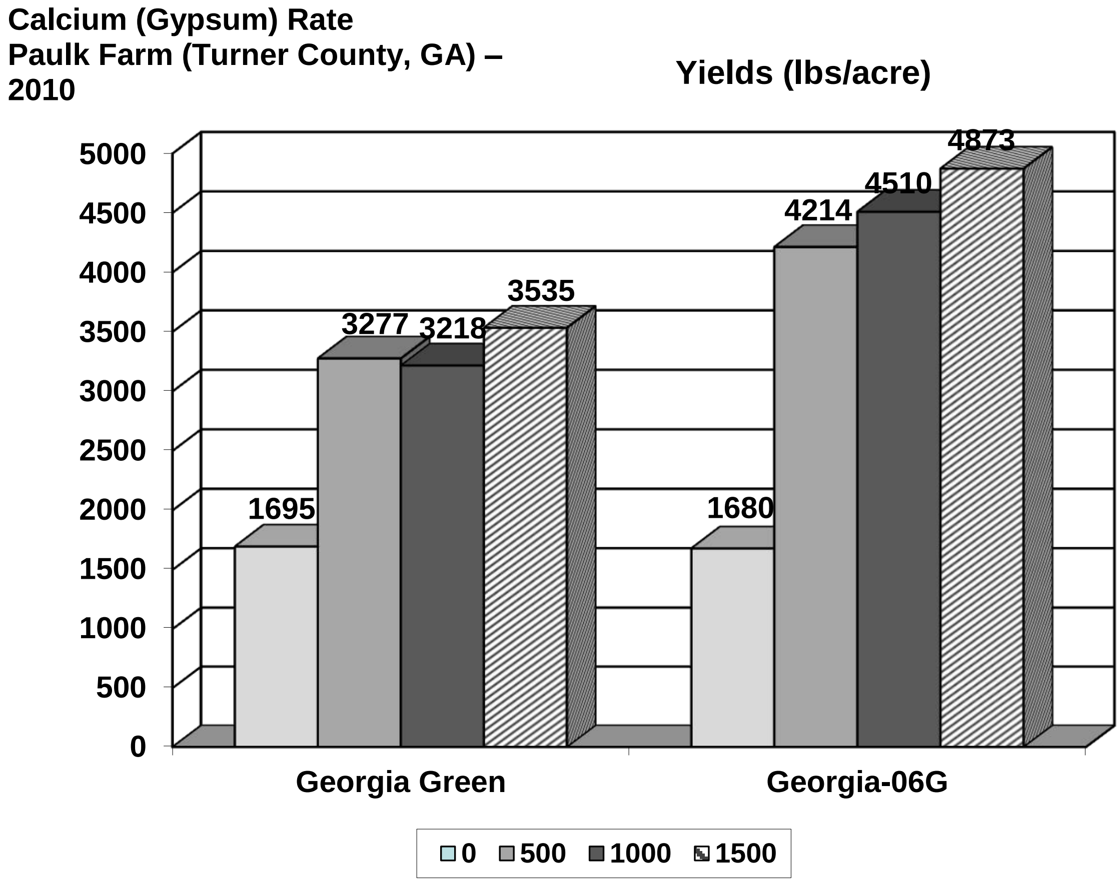


Pegging zone calcium for this site was 494 lbs Ca/acre so a yield response for both cultivars was expected. This was a dryland site. Notice, there was no yield increase going from 1,000 to 1,500 lbs/acre gypsum for either cultivar.

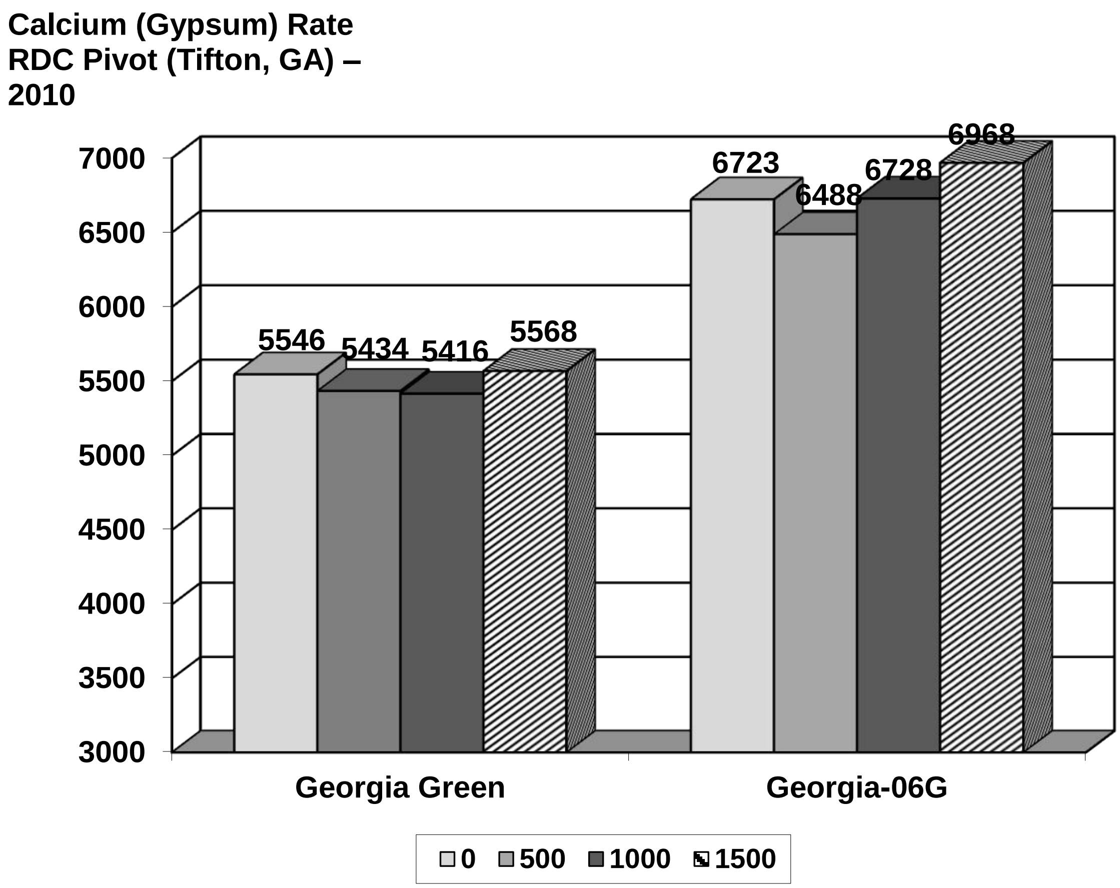
Calcium (Gypsum) Rate
Ponder Farm (Tifton, GA) – 2010
Pegging Zone Ca – 542 lbs/acre



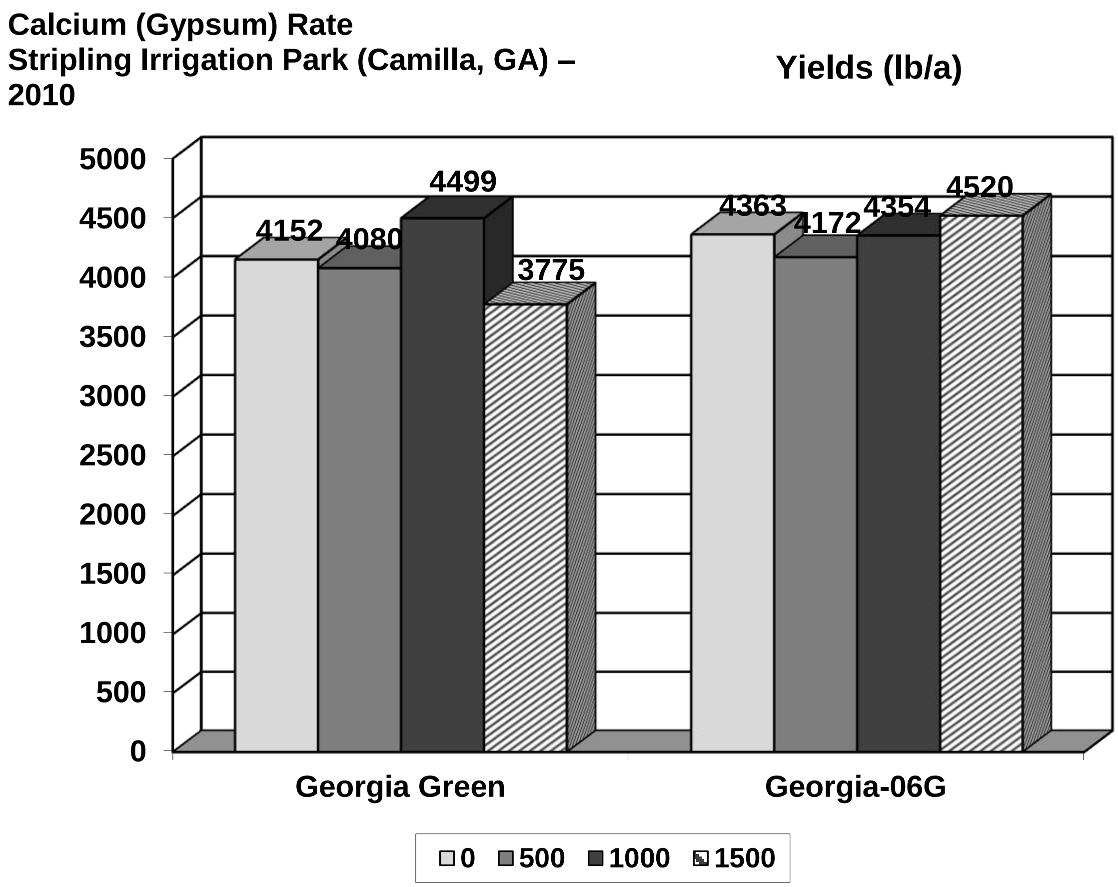
Pegging zone calcium for this site was 542 lbs/acre. This site was irrigated and received plenty of water and notice the very high yields. This is the only site that included other large-seeded cultivars besides Georgia-06G. Florida-07 appeared to respond in the classic fashion to increasing gypsum rates (increasing to 1,000 lbs/acre then dropping off at 1,500 lbs/acre). Tifguard didn't appear to respond to gypsum as far as yield and Georgia-06G showed an anomaly at the 500 lbs/acre rate as did Georgia-07W at the 1,000 lbs/acre rate.



The pegging zone calcium level at this site was 271 lbs Ca/acre. This was a dryland site. This was the lowest calcium site used in both years and was the only site that responded to yield in this matter where yields doubled when going from the 0 to 500 lb/a gypsum rate. Then yields of Georgia Green seem to level off and for Georgia-06G increased just slightly with increasing gypsum rates.



The pegging zone calcium for this site was 749 lbs Ca/acre indicating that the current recommendation of 500 lbs/acre in the pegging zone was adequate for both cultivars. This was an irrigated site.

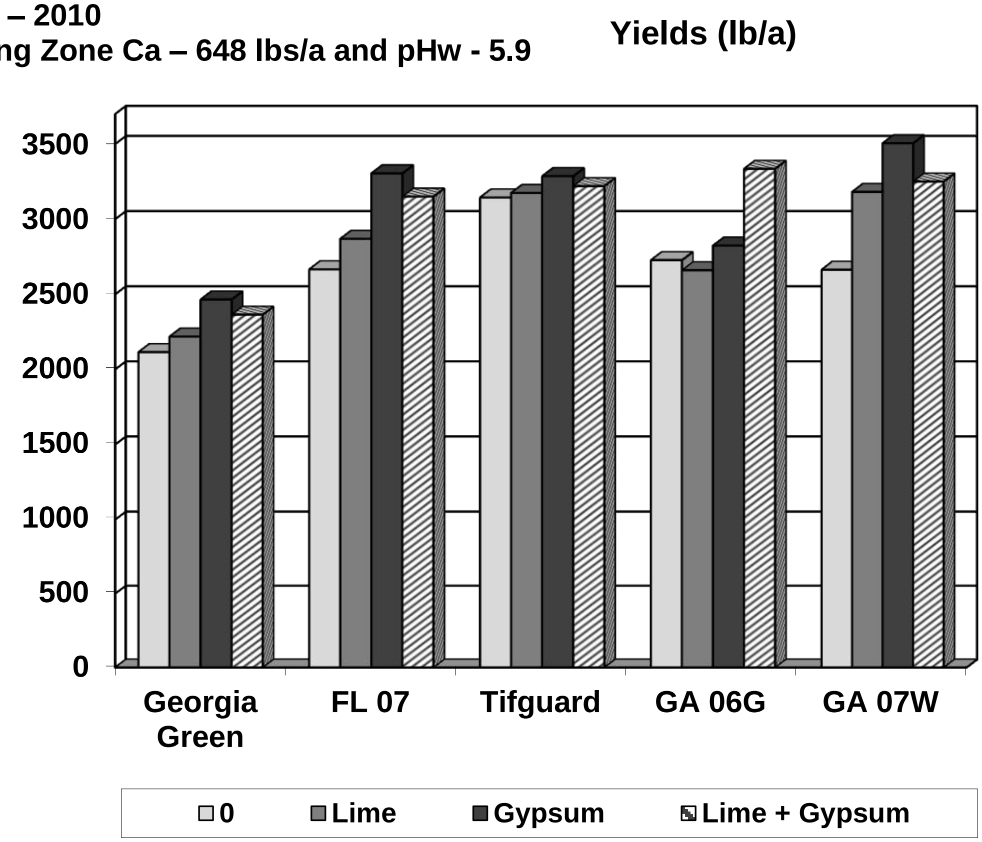


The pegging zone calcium for this site was 706 lbs Ca/acre. This is the site that in 2009, Georgia-06G responded with increasing yields with increasing gypsum rates up to 1,000 lb/a even with a 950 lbs/acre pegging zone calcium level. However, the 2010 yield data shown above shows a lack of yield response.

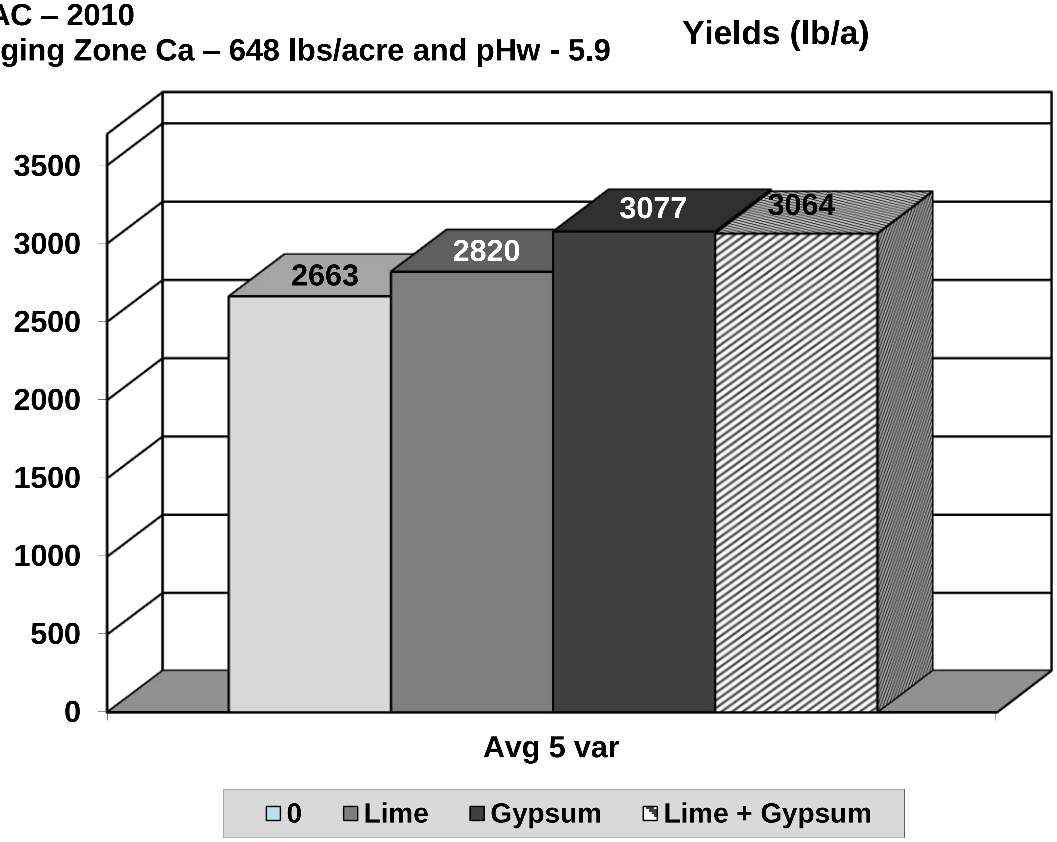
2. Lime, Gypsum or Both ? - This study was also a repeat of a study conducted in 2009. Treatments were 1) no lime or gypsum, 2) lime at planting as recommended, 3) gypsum at bloom time as recommended, and 4) lime at planting followed by gypsum at bloom time. Yield for 5 different cultivars is shown on the first graph below. The next graph shows an average for the 5 cultivars and the third graph shows grade averaged across the 5 cultivars.

Like in 2009, since the soil pH and pegging zone calcium levels were considered adequate based on current recommendations (5.9 and 648 lbs Ca/acre), little yield response was expected. Although not statistically significant, there did seem to be a slight numeric yield increase with the lime method and a larger response to gypsum bit no advantage to using both (above the response to gypsum. This was a dryland site and the yields were low.

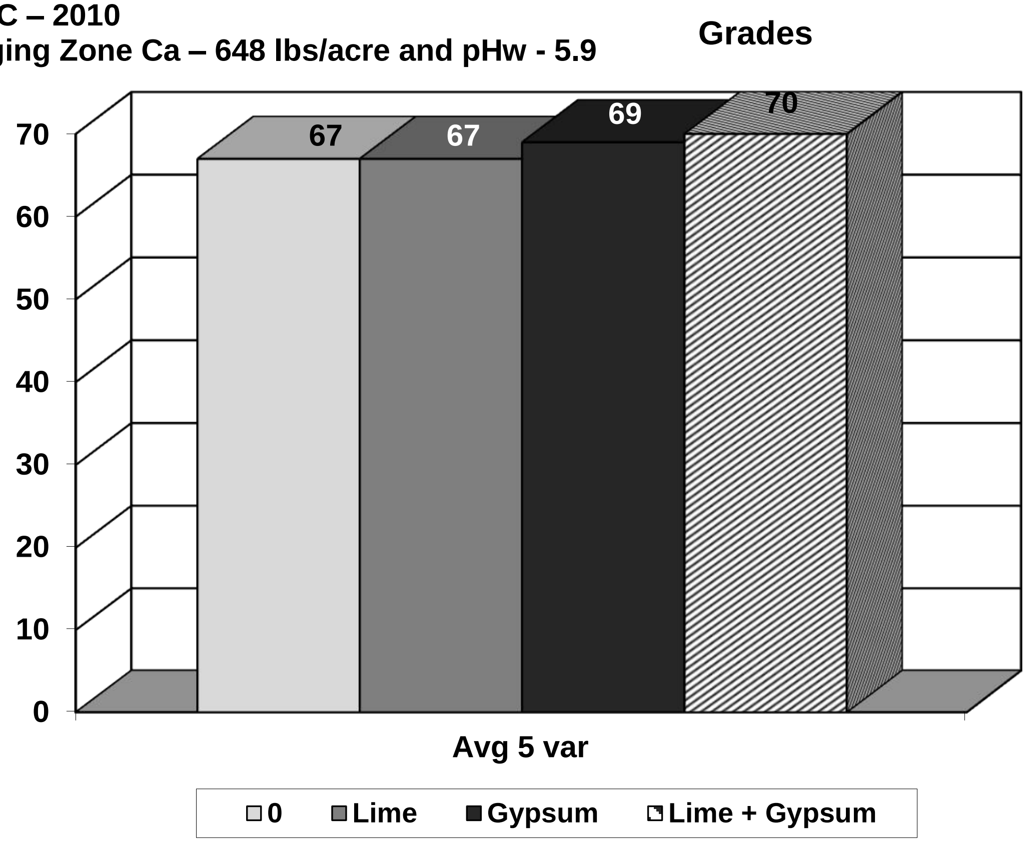
Lime vs. Gypsum
ABAC – 2010
Pegging Zone Ca – 648 lbs/a and pHw - 5.9



Lime vs. Gypsum
ABAC – 2010
Pegging Zone Ca – 648 lbs/acre and pHw - 5.9

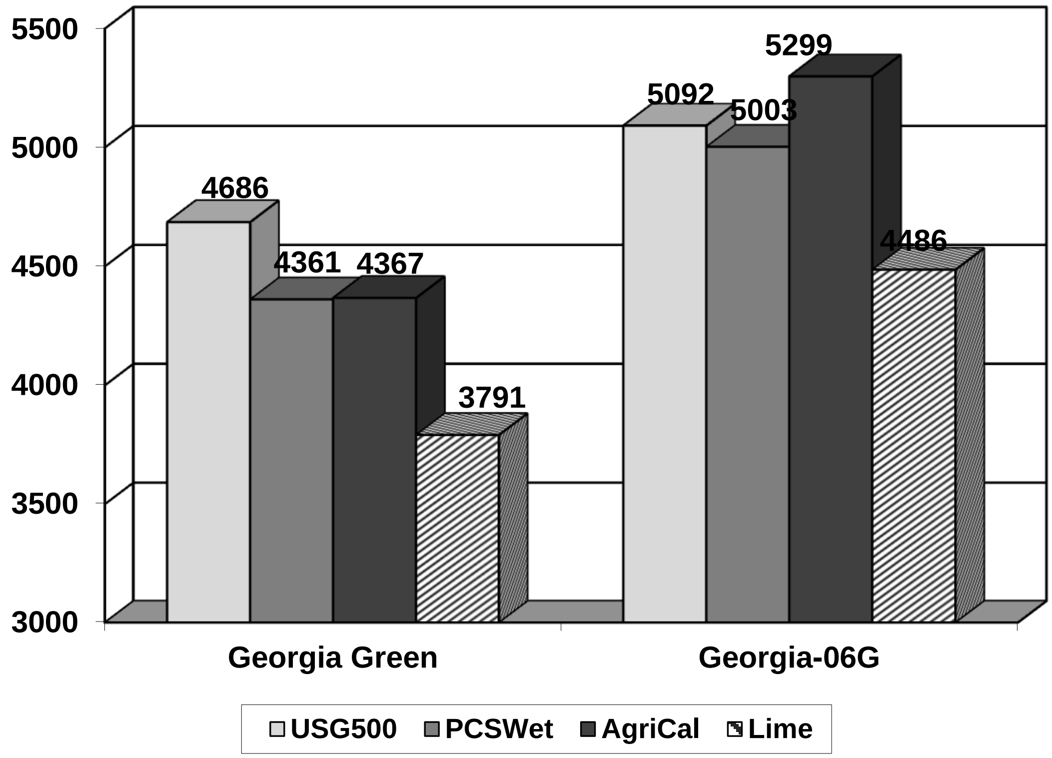


Lime vs. Gypsum
ABAC – 2010
Pegging Zone Ca – 648 lbs/acre and pHw - 5.9

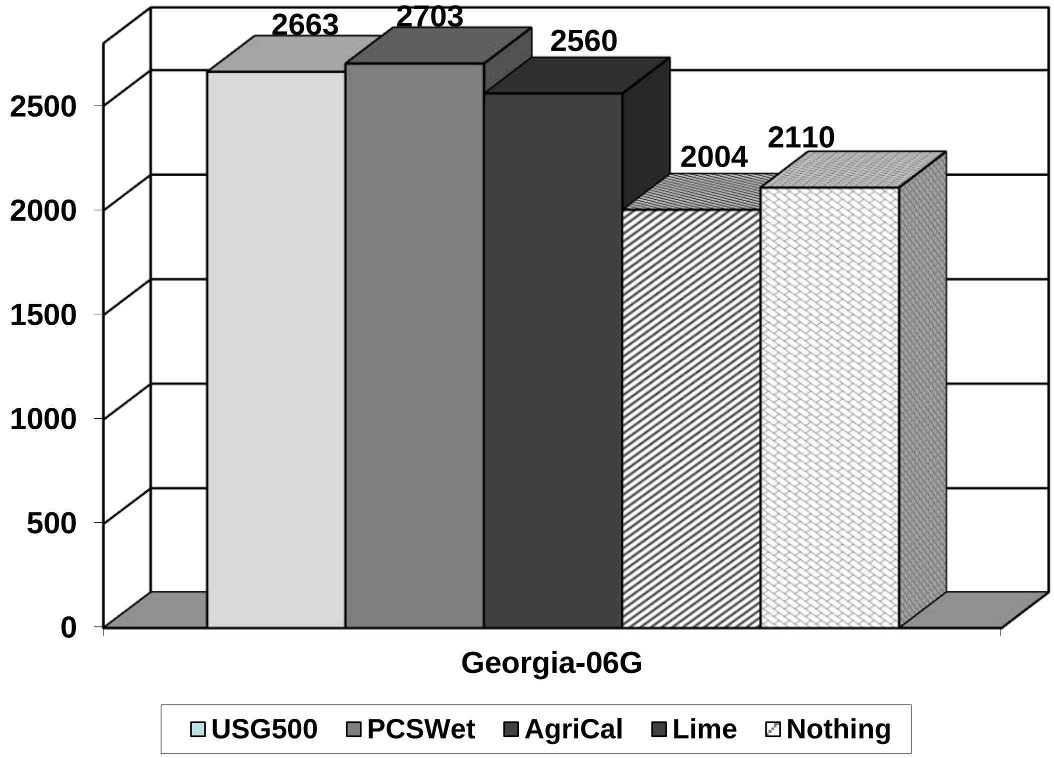


3) <u>Gypsum Sources</u> - Three gypsum sources (USG 500, PCS Wetbulk, and Agrical/Smokestack) were applied at 1,000 lbs/acre at bloom time for comparison at 2 locations in 2010. In addition**, lime was applied at bloom time (which is not recommended)** at both locations and an untreated check was included at the ABAC location. Based on the yield and grade data below, there does not appear to be any significant difference in effectiveness between the 3 gypsum sources used and lime applied at bloom time appeared to be ineffective as expected.

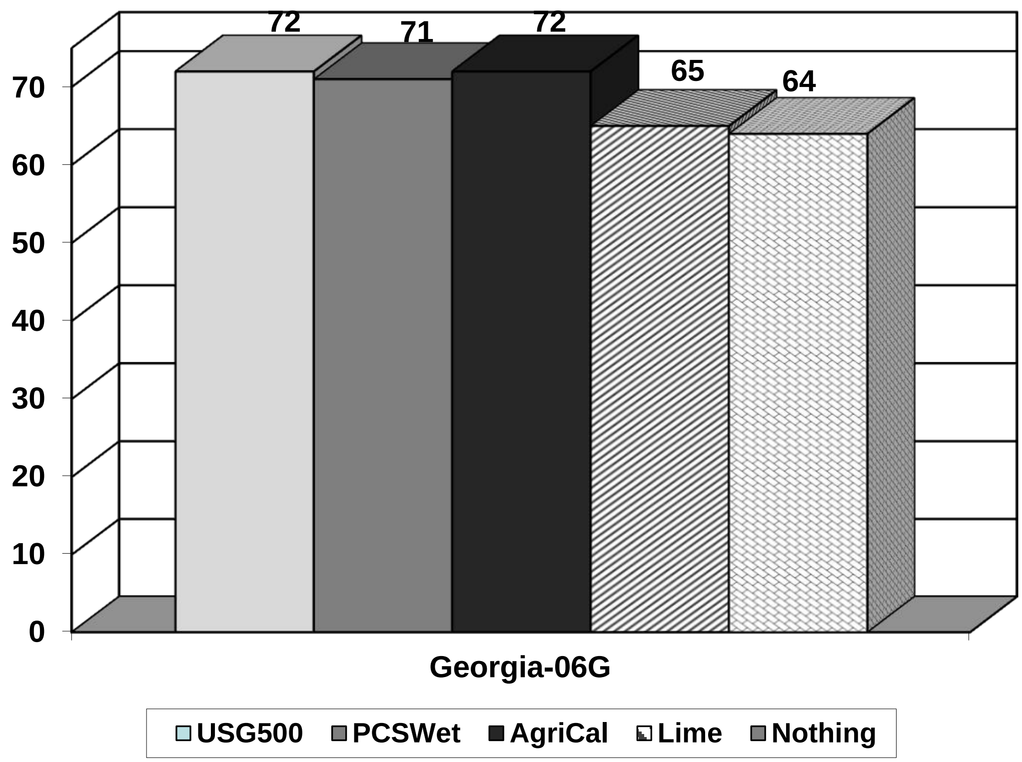
Calcium Source
Turner Co.(Paulk) – 2010
Pegging Zone Ca - 271



Calcium Source
ABAC – 2010
Pegging Zone Ca - 648



Calcium Source
ABAC – 2010
Pegging Zone Ca - 648

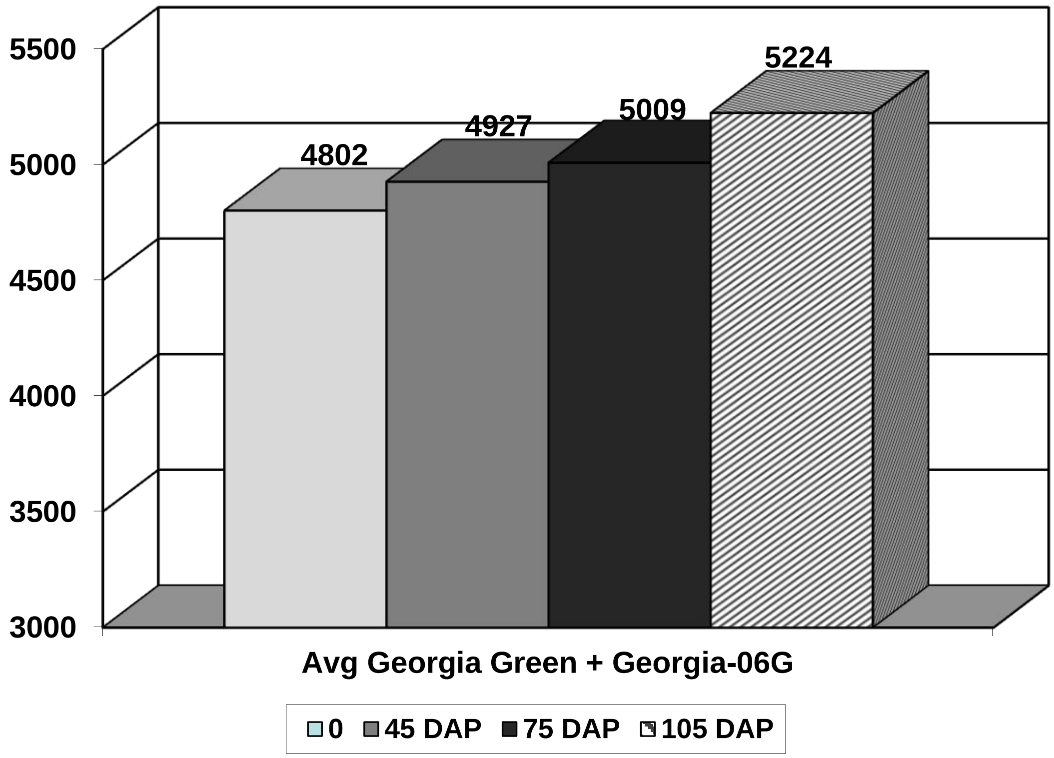


4) <u>Timing of Gypsum Applications</u> – The recommended time to apply gypsum on peanuts is at early bloom which would correspond to approximately 45 days after planting (depending on weather conditions). Preliminary studies to look at gypsum timing were conducted at 2 locations in 2010.

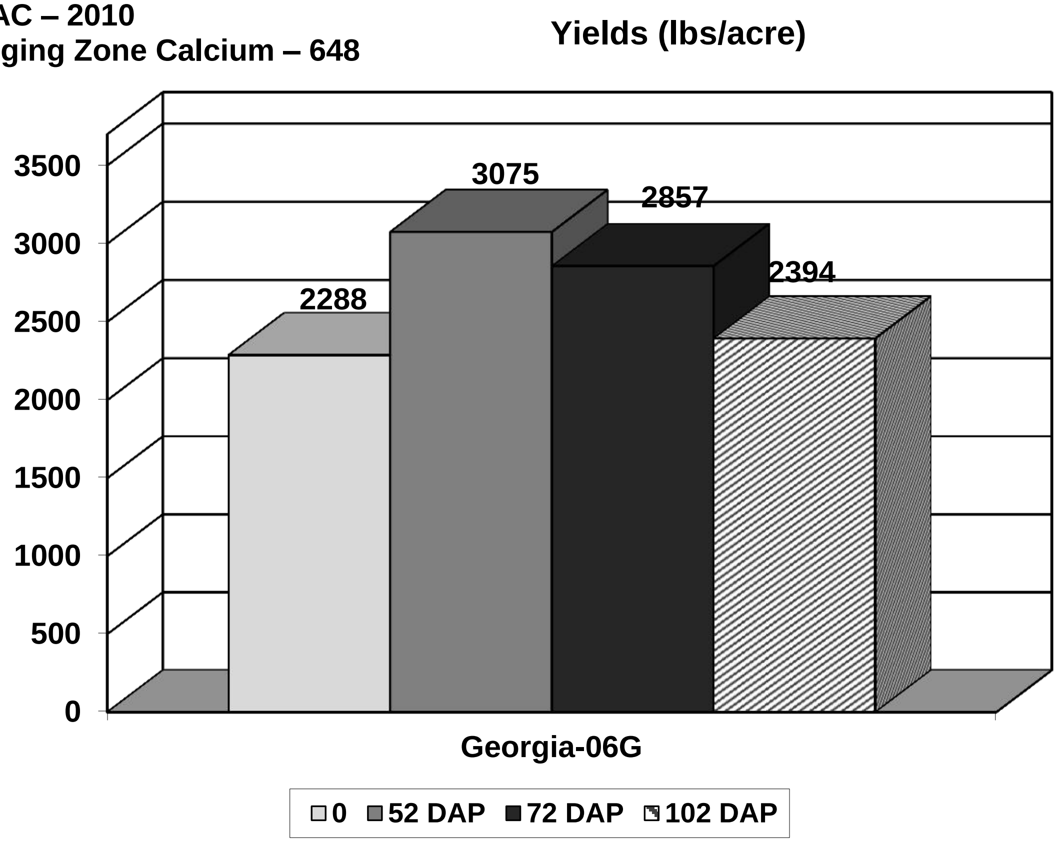
The first location was the RDC Pivot and is the same site that the rate study was conducted on with a pegging zone calcium of 749 lbs/acre. USG 500 gypsum was applied 45, 75 and 105 days after planting. The first graph below makes it appear that the later the gypsum was applied, the better the yield. However, the differences were not statistically different from each other.

The second location was at the ABAC site that had a pegging zone calcium of 494. The second graph below shows what was expected, i.e. the later the gypsum was applied the lower the yield, so that by 105 days after planting the yield response was the same as if no gypsum was applied. The third graph below shows the same trend for grade as yield for this site.

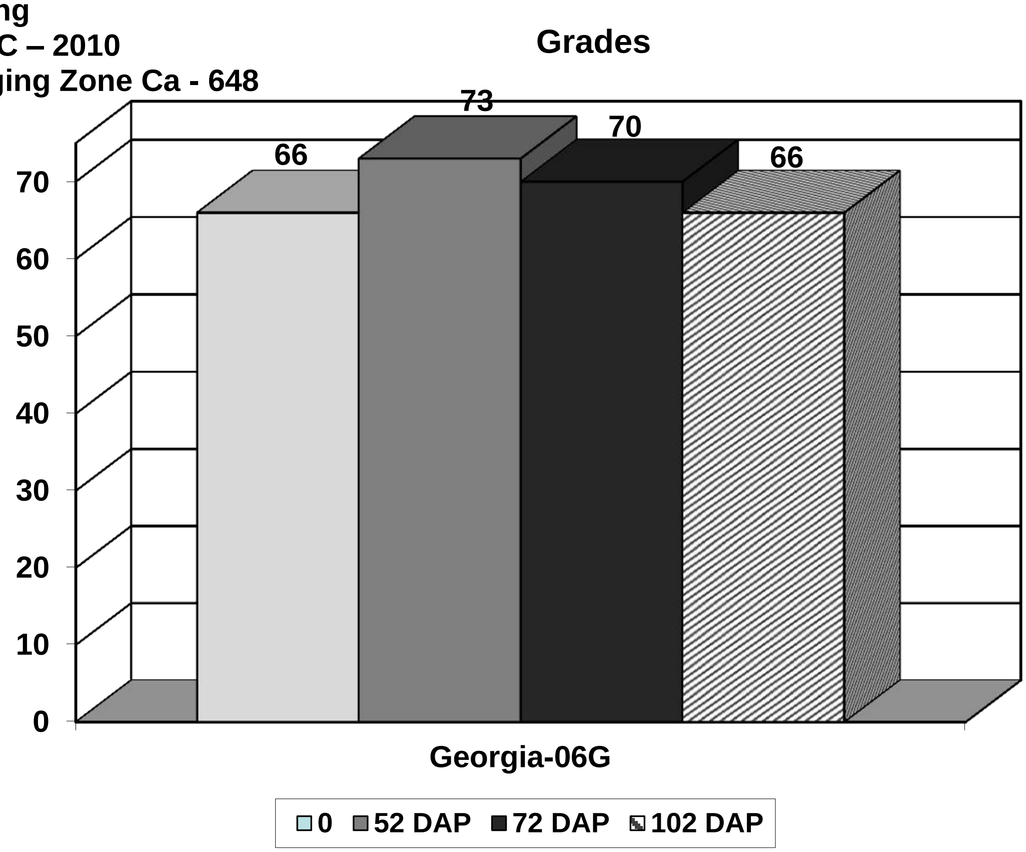
Calcium (Gypsum) Timing



Calcium (Gypsum) Timing
ABAC – 2010
Pegging Zone Calcium – 648



Calcium (Gypsum)
Timing
ABAC – 2010
Pegging Zone Ca - 648



NON-IRRIGATED PEANUT PRODUCTION

John P. Beasley, Jr.

We continue to have approximately 50-55% of the Georgia peanut acreage planted in non-irrigated production. We've had concerns the past couple of years that some of the more recently released large-seeded cultivars, Georgia-06G, Georgia-07W, Florida-07, and Tifguard, would not perform as well under non-irrigated conditions compared to Georgia Green, Georgia-02C, or Georgia Greener.

Research conducted by USDA scientists approximately 10 years ago indicated Georgia Green has a lower water requirement than other peanut cultivars with medium to large seed size. This seems logical since Georgia Green has a smaller pod and seed size and less canopy than other runner-type peanut cultivars. Logically, we figured Georgia Green would be the best cultivar option under non-irrigated production.

Research in the 1970's that determined water response curve and irrigation requirement for peanut was conducted on Florunner. That was the basis of our UGA peanut irrigation recommendation. The research results of the 1970's indicated that a peanut plant needs approximately 23 inches of water from planting until harvest. Approximately 18 of those 23 inches (78%) of water is needed during weeks 10-17 (8 weeks, or 40%) of the 20-week growing season.

Rarely do we receive 23 inches of rainfall during the growing season. The closest we came to receiving that much rainfall during the growing season was in 2003. Therefore, in most every year we are in a rainfall deficit for peanut production. The key to making above average yields in a non-irrigated situation is receiving timely rainfall during pegging, pod fill, and pod maturation.

The number one question to answer is "which cultivar do I plant in a dry land situation"? Since Georgia Green has a lower water requirement than other cultivars then it made sense that it would be a good choice for non-irrigated fields. Other medium seed-size cultivars such as Georgia Greener and Georgia-02C are also good options. Another trait of Georgia-02C that makes it a good dry land peanut is its late maturity. The longer maturity range provides more opportunities to overcome short dry spells.

In a growing season in which we receive normal to slightly below normal rainfall we feel that the larger-seeded, higher-yielding cultivars such as Georgia-06G, Florida-07, Tifguard, and Georgia-07W will all perform better than Georgia Green in a non-irrigated production system. However, in a year in which we receive well below normal rainfall, like 1980, 1990, or 2000, Georgia Green or Georgia Greener would be the better options. The problem is we never know at planting if we are going to have a year with well below rainfall.

The 2010 growing season provided a wide range of rainfall deficient areas across the Georgia peanut production belt. There were some areas that had extremely dry conditions, most notably the area around Americus and Plains, while other areas, like the southern tier of counties in Georgia, had rainfall deficits but not near the level as the northern tier of counties. Despite the dry conditions in most areas, the large-seeded runner cultivars still out yielded Georgia Green. Therefore, we feel confident in recommending the large-seeded runner cultivars for non-irrigated production. The large-seeded cultivars are: Georgia-06G, Georgia-07W, Tifguard, and Florida-07. The best option in a very dry year is Georgia Greener, especially since it has a seed size similar to Florunner. Georgia Green is no longer a good option simply because of the extremely limited seed supply.

2011 PEANUT WEED CONTROL UPDATE

Eric Prostko

New Herbicide Labels for Peanuts

Spartan Charge 3.5L: Spartan Charge, from FMC, is a pre-mixture of Spartan + Aim. Spartan Charge can be applied preplant or preemergence for annual broadleaf weed control particularly morningglory and Palmer amaranth. Spartan Charge should not be applied to cracking or emerged peanut plants. The normal use rate of Spartan Charge on coarse textured soils with <1.5% OM is 3.75 oz/A. Spartan Charge is a PPO inhibitor which is the same mode of action of other popular herbicides such Valor, Reflex, and Cobra. Due to limited UGA field data, Spartan Charge is **not** recommended for use in Georgia at this time. Additional research will be conducted in 2011 to determine its fit (*if any*) in Georgia. A complete copy of the Spartan Charge label can be viewed at the following location: http://www.cdms.net/LDat/ld91H003.pdf

Gramoxone Inteon 2SL: Late in the summer of 2010, a 24C Special Local Need (SLN) peanut label was issued for the use of Gramoxone Inteon in non-selective herbicide applicators (NSA) for the control/suppression of Palmer amaranth and Florida beggarweed. To prevent seed production in Palmer amaranth, a 50% solution of Gramoxone Inteon should be applied within 2 weeks of pollen shed. Tractors should be operated at speeds of 5 MPH or less. NSA's that have performed well (≥ 85% control) in UGA tests include the following: GrassWorks Weed Wiper™; Smucker's Top Crop Super Sponge; and LMC-Cross Wick-Bar. Gramoxone Inteon should not be applied within 30 days of digging. In order for NSA to be effective, at least **50%** of the weed must be wicked/wiped. A complete copy of this 24C SLN label can be viewed at the following location: http://www.cdms.net/LDat/ld77A012.pdf

Florida Beggarweed Problems

Although Palmer amaranth has received much attention the last few years, Georgia peanut growers still have other weed problems. In 2010, Florida beggarweed reared its ugly head late in the growing season. Typically, Florida beggarweed germination/emergence is stimulated by cultivation and rainfall/irrigation. Residual herbicides for Florida beggarweed control include Valor, Strongarm, and Dual Magnum. Paraquat (Gramoxone Inteon/Firestorm /Parazone) provides good to excellent early- postemergence control of Florida beggarweed but control will be reduced when tank-mixed with Storm or Basagran. Cadre/Impose is labeled for **suppression** of Florida beggarweed if applied before the weed exceeds 2" in height. Classic can be applied to tolerant peanut varieties from 60 days after emergence to 45 days before harvest but before beggarweed plants exceed 10" in height. Gramoxone Inteon can be applied in a non-selective applicator for salvage control described above.

Classic Update

UGA weed scientists continue to screen the new peanut varieties for tolerance to late-postemergence applications of Classic. Currently, Classic is **not** recommended for use on **GA-06G.** Classic can be safely applied to **Tifguard** from 60 to 80 days after emergence and to **FL-07** from 60 days after emergence until 45 days before harvest. Other new peanut varieties such as **Georgia Greener** and **GA-07W** have not yet been screened for tolerance to Classic.

Peanut Response to Ignite

Ignite (glufosinate) has become an extremely popular herbicide in Georgia due to our troubles with herbicide-resistant Palmer amaranth. Peanuts are **very** sensitive to Ignite. Consequently, I expect to see more problems in peanuts with off-target movement (drift) and sprayer contamination. As little as 2 oz/A of Ignite can reduce peanut yields from 6 to 19% depending upon the time of application. Thus, Ignite drift and sprayer contamination must be avoided. The following table provides an estimate of peanut yield losses from various rates of Ignite applied at 30, 60, and 90 days after planting.

Table 1. Estimated Peanut (GA-06G) Yield Losses (%) from Ignite 2.34SL.[1]

Ignite Rate/A (ozs)	**Time of Application (DAP[2])**		
	30	**60**	**90**
0	0	0	0
2	6.4	6.8	19.3
4	13.2	10.0	23.7
6	19.9	13.2	28.0
8	26.7	16.5	32.3
10	33.5	19.7	36.6
12	40.3	22.9	40.9
16	53.8	29.3	49.5
32	100	55.0	84.0

[1]Based upon data from 2 field trials conducted in 2010 (Ponder Farm, Plains).
[2]DAP = days after planting.

PALMER AMARANTH CONTROL TIPS

- GENERAL
  - Use tillage and/or herbicides and/or extreme cover crops to **START CLEAN** (*i.e. Palmer free*)!!!
  - Apply POST herbicides before weeds are 3" tall!
    - ✓ *ALS-Resistant: Use Cobra or Ultra Blazer + 2,4-DB*
    - ✓ *Non- ALS-Resistant : Use Cadre or Pursuit*
    - ✓ *Not Sure?: Use Cadre or Pursuit + Cobra or Ultra Blazer*

- Remove weed escapes before seed production! Consider hand-weeding or non-selective applicators.

➢ IRRIGATED – CONVENTIONAL OR STRIP TILLAGE

- Apply Prowl or Sonalan + Valor (3 oz/A) on every acre after planting.
    - ✓ Prowl is preferred in strip tillage systems
- Irrigate with 0.50”-0.75” of water immediately after application.
- For additional residual control, Dual Magnum/Generic (1 pt/A) can be added to POST treatments.

➢ DRYLAND – CONVENTIONAL TILLAGE

- Mechanically incorporate Prowl or Sonalan + Dual Magnum/Generic (1 pt/A) before planting.
- If rainfall is expected within 10 days, apply Valor @ 3 oz/A after planting. If no rain is expected in 10 days then…..
- Apply Gramoxone Inteon/Generic + Storm + Dual Magnum/Generic (1 pt/A) up until 28 days after cracking.
- Pray for rain!!!!!!!!!

2011 PEANUT DISEASE MANAGEMENT

Bob Kemerait, Tim Brenneman, and Albert Culbreath

Note: Recommendations for use of specific fungicides follows introductory sections on disease and nematode management for 2011 in the chapter.

Effective management of diseases that affect the peanut crop is not only essential to peanut production in Georgia; it can also be quite costly. Therefore, it is imperative that growers carefully plan an effective strategy to manage diseases that includes the use of crop rotation, selection of more-resistant varieties (see Peanut Rx section in the 2011 Peanut Update), selection of cost-effective fungicide programs, and other factors that are a part of an overall integrated pest management program. The best management program is not necessarily the least expensive but rather is the program that gives the best return on investment to the grower. A perfect example relates to the use of "tebuconazole" in a fungicide program to manage soilborne diseases like white mold and Rhizoctonia limb rot. Tebuconazole is a "good" fungicide for the management of white mold and limb rot and is sold at price that is attractive to nearly every peanut grower in the state. Nonetheless, growers in some situations will increase the value of their peanut crop by investing in a fungicide that although more expensive, provides better control of white mold and increased yields.

The section below is written to provide growers with a detailed overview of many aspects of disease management in 2011.

Highlights from 2010, "Quite a year for White Mold!" (With apologies to Bailey White, author of "Quite a Year for Plums".)

1. **Losses to tomato spotted wilt** were estimated to be approximately 0.25%; the lowest estimated loss since 1990. Reasons for the continued decline of a disease that has had tremendous impact on peanut production in Georgia are unknown. However the extreme cold temperatures of the winter of 2009-2010 coupled with the widespread adoption of varieties with greater resistance to spotted wilt certainly played significant parts in the continued decline of this disease. **IMPORTANT NOTE:** Although the severity of tomato spotted wilt has been in decline over the past several years, this disease continues to be a very real threat to peanut production in Georgia. Growers must continue to incorporate the lessons spelled out in Peanut Rx to minimize the threat from this disease.
2. **White mold** was particularly severe again in 2010. Very warm, even hot, soil temperatures early in the season led to aggressive development of the disease when the crop was still young. The aggressive development of white mold continued through much of the season.

a. The most commonly asked questions from agents, consultants, and growers about disease control in 2009 and in 2010 were with regards to management of white mold.
b. White mold was an important problem in many fields in 2010 with the exception of fields that had been well-rotated away from peanuts and perhaps soybeans in recent years. White mold was severe in some fields despite the use of fungicides known to be "premium products" in the management of the disease. Outbreaks of white mold in fields with good fungicide programs was likely more an indication of the extreme threat from this disease last season (and perhaps an start of the white mold epidemic earlier in the season than normal) than it was a reflection on the overall quality of specific fungicide programs.
c. As a reminder, the basic steps to minimizing the impact of white mold in a field include:
    i. Rotation away from peanuts and soybean; it is recommended that peanuts not be planted in a field more than one out of three years.
    ii. Selection of newer peanut varieties with improved resistance to white mold (see Peanut Rx).
    iii. Use of a fungicide program that has an appropriate compliment of fungicides for white mold control recognizing that some fungicides offer the potential for better control than others.
    iv. Appropriate timing of fungicide applications to correspond with the growth of the crop, the threat from white mold (based upon soil temperature and rainfall/irrigation) and the anticipation of rain events or irrigation to help move the fungicide from the foliage to the crown of the plant.
    v. Application of fungicides for the control of white mold at night or in the early morning hours when the leaves are still folded. Such allows better penetration of the canopy so that more of the fungicide reaches the crown of the plant.
    vi. Consideration of use of Proline (5.7 fl oz/A) during the period of "early emergence". **NOTE:** There is currently not enough data on this application to include it in our University of Georgia recommendations; however based upon data from 2010, both in-furrow and early season applications of Proline did have a season-long impact on the management of white mold.

3. **Cylindrocladium black rot (CBR) and Rhizoctonia limb rot** were inconsequential in 2010. Again, warm soil temperatures early and throughout the season were largely responsible for this. The impact of CBR is largely dependent on conditions early in the season and severe outbreaks are favored by a cooler and wetter climate at planting.

4. **"Prescription"** fungicide programs with 4, 5, or 7 fungicide applications continued to be effective even in a heavy white mold year when used in fields with appropriate risk (based upon Peanut Rx). In 2011, Peanut Rx prescription fungicide programs will be supported by Syngenta Crop Protection, Nichino-America, Arysta LifeScience, BASF, and Bayer CropScience. Prescription fungicide programs may also be available from Sipcam Agro.
5. **Impending loss of Temik 15G.** Bayer CropScience announced that Temik 15G would no longer be available for sale to growers in Georgia after 2014 and existing stocks would need to be used up by 2018. Given the important role that Temik 15G plays in the management of peanut root-knot nematodes, the impending loss of Temik for peanut production will have significant impact on peanut production in Georgia.

Fungicide Notes for 2011 from lessons in 2010

Generic tebuconazole products (tebuconazole was the active ingredient in Folicur and is the active in many products such as Tebuzol, Monsoon, Savannah, Muscle, Orius, etc.) were among the most popular fungicides used in 2010. The popularity of tebuconazole last season was certainly enhanced by the lower cost of an application versus the cost of other products. **In 2011, growers should note the following about tebuconazole:**

a. The cost of tebuconazole fungicides will keep them popular with growers.
b. Tebuconazole remains an effective fungicide for management of soilborne diseases and, when tank-mixed with another fungicide, for control of leaf spot diseases.
c. Overuse of tebuconazole without regards to fungicide resistance management will likely lead to a continued decline in the efficacy of this important fungicide.
d. Tebuconazole is often an effective tool but is not the best fungicide available for the management of any of our important diseases. In selecting an appropriate fungicide, growers should weigh the cost of tebuconazole against the value of enhanced disease control with other fungicides. **The severe outbreak of white mold in 2011 clearly demonstrated that peanut growers in Georgia have access to fungicides that have increased efficacy against white mold than does tebuconazole.**
e. In a year like 2010, growers commonly asked about the potential benefits of significantly increasing the rate of tebuconazole (beyond 7.2 fl oz/A) to take advantage both of the "expected" benefits of the higher rate and the cost of the product. The University of Georgia Cooperative Extension in NO WAY condones the use of tebuconazole products at rates beyond 7.2 fl oz/A. Not only is this

application rate off-label and thus illegal, but we have no data to support improved efficacy anyway with a rate higher than 7.2 fl oz/A. In short, growers who choose to use tebuconazole MUST use it at the 7.2 fl oz/A rate.

Management of peanut root-knot nematodes in 2011

1. Peanut root-knot nematodes are frequently under-managed in Georgia, either because the symptoms are not recognized or because growers are reluctant to take the steps needed to ensure adequate control.
2. Rotation with a crop such as cotton (not a host for peanut root-knot nematode) is a very effective management tool.
3. Growers who plant the new peanut variety ‘Tifguard’ can expect excellent control of nematodes. Note: the concern that some have expressed over “weak peg strength” in Tifguard remains unproven; growers should give significant importance to the near-immunity of this variety to peanut root-knot nematodes and keep any concerns about peg-strength in proper perspective.
4. Fumigation with Telone II, perhaps followed by a pegging-time application of Temik15G, is our most aggressive treatment to manage peanut root-knot nematodes.
5. Temik 15G, applied both at planting and at-pegging stages, is a critical tool in many areas. Growers who use Temik 15G in 2011 need to carefully familiarize themselves with new use requirements such as maxim use amounts, pre-harvest application intervals, distance from well-heads and water sources, and requirement for irrigation or rainfall within 24 hours after a pegging-time application.
6. Research efforts continue on the use of the biological nematicide “NemOut” for management of peanut root-knot and lesion nematodes. Preliminary results from limited field studies offer promise that this product may be useful in some situations for the protection of the peanut crop. Further research efforts continue and the results will be shared with growers as they become available. Because this product is a formulation of fungal spores, growers who use NemOut must ensure that they handle the product as required to ensure viability of the living spores upon application.
7. “Enclosure” (iprodione) is a new product being sold for the management of plant parasitic nematodes on peanut. The parent company of this product, Devgien, continues to invest significant resources in field trials to assess the efficacy of Enclosure on peanuts in our state. Again, as more research results become available, they will be shared with growers, county agents, and consultants.

Management of Peanut Diseases

Although a few growers may have experienced severe outbreaks of tomato spotted wilt in their fields in 2010, this troublesome disease was once again of minimal impact in peanut fields across the Southeastern US. It is estimated that that the incidence of tomato spotted wilt on peanut last season in the Georgia-Florida-Alabama region was about 0.25%, the lowest severity since loss estimates were initiated in 1990. Despite low levels of spotted wilt in 2006, 2007, 2008, 2009 and 2010, growers should not become complacent in management of this viral disease. Without taking proper management precautions, growers could experience heavy losses to spotted wilt in 2011. Peanut Rx, the peanut disease risk index developed through collaborative efforts at the University of Georgia, the University of Florida, and Auburn University, has been updated for 2011 and offers growers strategies to minimize risk to not only spotted wilt, but leaf spot, Rhizoctonia limb rot, and white mold as well. The complete 2011 Peanut Rx is presented elsewhere in this Peanut Update.

White mold was the most important disease of peanuts in Georgia in 2008, 2009 and again in 2010. In 2010, white mold began to develop very early in the season and caused great concern for many growers and considerable losses in some fields. Many of the questions from peanut growers to the Cooperative Extension offices in July and throughout August dealt with management options for this disease. The key to the outbreaks of white mold in 2008, 2009, and 2010 were very warm temperatures in May and June which fueled the disease. Warm soil temperatures are an important factor in the development of white mold. Rainfall and irrigation certainly increase the potential risk and severity of this disease; however white mold can cause much damage even in a drier year when warm soils are common. In drier year, white mold is likely to cause most of its damage to the pods and pegs lying below that ground as it may be too dry in the above-ground canopy.

In managing white mold, note the use of the word “managing” and not “controlling” white mold, growers should not expect 100% effectiveness from any program. It is estimated that 70% control is all that can be expected in the best of situations and 50% control may be all that can be achieved when environmental conditions and factors such as poor crop rotation increase the risk to the disease in a field.

It is extremely difficult to protect a peanut crop from isolated “hits” of white mold in any field. Depending upon the crop rotation in the field, the variety of peanut planted, and the environmental conditions (e.g. weather) during the growing season, a field may have many isolated hits of white mold or fewer hits. An effective fungicide program (to include use of an appropriate fungicide applied at the proper timing with an appropriate spray volume) should minimize the spread of white mold in a field. A grower should be concerned if he notes “runs” of white mold across the field that are several feet in length, or longer, despite use of a soilborne fungicide.

New Tools for Disease Management

Peanut growers will have the opportunity to use some new and/or updated tools again in 2011 to further their battle against diseases and nematodes.

1. **"Day versus Night spraying":** Research began in 2007 and was continued in 2008, 2009 and 2010 (both in small plots and in large, on-farm studies) to assess the benefits and potential consequences of spraying fungicides at night for control of soilborne diseases. Because the peanut leaves "fold up" when it is dark, thus opening the interior of the canopy, it is thought that fungicides applied at such time would have better chance of reaching the crown of the plant. For management of soilborne diseases like white mold and Rhizoctonia limb rot, the crown of the plant is targeted for optimum control. Also, it is thought that by spraying fungicides directly into the crown of the plant, the fungicide residues are protected to some degree from sunlight, thus reducing photodegradation and extending the period of efficacy. Below is a summary of findings from the University of Georgia with regards to spraying at night.
    a. Control of white mold can be significantly improved by spraying the peanuts at night or in the early morning hours before sunrise. Provided that the fungicide applied at night has systemic activity, i.e. moves within the leaf tissue, there is no significant reduction in leaf spot control, and yields can be significantly improved with night sprays. When sprayed at night, "protectant" fungicides like chlorothalonil and Elast (dodine) will not provide adequate control of leaf spot diseases.
    b. Improvement of white mold control is more evident in non-irrigated plots than in irrigated plots when fungicides are applied in darkness, though there is likely to be benefit in both situations.
    c. Spraying in the early morning hours before dawn tends to offer slightly better results than in spraying in early evening. It is believed that the dew in the early morning further aids in the relocation of the fungicide.
    d. It is believed that applying fungicides at night will either maintain yields and control of white mold and leaf spot diseases or improve white mold control and yields as compared to daytime applications. There is believed to be little risk to the grower by applying appropriate fungicides at night, other than loss of a sound sleep!
    e. Note: Only fungicides applied for control of soilborne diseases should be considered for application at night. Fungicides applied only for control of leaf spot diseases and rust should continue to be applied during the day.

f. **Final note: growers must ensure that any fungicide or combination of fungicides applied at night has systemic activity against leaf spot diseases.** Without systemic activity (e.g. a mix of Convoy and chlorothalonil which does not have systemic activity) applying a fungicide at night could lead to a reduced level of leaf spot control. In the previous example, a more appropriate combination would be Convoy a fungicide such as Stratego, Headline, Topsin M + chlorothalonil, Tilt/Bravo, etc.

2. **The 2011 "PEANUT Rx" Disease Risk Index** is now available and has been thoroughly reviewed and revised as needed by researchers, breeders, and Extension specialists from the University of Georgia, the University of Florida, and Auburn University. Only a few changes were deemed necessary and included and update of the risk points and varieties that were included in the Index, a slight increase in risk to white mold in when peanuts are grown in conservation tillage versus conventional tillage, and the removal the category for "risk to Rhizoctonia limb rot" from Peanut Rx. At this time, we simply have insufficient data on the affect of Rhizoctonia limb rot on most new varieties. All other points/categories remained unchanged from 2010. Specific changes include:
   a. Risk index points for Georgia-06G for both leaf spot and white mold were decreased from "25" to "20" points based upon continued research. (Read: further research has demonstrated that Georgia-06G is more resistant to leaf spot and white mold than previously thought.
   b. Risk points for Georgia Greener (spotted wilt) were reduced from "20" to "10".
   c. Risk points for Tifguard (white mold) were increased from "10" to "15".
   d. Risk points for Georgia-07W (leaf spot) were increased from "15" to "20".
   e. Risk points for white mold in conservation tillage were increased from "0" to "5".
3. **"Prescription Fungicide Programs"**, i.e. specific disease management programs with an increase or decrease in fungicide applications based upon the 2011 "PEANUT Rx", continues to gain support from the agrichemical industry. In 2011, Syngenta Crop Protection (Abound, Bravo WeatherStik, Tilt/Bravo), Nichino (Artisan, Convoy), Arysta LifeScience (Evito), BASF (Headline), Bayer CropScience (Provost) and possibly Sipcam Agro will support prescription programs (4, 5, and 7 applications) for fields determined to be at low, moderate, or high risk according to PEANUT Rx. Prescription programs using fungicides not from Syngenta or Nichino can also be used successfully by growers; however they would not be endorsed or supported by any company.
4. **Recommendations for the management of CBR** continue to develop as new tools become available. PROLINE (5.7 fl oz/A) is a promising

component of a complete fungicide program to reduce the impact of Cylindrocladium black rot (CBR) in a field. With the availability of PROLINE, a good integrated pest management program for growers who wish to manage CBR is to

a. practice good crop rotation (i.e. rotation away from peanuts and soybeans),
b. consider planting a variety with some resistance to CBR such as Georgia-02C and Georgia Greener,
c. use PROLINE, 5.7 fl oz/A in-furrow, at planting, followed by
d. 4-block program of PROVOST or at least use of a fungicide program that offers suppression of CBR (e.g. Folicur, Abound, or Headline).

CROP ROTATION

Key point for 2011: Although soybeans may be a popular crop for growers again in 2011, rotating soybeans with peanuts could help to increase severity of Cylindrocladium black rot (CBR), peanut root-knot nematodes (*Meloidogyne arenaria*) and will be of little-or-no benefit in the management of white mold and Rhizoctonia limb rot.

The practice of good crop rotation has always been at the foundation of optimum disease management in peanut, affecting not only nematodes and soilborne diseases, e.g. white mold, Rhizoctonia limb rot, and Cylindrocladium black rot, but leaf spot diseases as well. For this reason, Extension specialists at the University of Georgia stress the importance of avoiding planting peanuts in the same field more often than once every three years and rotating with a grass crop, e.g. bahiagrass or corn, if at all possible.

Since the recent change in the Peanut Farm Program, peanut farming in Georgia has expanded into “non-traditional” production areas in the southeastern portion of the state. Growers in this area frequently ask “Can I grow peanuts on my land in back-to-back seasons as I have not grown them here before?” The simple answer is, of course, you can plant peanuts on your land whenever you want to. However, even growers who are planting peanuts on “new peanut ground” should be discouraged from back-to-back peanuts if possible. Reasons for this include:

1. Many peanut growers around the state would love to have access to “new peanut ground” as populations of pathogens attacking the crop should be initially low. Therefore, it does not make much sense to lose this competitive edge in pursuit of the short-term goal of growing two or three crops of peanuts in succession.

2. Many new peanut growers are producing peanuts on land that has been cropped to cotton in recent years. Although cotton is not affected by the

peanut root-knot nematode, early or late leaf spot, or Cylindrocladium black rot (CBR), and is only slightly affected by white mold, it is susceptible to diseases caused by *Rhizoctonia solani*. It is likely that despite previous cropping in a field, there will be significant populations of *R. solani* and perhaps smaller populations of *Sclerotium rolfsii* (white mold) in the field when peanuts are first planted. (This was observed in a test plot in Lanier County in 2004.) Without effective crop rotation, these populations may increase quickly.

3. In 2005, we observed an outbreak of CBR in a field in southeast Georgia planted for two consecutive years to peanut, but had not been planted to peanut at any other time. Earlier crops of soybean had introduced this disease to the field and back-to-back years of peanut had intensified the problem.

One of the greatest benefits of crop rotation is that it increases the effectiveness of all disease management programs. Effective crop rotation takes some of the "pressure off" of a fungicide program to minimize the impact of disease. Any fungicide program will be more effective where good crop rotation is practiced. In some situations, fields that are well rotated will require fewer, or at least less expensive, fungicide applications by the grower.

Recommendations from the University of Georgia for crop rotation and peanut production include the following:

1. Avoid planting peanut in the same field more than once out of every three years. Longer rotations, for example once every four years, are even better.

2. The best crops to rotate with peanut are grass crops, such as corn, sorghum, and bahiagrass. These crops will help to reduce the severity of diseases caused by Rhizoctonia solani, as well as CBR, white mold, and leaf spot diseases. Although corn and sorghum are alternate hosts for the peanut root-knot nematode, they are less affected than peanut is. Therefore, planting corn and sorghum should help to reduce populations of peanut root-knot nematode, though perhaps not as fast as when a non-host such as cotton is planted. Bahiagrass is susceptible to the lesion nematode, which can reduce the pod brightness important for the green peanut market.

3. Cotton is a very good rotation crop with peanut and should help to reduce the severity of white mold, leaf spot diseases, and CBR on future crops. Cotton is not a host for the peanut root-knot nematode, so this will be a beneficial effect as well. Cotton is a host for *Rhizoctonia solani*, so diseases caused by this pathogen will remain a concern in peanut-cotton

rotations, especially in conservation tillage where crop debris remains on the surface.

4. Soybeans, other leguminous crops, and many vegetable crops are not preferred for rotation with peanut. Although such rotations are likely to reduce the severity of leaf spot diseases, they may not reduce the severity of white mold, Rhizoctonia limb rot, the peanut root-knot nematode, or, in the case of soybean, CBR.

DISEASE MANAGEMENT IN 2011

Tomato Spotted Wilt. Every year growers are reminded that the goal of PEANUT Rx is to minimize their risk point total for a specific production field. PEANUT Rx does not dictate when a grower *must* plant peanuts, for example in the middle of May. The purpose of the index is to allow growers to determine how to minimize their point totals given their own needs. For example, if a grower needs to plant in late April, he or she can still achieve a satisfactory point total by making adjustments to other parts of the index, such as selection of a more resistant variety.

Fungal Diseases. Good crop rotation remains the cornerstone of a good disease management program. We recommend that a grower plant peanuts in a field only once every three years, and once every four years is even better. Grass crops, such as bahiagrass and corn, are the best rotation crops with peanuts because they do not share the same diseases or pathogens. (Note: Bahiagrass is a host for the lesion nematode, which does affect peanuts, especially green peanut growers.)

Early and Late Leaf Spot Diseases. Both early and late leaf spot are commonly observed across Georgia's peanut production region.

Management Points for Leaf Spot

1. Practice good crop rotation.
2. Destroy any volunteer peanuts that may grow in a field and bury/remove old peanut hay that can serve as a source of spores for leaf spot diseases.
3. Do not delay the start of a leaf spot fungicide program.
    a. When using chlorothalonil (e.g. Bravo Ultrex, Bravo WeatherStik, Echo, Equus, or other generics), Tilt/Bravo, Echo-PropiMax, Stratego, Elast 400F, Eminent 125SC + Echo, or Headline (**at 6 fl oz/A**), and you have adequate crop rotation, your first leaf spot spray will typically be applied somewhere between 30 and 35 days after planting (unless weather has been dry and unfavorable for development of foliar diseases.

    b. In fields where risk to leaf spot has been calculated as low-to-moderate, we have maintained good control of leaf spot when using a single application of Tilt/Bravo (2.5 pt/A) 40 days after planting
    c. Growers who use the AU-pnut forecasting system, automated at www.AWIS.com, can more effectively time their first application based upon environmental conditions.
    d. If you are planting peanuts after peanuts, you will likely need to begin your leaf spot program earlier than 30 days after planting because of the increased risk of disease.
    e. If you are using Headline (**at 9 fl oz/A**) for your first leaf spot spray, it is appropriate to combine your first two fungicide applications for leaf spot control (for example at 30 and 44 days after planting) into a single application of 9 oz of Headline at 38-40 days after planting.
4. Traditionally, fungicides are applied on a 14-day calendar schedule beginning after the first application. This 14-day interval may be modified for reasons such as those below:
    a. The interval should be **shorter** than every 14-days if conditions:
        i. Rainfall has been abundant and conditions are favorable for leaf spot.
        ii. You are using the AU-PNUT leaf spot advisory and it calls for an early application.
        iii. Peanuts follow peanuts in a field and leaf spot is expected to be severe.
        iv. Rainfall came on quickly after your last leaf spot spray and you are concerned that some of the fungicide may have been washed off the plants in the field too quickly.
        v. You are planting a variety that has poor resistance to leaf spot diseases.
        vi. Peanut rust appears in your field prior to the end of the season.
    b. It may be possible to extend the spray interval **beyond** 14-days if:
        i. Conditions have been dry and unfavorable for leaf spot, especially if you use the AU-PNUT advisory for spray guidance.
        ii. You are using a variety with increased resistance to leaf spot, such as York, Georgia-07W, or Georgia-03L. For example, if pressure from soilborne diseases is not severe, the spray interval for such varieties could be every 21 days and it is possible to treat the most resistant varieties only three times during the season. (Additional information can be obtained from your local Extension Agent).

iii. **You use Peanut Rx and determine that the predicted risk of fungal disease in a field is low to moderate** and rainfall has not been excessive since your last spray (additional information can be obtained from your local Extension Agent).
iv. Since many fungicide applications are used to manage leaf spot diseases and soilborne diseases, one must consider the effect that an extended spray schedule would have on both types of disease (foliar and soilborne) BEFORE shifting from a 14-day schedule.

5. The "**funky leaf spot**", whose cause is still unknown, typically affects peanut plants very early in the season and can look very much like early leaf spot. It may also cause considerable defoliation of early season foliage. Because this disease typically disappears by the middle of the season, it has not been found to be of real concern. Funky leaf spot has been found to be most severe on peanut varieties such as Georgia-02C and Georgia-03L, but is not thought to cause yield loss for either.
6. Current fungicides DO NOT control **funky leaf spot**; so do not be unduly alarmed by the appearance of leaf spots on your peanuts early in the season. Stay on a good fungicide program and have confidence that this program will control the more important early and late leaf spot diseases.
7. Finding some leaf spot in a field at the end of the season is usually not a problem. As long the diseases are controlled throughout the season, limited defoliation (up to about 30-40%) is not likely to affect your yield. The appearance of leaf spot at the end of the season typically does not mean that your program was ineffective or a failure.
8. Some growers in Florida are mixing chlorothalonil with Topsin-M or Topsin 4.5F or copper fungicides such as Kocide for their final leaf spot sprays to increase peg strength prior to harvest. What do we recommend in Georgia?
   a. Combinations of chlorothalonil and Topsin-M currently provide excellent control of leaf spot.
   b. Combinations of chlorothalonil and copper are also effective in the control of leaf spot.
   c. Data collected at Clemson University demonstrates that peg strength is not increased with use of Topsin-M, Topsin 4.5F, or copper (e.g. Kocide).
9. Failures in leaf spot management in a peanut field are often linked to:
   a. Unacceptable delays in starting your program.
   b. Improper calibration of equipment (not enough material was applied).
   c. Unacceptable delays between applications, such as when weather conditions keep the grower out of the field.

   d. Rain events immediately after a fungicide application have washed the fungicide away too quickly.

10. Use of Chlorothalonil.
    a. **Chlorothalonil** is the active ingredient in Bravo products, Echo products, and a number of generics. It is quite effective in the management of leaf spot diseases. Key points:
       i. All chlorothalonil products for peanut appear to be effective. Differences between one brand and another are related to the "stickers" and other substances that are added to the active ingredient to increase effectiveness.
       ii. There is no difference in efficacy between a flowable and dry-flowable formulation of chlorothalonil.
       iii. Two likely benefits from chlorothalonil products when compared to other products for leaf spot control are:
          1. Price.
          2. Use for fungicide resistance management.
       iv. The typical rate for a 720-F formulation is 1.5 pt/A; for a 90-DF formulation is 1.4 lb/A.
       v. Chlorothalonil products are not systemic and must be applied to the leaf surface prior to infection by the fungus.
       vi. Generally, chlorothalonil products have been on the foliage long enough prior to a rain event IF they have had time to dry completely.
       vii. If you feel that your chlorothalonil application may not have had enough time to dry before rain, consider timing your next fungicide application a little earlier to compensate for any reduction in efficacy.
       viii. When conditions have been very favorable for leaf spot (a lot of rain), it is generally true that research plots treated with chlorothalonil will have more leaf spot at the end of the season than plots treated with a systemic fungicide for leaf spot control. This increase in leaf spot rarely results in a reduction in yield.
       ix. Tank mixing Topsin M with chlorothalonil provides a good option for growers who are looking for a "rescue treatment" when leaf spot is developing too quickly in their field.

11. Use of **Elast 400F**:
    a. Elast (dodine) is in a fungicide class different than others used in peanut production. Thus when used in a peanut program it can help to reduce the chances of fungicide resistance that occur with overuse of certain "at risk" fungicides.
    b. Elast is a "protectant" fungicide like chlorothalonil and must be applied before infection by leaf spot pathogens has occurred. If infection has already occurred, application of Elast will be of minimal benefit for disease control.

c. Elast is used at either 15.0 fl oz/A alone or at 12.8 fl oz/A when tank-mixed with a product like tebuconazole (7.2 fl oz/A) for additional leaf spot control.
d. Use of Elast is most appropriate where chlorothalonil would be used.
e. Elast is MOST effectively used earlier in the season. Full-season use of Elast has been found in some trials to lead to reduced management of leaf spot diseases when compared to other fungicides applied for leaf spot control.

12. Tilt/Bravo, Echo-PropiMax, Eminent-Echo and Stratego:

a. Propiconazole + chlorothalonil is marketed as two products, Tilt/Bravo and Echo-PropiMax.
    i. The rate of this combination is 2.0 fl oz of propiconazole and 1.0 pt of chlorothalonil/A.
    ii. Tilt/Bravo is now marketed as a pre-mix which when applied at 1.5 pt/A, offers the same level of product as described above.
    iii. Tilt and PropiMax are systemic, which means that they can be absorbed into the leaf tissue offering some limited curative activity for recent infections.
    iv. Fungicide resistance management: improper use of Tilt/Bravo or EchoPropiMax with Folicur or Stratego may increase the risk of resistance to the sterol-inhibitor class of fungicides.
b. Propiconazole + trifloxystrobin is marketed as Stratego.
    i. Stratego is also a systemic fungicide with limited curative activity.
    ii. For leaf spot control, Stratego is applied at a rate of 7.0 fl oz/A.
    iii. Fungicide resistance management: improper use of Stratego with Folicur, Tilt/Bravo, Echo-PropiMax, Abound or Headline will increase the risk of resistance to the sterol-inhibitor and strobilurin classes of fungicides.
c. Eminent 125SC (tetraconazole) + Echo is a new co-pack from Sipcam and offers leaf spot control similar as other products mentioned in this section.
d. Where do we see the best fit for these products?
    i. Even though these fungicides have a systemic component, they should be applied BEFORE infection occurs in order to obtain maximum benefit.
    ii. When conditions for leaf spot are favorable, use of Tilt/Bravo, Echo-PropiMax, Eminent 125SC + Echo or Stratego often provides for better leaf spot control than with chlorothalonil alone.

iii. If growers plan to use one of these fungicides, they are often used early in the season to help insure a good start to leaf spot management.
iv. If conditions have been favorable for leaf spot (abundant rainfall), a grower has been delayed in spraying for leaf spot, or leaf spot is beginning to appear in the field, use of Tilt/Bravo, Echo-PropiMax, or Stratego may provide benefits beyond chlorothalonil.

13. **Topsin-M** (thiophanate methyl) is a fungicide in the benzimidazole class.
    a. Topsin-M can be a very effective part of a leaf spot management program.
    b. Growers who use a 4-block tebuconazole program can increase the control of leaf spot by tank-mixing 5.0 fl oz/A Topsin-M with 7.2 fl oz of tebuconazole in alternating applications (either 1 & 3 or 2 & 4).
    c. Growers who use a 4-block Artisan program (13-16 fl oz/A on each of four applications, may also want to consider using Topsin as described above.
    d. Growers who are looking for an effective fungicide treatment, should leaf spot become a problem in a field, can make an application of Topsin-M (5.0-10.0 fl oz/A) tank-mixed with 1.5 pt/A chlorothalonil. This can be followed up with a second application of the same tank-mix or with an application of Tilt/Bravo.
    e. Growers should make no more than two tank-mix applications of Topsin-M pert season in order to avoid fungicide resistance problems.
14. Pyraclostrobin is sold as **Headline**.
    a. Headline has been the most effective fungicide labeled on peanut for management of leaf spot.
    b. **NOTE:** Because Headline is our current standard for control of leaf spot diseases, some growers forget that Headline at rates of 12-15 fl oz/A is also an effective white mold/Rhizoctonia limb rot material as well. Growers who incorporate a higher rate of Headline into their fungicide program can expect excellent leaf spot control and effective soilborne disease control as well.
    c. Headline has the best curative activity of any fungicide for control of leaf spot.
    d. Fungicide resistance management: improper use of Headline with Abound, Evito, or Stratego will increase the risk of resistance to the strobilurin class of fungicides. In most cases, Headline should not be used in a fungicide program that contains Abound, Evito, or Stratego.
    e. For leaf spot control, Headline is typically used as follows:

i. Two applications at 6.0 fl oz/A at approximately 30 and 44 days after planting. We generally do not spend much time with this pattern, as the one below is a much better option for the grower.
ii. Combine two traditional leaf spot fungicide applications into a single application at 9.0 fl oz/A approximately 38-40 days after planting.
iii. Note: Because of its power to control leaf spot, some growers have used Headline as a "salvage" treatment late in the season when leaf spot appears out-of-control in a field. Remember:
    1. It would have been better to use the Headline earlier to try and avoid the problem entirely.
    2. Headline may slow the epidemic of disease, but it will not cure the problem. You will still have leaf spot; perhaps not as much as you would have had if you had not treated with Headline.
    3. Using a selective fungicide, such as Headline, when disease is present and severe will increase the risk for the development of fungicide resistance.

13. Abound, Evito, Provost, Quash (metconazole)and tebuconazole products are typically considered to be for control of soilborne diseases; however they must also control leaf spot diseases as well. Provost, Abound, and Evito provide effective leaf spot protection alone. Although Quash (metconazole) alone may also provide adequate leaf spot control, where growers who have experienced leaf spot problems when using tebuconazole can assume that similar problems will exsit with Quash unless it is tank-mixed with another fungicide for increased leaf spot control. Problems associated with tebuconazole and leaf spot are usually related to fungicide resistance issues or are traced back to rain or irrigation soon after application. To maximize leaf spot and white mold/limb rot control with Folicur/tebuconazole, it is best that the crop dry for 24 hours before irrigation. Where rainfall is abundant and/or resistance is likely, most growers will add a half-rate of chlorothalonil or Topsin to 7.2 fl oz/A of tebuconazole for added leaf spot protection.

SOILBORNE DISEASES

White Mold and Rhizoctonia Limb Rot Diseases: White mold will likely to occur in nearly every peanut field in Georgia; Rhizoctonia limb rot can be an important problem in some fields. Losses caused by these diseases can be severe and they are much more difficult to control than leaf spot diseases. Prior to 1994 when Folicur was first labeled, growers did not have any truly effective fungicides to control theses diseases. Since 1994, growers now have six different fungicides from three different classes that can effectively control both white mold and Rhizoctonia limb rot. Still, white mold and limb rot remain troublesome to growers. Two of the reasons for difficulty in control are 1) it can be tough to tell when you need to begin spraying, and 2) it is not easy to get the fungicide to its target where it can affect the pathogen.

Management points for white mold and Rhizoctonia limb rot.

1. Practice good crop rotation.
    a. Corn, grass crops, and bahiagrass are good rotation partners reducing effect of white mold and Rhizoctonia limb rot.
    b. Cotton will reduce the risk of white mold but will have less benefit on Rhizoctonia limb rot.
2. Choose resistant varieties when available.
    a. Some new varieties, such as Georgia-02C and Georgia-07W, have increased resistance to white mold over Georgia Green.
    b. Georgia Green appears to have better resistance to Rhizoctonia limb rot than many other varieties.
3. Apply fungicides for control of soilborne diseases at night when leaves are folded to allow greater penetration to the crown of the plant. Soilborne diseases are most effectively controlled when the fungicide reaches the crown and lower limbs of the plant.
    a. Fungicides applied in late evening for management of soilborne diseases are at least as effective, and often more effective, then the same fungicides applied during the day.
    b. Fungicides applied for management of soilborne diseases appear to be most effective when applied early in the morning after dew set, but before daylight. The moisture from the dew seems to further help in the re-distribution of the fungicide on the crown and limbs of the crop.
    c. Because fungicides applied for control of soilborne diseases must also protect against leaf spot diseases as well, it is important that the grower use a fungicide, or tank-mix an additional fungicide, that has systemic movement in the leaf.
    d. All "leaf spot only" fungicide applications should be applied during the day to achieve maximum coverage of the leaves.
4. Use appropriate fungicides.
    a. NOTE: No fungicide program will give the grower complete control of soilborne diseases in a field. We estimate that, at best, a good soilborne fungicide program will give 60-70% control under ideal conditions.
    b. Initiating fungicide applications is often imprecise and is based upon experience.
    c. The timing of fungicides for controlling white mold and limb rot must be early enough to protect the crop when the disease first appears. However, growers should avoid applying soilborne

fungicides too early so that they will be available when needed later in the season.

d. Initial appearance of soilborne diseases is related to the soil temperature, the growth of the crop, and rainfall/irrigation.
e. In Georgia, we generally start spraying for soilborne diseases approximately 60 days after planting. At this time in the season, the growth of the crop and the environmental conditions are suitable for disease to occur. Because white mold and Rhizoctonia limb rot can occur earlier than this, the grower should watch his fields carefully to determine when the diseases appear.
f. Example: In 2003, rainfall was abundant and we predicted that severe white mold would occur early in the season. However, white mold did not appear until later in the season and was much of a late-season problem. The most probable reason for this was temperature. Although the moisture was suitable for white mold (and limb rot), the cooler-than-normal summer temperatures delayed the onset of white mold. In 2006, white mold was severe across much of the production region of Georgia despite dry conditions. Again, the warm soil temperatures resulted in outbreaks of white mold, though the drought reduced the severity of Rhizoctonia limb rot.
g. Fungicides are applied to the foliage, but must reach the crown and limbs of the plant in order to be effective against soilborne diseases.
    i. The fungicides can be moved by rainfall and irrigation. If rainfall or irrigation occurs too quickly after application, the fungicide may not provide enough protection for leaf spot.
    ii. If the rainfall or irrigation is delayed, absorption of the fungicide into the foliage may reduce the amount available to fight soilborne disease.
    iii. In a dryland situation, lack of rainfall, and thus movement down the plant, will reduce the effectiveness of a soilborne fungicide. Still, the fungicide was probably not wasted; some of the product likely reached the desired target with the spray mix.
    iv. If fungicides are applied during the night after the leaves have folded, more fungicide will reach the crown of the plant where it is needed to control soilborne disease.
h. Management with **tebuconazole**.
    i. Tebuconazole is marketed as Folicur, Tebuzol, Orius, Tri$um, Integral, Muscle, Tebustar, etc.
    ii. Tebuconazole is effective against white mold and Rhizoctonia limb rot.

iii. Tebuconazole remains effective against early and late leaf spot; however the fungicide is not as effective as it once was due to development of resistance by the fungal pathogens.
iv. It is recommended that tebuconazole remain on the leaf surface for 24 hours after application to insure enough is absorbed for leaf spot control.
v. If tebuconazole is washed from the leaves too quickly, leaf spot control may suffer, though the grower may get maximum control of white mold and limb rot.
vi. In extremely wet weather, or when the threat from leaf spot diseases is elevated or where resistance has developed, growers should choose to mix 0.75-1.0 pt of chlorothalonil or 5 fl oz Topsin with 7.2 fl oz of tebuconazole to insure leaf spot control. At one time the addition of chlorothalonil was thought to impede the movement of Folicur from the foliage; however this has not found to be a problem. Note: Topsin is added to two alternating applications of tebuconazole in a 4-block program.
vii. Tank-mixing tebuconazole with the product Prevam has, in some trials, helped to reduce the severity of leaf spot over Folicur applied alone.
viii. Tebuconazole is applied at a rate of 7.2 fl oz/A, beginning approximately 60 days after planting.
ix. In the most traditional program, tebuconazole is applied in a four-block program, on a 14-day interval.
x. Fewer than four applications of tebuconazole may be sufficient in some low disease situations; however this will be an off-label program.
xi. Improper use of tebuconazole with Stratego, Tilt/Bravo, or Echo-PropiMax could increase the risk of fungal resistance to the sterol-inhibitor fungicides.

i. Management with **Quash** (metconazole)
   i. Quash is a triazole fungicide that is in the same chemical class as tebuconazole.
   ii. Quash is sold by Valent and is used at rates between 2.5 and 4 oz/A.
   iii. Ideally, when Quash is applied at rates of 2.5 to 4 oz/A, a grower should not need to tank-mix additional materials for enhanced leaf spot control. However, where leaf spot resistance to tebuconazole has developed, growers can expect that leaf spot resistance to Quash may also exist. In such cases, it may be important to find a leaf spot tank-mix partner to ensure adequate control when using Quash.

iv. **Quash** at 2.5 oz/A should be sufficient for control of white mold and Rhizoctonia limb rot under "normal" conditions. Where conditions are favorable for severe outbreaks of white mold, e.g. poor rotation, favorable weather, growers should use the higher rate at 4.0 oz/A.

j. Management with **Provost** (tebuconazole + prothioconazole)
   i. Provost is available to peanut growers in 2010 from Bayer CropScience.
   ii. Based upon results from the University of Georgia, Provost appears to have better systemic activity than other soilborne fungicides. This means that Provost can be more easily translocated within the plant from where it was applied to other regions for greater protection.
   iii. Bayer CropScience recommends that Provost be used in a 4-block program like Folicur.
   iv. The standard rate for Provost is 8.0 fl oz/A; however the rate can be effectively increased to as much as 10.7 fl oz/A when pressure from white mold or limb rot is severe.
   v. Because Provost is a combination of two fungicides within the same chemical class (triazoles/DMI fungicides), it is EXTREMELY important that growers practice good fungicide resistance management principals with this product in order to maintain its efficacy over an extended period of time.
   vi. From University data, Provost has provided excellent control of leaf spot diseases and control of white mold, Rhizoctonia limb rot, and CBR that is at least as good as that of Folicur.
   vii. To avoid causing injury to the foliage, growers should carefully read the Provost label before tank-mixing this product with other fungicides.

k. Management with azoxystrobin.
   i. Azoxystrobin is marketed as **Abound** and is typically applied at 60 and 90 days after planting at 18.5 fl oz/A.
   ii. A lower rate (12.0 fl oz/A) is allowed by label in dryland situations or in reduced-risk "Prescription Programs"; however it must be used with caution, as it will not have the "power" of the full rate. We typically do not recommend this rate unless each Abound application is alternated with applications of tebuconazole at 7.2 fl oz/A OR a grower is carefully using a prescription program in a reduced risk field.
   iii. Abound is effective against leaf spot diseases, white mold, and is excellent for management of Rhizoctonia limb rot.

    iv. For maximum efficacy against white mold and limb rot, the field should receive irrigation or rainfall within 72 hours after application.
    v. Fungicide resistance management: To avoid problems with fungicide resistance, Abound should not be used in the same program with Evito, Absolute, Stratego or Headline.

l. Management with fluoxastrobin.
    i. Fluoxastrobin is marketed as **Evito** 480SC.
    ii. Evito is in the same chemical class (strobilurins) as are Headline, Abound, Stratego, and Absolute and should not be used in the same fungicide programs as these products.
    iii. Recommended use for Evito is two applications of product (5.7 fl oz/A) timed approximately 60 and 90 days after planting.
    iv. Evito is an effective component of a peanut disease management program; however it may not be quite as effective against leaf spot and soilborne diseases as are other fungicides.
    v. Evito is NOT "generic Abound".

m. Management with flutolanil.
    i. Flutolanil is an excellent fungicide for the management of white mold and is also effective against Rhizoctonia limb rot. It is not effective against leaf spot diseases.
    ii. Flutolanil is marketed as **Moncut**, **Artisan** and **Convoy**.
        1. Moncut 70 DF must be mixed with another fungicide for the control of leaf spot. Moncut 70 DF is typically applied at 1.07 lb/A, in the middle of the rate range.
        2. Convoy, like Moncut, only contains flutolanil and must be mixed with the full-rate of another fungicide for control of leaf spot. Convoy is typically applied at 26 fl oz/A twice (60 and 90 days) or at 13 fl oz/A in a four-block program.
        3. Artisan is a combination of flutolanil and propiconazole. Therefore, it will control leaf spot, white mold, and limb rot. Artisan can be applied at a rate or 26 or 32 fl oz/A.
        4. Moncut and Artisan are typically applied at 60 and 90 days after planting, though Artisan and Moncut can also be applied in a 4-block program.
        5. When using Artisan in a 4-block program, it is applied at rates between 13 and 16 fl oz/A and tank-mixed with an additional leaf spot material, e.g. 1.0 pt chlorothalonil/A or perhaps an

alternation of chlorothalonil with Topsin at 5 fl oz/A.

6. When using Moncut 70DF fungicide in a 4-block program, it is typically applied as 0.5 lb/A tank mixed with a FULL rate of some leaf spot material.
7. As a final note, the flutolanil products Artisan and Moncut performed **exceptionally well** in 2003, 2006, and 2007 in field trials where white mold was severe. It is expected that Convoy would offer similar levels of control of white mold as well.

n. Management with pyraclostrobin.
   i. Pyraclostrobin is sold as **Headline** (as discussed in the leaf spot section).
   ii. Headline is effective in a soilborne disease management program against white mold and limb rot when applied at the 12-15 fl oz/A rate.
   iii. Headline is not used as a "stand-alone" soilborne fungicide, but rather is used in combination with tebuconazole, or perhaps Artisan or Moncut.
   iv. Headline is not used with Evito, Absolute, Stratego or Abound for fungicide resistance management concerns.
   v. Use of Headline at 12.0 fl oz will provide adequate control of white mold and limb rot when used as a part of a soilborne program and will provide exceptional leaf spot control.
   vi. An ideal use of Headline would be 9 fl oz/A at 40 days after planting, 7.2 fl oz/A Folicur at 60 days after planting, and 12.0 fl oz/A Headline at 74 days after planting.
   vii. Results from 2009 suggest that growers can greatly improve management of white mold with Headline when it is applied at NIGHT.

o. Management with mixed programs. Some peanut growers in Georgia are experimenting with fungicide programs that mix different fungicides for the control of soilborne diseases and the results can be outstanding. The goal in mixing fungicides is to capture the best control available through the use of multiple chemistries. While some of these programs, like the alternate use of Folicur and Abound, for a total of four soilborne fungicide applications, appear to be quite effective, the grower must accept all responsibility if his program is off-label.

p. **Managing White Mold with Lorsban 15G.** Prior to Folicur, the insecticide Lorsban 15G was one of the only chemicals that growers had to manage white mold. As Folicur and then Abound were labeled, growers turned away from Lorsban for control of white mold. However, results from field trials in 2003 demonstrate that application of Lorsban 15 G (13.6 lb/A) in conjunction with fungicides may provide control of white mold beyond that of the fungicides alone. It appears that Lorsban 15G may still have a place in white mold control.

Cylindrocladium Black Rot (CBR): CBR is a very challenging disease to control and of increasing importance to growers across the state. Crop rotation away from peanut and soybean is an important management tool. Also, it is important that growers not introduce infested soil from fields where CBR occurs to fields where it is not yet present. This can be done best by cleaning equipment and vehicles before traveling between fields. In recent years, it has been proven that CBR can be transmitted via seed, though at a very low rate. Growers should try to obtain seed produced in fields free of CBR. They should also recognize that much of the seed for Virginia varieties is produced in the Virginia-Carolina region where CBR is of even greater importance than it is in Georgia.

Management points for CBR

1. Crop rotation away from peanut and soybean. Unfortunately, once CBR is established in a field, it is very difficult to eliminate. Not only can the fungal pathogen survive for long periods of time in the soil, but it can also infect common weeds such as beggarweed and coffee weed.
2. **Proline 480SC** (prothioconazole) is a fungicide that is labeled to be applied in-furrow at planting time for management of CBR. The in-furrow rate is 5.7 fl oz/A. The in-furrow application of Proline promises to be a critical component for the management of CBR when followed by foliar application of the effective fungicides noted below. From numerous studies, it is demonstrated that liquid inoculants can be mixed with Proline without loss of efficacy of the fungicide or the inoculant.
    a. Where peanuts are planted in single-row patterns, the Proline is applied at 5.7 fl oz/A beneath the row.
    b. Where peanuts are planted in twin-row patterns, the Proline rate must be split under each row so that the TOTAL rate remains at 5.7 fl oz/A. Where twin rows are planted, the grower can come back an additional 5.7 fl oz/A to the seedlings 14 days after cracking.
3. Provost, Folicur, Abound, and Headline are labeled for the "suppression" of CBR. This means that these fungicides may reduce the symptoms of disease and possibly increase yields above other fungicides. Growers who are battling CBR may choose to use Provost, Folicur, Abound, or Headline for CBR suppression, though results are variable and sometimes disappointing.
4. Varieties with some level of resistance were not available to growers until recently. In the past several years, varieties Georgia-02C, Georgia Greener and Carver, have been released and appear to have

at lest some level of resistance to CBR. (Note: Tifguard is no longer recognized as resistant to CBR.) Growers who have fields where CBR is found may want to consider planting these varieties.

5. It has been found that CBR is more severe in fields where the peanut root-knot nematode also occurs. Therefore, growers who manage nematodes with either Telone II or Temik 15G may find some suppression of CBR as well.
6. Fumigation with metam sodium (e.g. Vapam) at 10 gal/A directly beneath the row 10 days prior to planting is currently our best management strategy for the control of CBR. Results can be quite dramatic and can allow growers to plant peanuts in fields where it would otherwise be nearly impossible to grow a crop.

Prescription Fungicide Programs

“Prescription fungicide programs” are defined as strategies designed to maximize yields and maintain disease control in a field using the appropriate number and type of fungicide applications based upon the risk to disease in the field. The goal of prescription fungicide programs is too use the right amount of fungicide for the level of disease expected in a field and to modify the fungicide use as the risk of disease increases or decreases as the season progresses.

Fields where the risk to disease is high, for example where fields have shorted crop rotation, are planted to less resistant varieties, and weather favors disease development should receive at least seven fungicide applications during the season, and perhaps more.

Fields where the risk to disease is reduced to a low or moderate level, for example where fields have longer rotations and are planted to more resistant varieties, typically do not need the same fungicide program as a higher risk field in order to maximize yields. Research data from many on-farm and small plot studies conducted at the University of Georgia have demonstrated that growers who manage their crop so as to reduce the risk to leaf spot, white mold, and Rhizoctonia limb rot can also reduce the number of fungicide applications and increase the value of their crop by cutting production costs. In low risk fields, it is quite possible to reduce the number of fungicide applications from seven to four, so long as the grower is willing to watch the field to insure that disease does not begin to develop unnoticed.

Growers interested in developing prescription programs should first assess the risk in their field(s) using the PEANUT Rx Disease Risk Index and then contact their local county agent for guidance on a suitable fungicide program. Syngenta Crop Protection, Nichino-America, BASF, Arysta LifeSciences, and Bayer CropScience have developed their on prescription programs with input from University researchers. Growers who use an industry-sponsored prescription program in reduced risk fields can have the confidence that the company will “stand behind” these programs as long as risk level has been appropriately assessed and the appropriate fungicide program has been used.

Managing Seedling Diseases: Seedling diseases were typically not a concern for peanut growers in Georgia prior to the arrival of the tomato spotted wilt virus. Even if some plants were lost in a stand, the neighboring peanut plants were often able to compensate for the loss by growing into the vacated space. However, it is clear that spotted wilt can be devastating when fields have poor stands. For this reason, getting a good stand has become critical for growers. Below are some management techniques to reduce seedling diseases (primarily caused by *Rhizoctonia solani* and *Aspergillus* niger).

1. Rotate peanuts with grass crops to reduce the populations of *Rhizoctonia solani.*
2. Plant the peanut crop when soil temperatures are warm enough to produce rapid, vigorous germination and growth. This can help protect the plants from disease. Excessive moisture at planting will also increase the risk of seedling diseases.
3. Use quality seed that has a good germination rating and will grow vigorously.
4. Choose varieties that are known to germinate and emerge uniformly and with vigor.
5. Use only seed treated with a commercial fungicide seed treatment. The seed treatments that are put on commercial seed prior to purchase are outstanding and provide protection for the seed and seedling. Seed treatments include:
    a. Vitavax PC
    b. Dynasty PD (azoxystrobin + mefenoxam + fludioxonil)
    c. Trilex Optimum (trifloxystrobin + metalaxyl + carboxin)
    d. Trilex Star (trifloxystrobin + metalaxyl + carboxin + thiophanate methyl)
6. Use an in-furrow fungicide where the risk of seedling disease is great or where the grower wants increased insurance of a good stand.
    a. Abound at 6.0 fl oz/A in the furrow at planting can provide increased control of seedling diseases, including Aspergillus crown rot.
    b. Terraclor (64 fl oz/A) also provides additional control of seedling diseases when applied in-furrow.
    c. Growers who are most likely to yield benefits from these in-furrow fungicides are those that have poor crop rotation and a history of seedling disease in the field.

Managing root-knot nematodes: Peanut root-knot nematodes are a severe problem in some fields in Georgia, especially in the sandy soils in the southwest corner of the state. Growers initially become aware of the problem when they note stunted plants across patches in their field. At harvest, many of the pods and pegs from these fields are galled and of poor quality. Based upon conversations with growers, it is likely that many fields across the state have problems with root-knot nematodes, but growers may fail to attribute the cause to nematodes. Below are some management options.

1. Use crop rotation to avoid building large populations of nematodes in a field. Cotton is an excellent rotation crop with peanut to reduce levels of nematodes.
2. Plant the root-knot nematode resistant variety '**Tifguard**'. Use of additional nematicides is NOT needed to protect Tifguard; however it is necessary to use a product such as phorate to protect against thrips injury.
3. Treat the field with **Temik 15G**. From our trials, Temik at 10-lb/A in-furrow followed by 10 lb/A at pegging provides good control. It appears that the 10-lb/A application at pegging-time is critical. Note: growers must not apply Temik to the crop any later than 90 days before harvest.
4. **Telone II** at a broadcast rate of 6 gal/A or an in-furrow rate of 4.5 gal/A provides the most consistent and effective control of the root-knot nematodes on peanuts. The following comments are important for the most effective use of Telone II.
    a. Telone II must be applied 7-14 days before planting to avoid damaging the crop.
    b. Growers should ensure that soil conditions are favorable for the effective diffusion of Telone II at the time of fumigation. The seed bed should be carefully prepared and free from large clods of dirt. The soil should be neither too dry nor too wet. The soil should not be wet, but should "clump" together when pressed tightly in one's fist.
    c. Growers should carefully follow all safety precautions when using a fumigant such as Telone II.
    d. Some insecticide, e.g. phorate or Temik 15G, should be applied at planting to ensure adequate control of thrips.
    e. Applications of Temik 15g at 10 lb/A at pegging may still be advisable, even when Telone II was used prior to planting.
5. **Enclosure** (iprodione) is a new product being sold for the management of plant parasitic nematodes on peanut. The parent company of this product, Devgien, continues to invest significant resources in field trials to assess the efficacy of Enclosure on peanuts in our state. Again, as more research results become available, they will be shared with growers, county agents, and consultants.

6. **NemOut** is a biological control nematicide formulated from the spores of the fungus *Paeciliomyces lilacinus*. This product can be applied both in-furrow at planting and to the peanut crop during pegging time.

Because the spores are living organisms, they must be treated carefully:

a. The formulated spores should be kept refrigerated or frozen when not used. The formulated product has a finite shelf life, even when kept cold.
b. They spores not be subjected to excessive heat when being prepared for application.
c. The spores should not be applied together with an in-furrow fungicide but can be applied with an in-furrow inoculant.
d. To get best performance of NemOut, it is important to apply the product with sufficient water and to ensure sufficient irrigation after application.
e. Based upon our research, the most consistent results are achieved by applying NemOut at 0.3 lb/A in-furrow and to follow at pegging time with an application of Temik 15G at 10 lb/A.
f. There is still much to learn about the efficacy of NemOut in the management of peanut root-knot nematodes in Georgia. Growers who would like to use this product are encouraged to do so on a trial basis until they are satisfied with the results achieved.

MINIMIZING DISEASES OF PEANUT
IN THE SOUTHEASTERN UNITED STATES

The 2011 Version of the Peanut Disease Risk Index

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Losses to tomato spotted wilt across the peanut production region of the southeastern United States were the lowest recorded since estimates began in 1990. It is estimated that losses associated with spotted wilt were about 0.25% in 2010. It is believed that growers were able to achieve excellent management of this disease in large part through combined use of Peanut Rx and varieties with improved resistance.

The Spotted Wilt Index and the Peanut Fungal Disease Risk Index were successfully combined in 2005 to produce the Peanut Disease Risk Index for peanut producers in the southeastern United States. The Peanut Disease Risk Index, developed by researchers and Extension specialists at the University of Georgia, the University of Florida, and Auburn University, is now officially known as "PEANUT Rx". The 2011 version of PEANUT Rx has been fully reviewed and updated by the authors based upon data and observations from the 2010 field season.

There have been a few updates to PEANUT Rx, 2011 from the 2010 version. The changes that have been made can be found in the cultivar/variety and tillage sections of Peanut Rx.

As in the previous versions of the Disease Index, growers will note that attention to variety selection, planting date, plant population, good crop rotation, tillage, and other factors, can have a tremendous impact on the potential for disease in a field.

Spotted Wilt of Peanut

When tomato spotted wilt virus (TSWV) infects a host plant, it can cause a disease that severely weakens or kills that plant. This particular virus is capable of infecting an unusually large number of plant species including several that are important crops in the southeastern United States. In recent years, peanut, tobacco, tomato and pepper crops have been seriously damaged by TSWV. The only known method of TSWV transmission is via certain species of thrips that have previously acquired the virus by feeding on infected plants. The factors leading to the rapid spread of this disease in the Southeast are very complicated and no single treatment or cultural practice has been found to be a consistently effective control measure. However, research continues to identify factors that influence the severity of TSWV in individual peanut fields.

Peanuts and fungal diseases: an unavoidable union

Successful peanut production in the southeastern United States requires that growers use a variety of tactics and strategies to minimize losses to disease. Weather patterns in Georgia and neighboring areas during the growing season, including high temperatures, high humidity and the potential for daily rainfall and thunder storms, create the near-perfect environmental conditions for outbreaks of fungal diseases. Common fungal diseases include early and late leaf spot, rust, Rhizoctonia limb rot, southern stem rot (referred to locally as “white mold”), Cylindrocladium black rot and a host of other diseases that are common, but of sporadic importance. If peanut growers do not take appropriate measures to manage fungal diseases, crop loss in a field may exceed 50%.

Strategies for managing fungal diseases of peanut are typically dependent on the use of multiple fungicide applications during the growing season. Fungicide applications are initiated approximately 30 days after planting, as the interaction between the growth of the crop and environmental conditions are likely to support the development of leaf spot diseases. The length of the effective protective interval of the previous fungicide application determines the timing for subsequent applications. The length of time in which a fungicide can protect the peanut plant from infection is dependent on the properties of the fungicide and on weather conditions. Many growers will begin treating for soilborne diseases approximately 60 days after planting. With attention to proper timing of applications and complete coverage of the peanut canopy, growers can expect good to excellent control of leaf spot and reasonable control of soilborne diseases. Although control of leaf spot may approach 100%, growers typically can only expect about 60-70% control of soilborne diseases with effective fungicide programs.

Weather plays a major role in the potential for disease. Most fungal diseases will be more severe during periods of increased rainfall and of less concern during drier periods. **When weather conditions are very favorable for disease, severe epidemics may occur in fields where disease was not thought to be a problem. When weather conditions are unfavorable for fungal growth, disease severity may be low even in fields where it has been common in the past.** The AU-pnut leaf spot advisory that has been used to effectively manage diseases in peanut is based on this relationship between disease and weather. Even those growers who do not use AU-pnut recognize the need to shorten the time between fungicide applications in wet weather.

Factors Affecting the Severity of TSWV on Peanut

Peanut Variety

No variety of peanut is immune to TSWV. However, some varieties have consistently demonstrated moderate levels of resistance. In addition to resistance, (reduced disease incidence), some varieties appear to have some degree of tolerance (reduced severity in infected plants) as well. Higher levels of resistance and tolerance are anticipated since peanut breeding programs are now evaluating potential new varieties for response to TSWV.

Peanut varieties can have a major impact on fungal disease. The variety 'Georgia Green' is currently planted on much of the peanut acreage in the Southeast. However, newer varieties from breeding programs at the University of Georgia and the University of Florida not only have improved resistance to spotted wilt, but to fungal diseases as well. For example, the variety 'Georgia-07W' has resistance to white mold that is better than that found in Georgia Green. Variety 'Georgia-02C' has a level of resistance to Cylindrocladium black rot (CBR) that is superior to that of Georgia Green. Just as none of the current varieties is immune to spotted wilt, none are completely immune to fungal diseases either. However, improved resistance will likely lead to reduction in disease severity. It is important to remember that improved resistance to one disease does not mean that the variety also possesses superior resistance to other diseases.

Planting Date

Thrips populations and peanut susceptibility to infection are at their highest in the early spring. The timing of peanut emergence in relation to rapidly changing thrips populations can make a big difference in the incidence of TSWV for the remainder of the season. Optimum planting dates vary from year to year, but in general, early-planted and late-planted peanuts tend to have higher levels of TSWV than peanuts planted in the middle of the planting season. Note: In recent years, peanut planted in the second half of May and in June have been less affected by spotted wilt than in previous years.

It is important for larger acreage peanut farmers to spread their harvest season. Some staggering of planting dates may be necessary, but to avoid spotted wilt pressure, it may be more effective to plant varieties with different time-to-maturity requirements as closely as possible within a low-risk time period. If peanuts must be planted during a high-risk period, try to minimize the risk associated with other index factors.

Planting date can affect the severity of fungal diseases in a field. Earlier planted peanuts (April-early May) tend to have more severe outbreaks of white mold than do later planted peanuts. Earlier planted peanuts are likely to be exposed to longer periods of hot weather, favorable for white mold, than later planted peanuts which will continue to mature into late summer or early fall. However, the threat from leaf spot is generally more severe on peanuts planted later in the season than earlier. Reasons for this include the warmer temperatures later in the season that are more favorable for the growth and spread of the leaf spot pathogens and because the level of inoculum (number of spores) in the environment increases as the season progresses. Thus, later planted peanuts spend a greater portion of their growth exposed to increased leaf spot pressure than do earlier plantings.

Plant Population

An association between skippy stands and higher levels of TSWV was noted soon after the disease began to impact peanut production in Georgia. More recently, research has confirmed the impact of plant population on TSWV incidence. Low and high plant populations may actually have the same number of infected plants, but the percentage of infected plants is greater in low plant populations. In other words, a higher plant population may not reduce the number of infected plants, but it will increase the number of healthy plants that can fill in and compensate for infected plants. In some cases, low plant populations may result in increased numbers of thrips per plant thereby increasing the probability of infection. When plant populations are as low as two plants per foot, severe losses to TSWV have been observed even when other factors would indicate a low level of risk. Getting a rapid, uniform stand with the desired plant population is a function of not only seeding rate but also seed quality, soil moisture, soil temperature and planting depth.

Plant population has less effect on fungal diseases than on spotted wilt. However, it is now known that the severity of white mold increases when the space between the crowns of individual plants decreases. This is because the shorter spacing allows for greater spread of the white mold fungus, *Sclerotium rolfsii*.

Insecticide Usage
In general, the use of insecticides to control thrips vectors has been an ineffective means of suppressing TSWV. In theory, lowering overall thrips populations with insecticides should effectively reduce in-field spread of TSWV. However, insecticides have proven to be ineffective at suppressing primary infection, which accounts for most virus transmission in peanut fields. Despite the overall disappointing results with insecticides, one particular chemical - phorate (Thimet 20G and Phorate 20G), has demonstrated consistent, low-level suppression of TSWV. The mechanism of phorate's TSWV suppression is not known, but the level of thrips control obtained with phorate is not greater than that obtained with other insecticides. Phorate may induce a defense response in the peanut plant that allows the plant to better resist infection or inhibits virus replication.

Row Pattern
Seven to ten-inch twin row spacing, utilizing the same seeding rate per acre as single row spacing, has become increasingly popular in Georgia. Research on irrigated peanuts has shown a strong tendency for significantly higher yields, a one to two point increase in grade and reductions in spotted wilt severity that have averaged 25-30%. The reason for this reduction in spotted wilt is not fully understood.

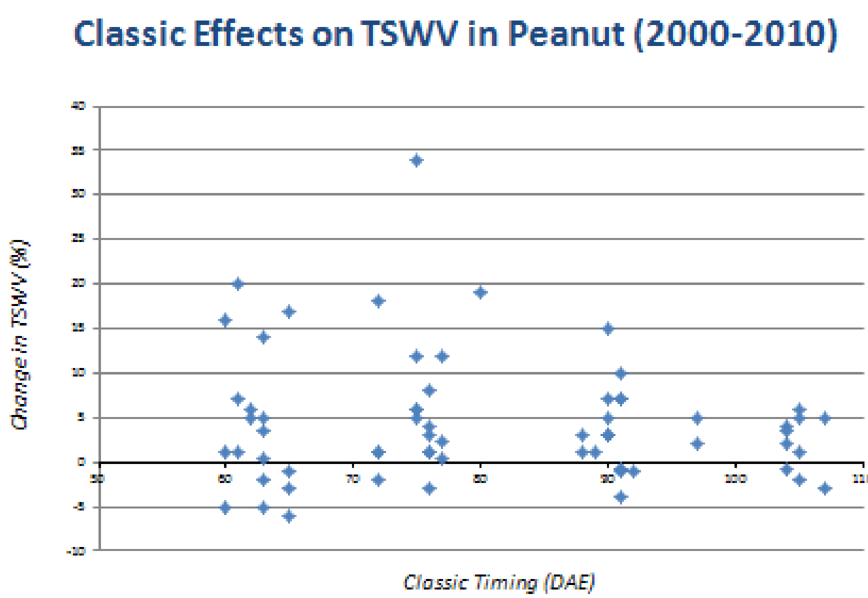
Row pattern, either single or twin row plantings, also has some effect on the potential for disease in a field. Work done at the Coastal Plain Experiment Station has lead to the observation that white mold is more severe in single rows (six seed per foot) than in twin rows (three seed per foot). White mold often develops in a field by infecting sequential plants within the same row. Planting the seed in twin rows rather than single rows increases the distance between the crowns of the peanut plants and delays the spread of white mold from plant to plant. The difference in leaf spot between single and twin row peanuts appears to be negligible.

Tillage
The tillage method that a grower utilizes can make a big difference in peanut yields. There are many different methods to choose from, each with its own merits and disadvantages for a given situation. Strip tillage has been shown to have some strong advantages (including reduced soil erosion and reduced time and labor required for planting), but in some situations, yields have been disappointing. Unbiased tillage research is difficult to accomplish, but studies have consistently shown that peanuts grown in strip till systems have less thrips damage and slightly less spotted wilt. On-farm observations have confirmed these results, but more studies are needed in order to characterize the magnitude of the reduction. We do not suggest that growers should change their tillage method just to reduce spotted wilt, but we have included tillage in the risk index in an attempt to better identify total risks.

Conservation tillage, such as strip tillage, can reduce the amount of disease in a peanut field. For a number of years it has been recognized that spotted wilt is less severe in strip-tilled fields than in fields with conventional tillage. However, in results from recent field trials, it has been documented that leaf spot is also less severe in strip-tilled fields than in conventionally tilled fields, so long as peanut is not planted in consecutive season. Although the exact mechanism is currently unknown, the appearance of leaf spot is delayed in strip-tilled fields and the severity at the end of the season is significantly lower than in conventional tillage. Use of conservation tillage does not eliminate the need for fungicides to control leaf spot, but helps to insure added disease control from a fungicide program. Additional studies have found that white mold may be slightly more sever in strip tillage above conventional tillage; deep turning the soil may help to reduce the treat to white mold by burying initial inoculum (sclerotia). Rhizoctonia limb rot was not evaluated; however cotton is a host for *Rhizoctonia solani* and the cotton debris would likely serve as a bridge between crops. Disease management is only one of many factors that a grower must consider when choosing to practice either conventional or conservation tillage. However, if a grower decides to practice conservation tillage with peanut production, he can expect lower levels of leaf spot in many instances.

Classic® Herbicide

Research and field observations over the past several years have confirmed that the use of Classic (chlorimuron) can occasionally result in an increased expression of tomato spotted wilt of peanut. Results from 21 field trials conducted from 2000 to 2010 are presented in the following graph:



Classic caused an 8% or less increase in tomato spotted wilt about 83% of the time and an increase of more than 8% about 17% of the time. Consequently, these results indicate that the effects of Classic on TSWV are minimal in comparison to the other production practices that influence this disease. Consequently, late-season Florida beggarweed populations that have the potential to reduce harvest efficiency and fungicide spray deposition should be treated with Classic. To date, other peanut herbicides have not been shown to have an influence on spotted wilt.

Crop Rotation
Crop rotation is one of the most important tactics to reduce disease severity in peanut production, or any other cropping situation for that matter. Increasing the number of seasons between consecutive peanut crops in the same field has been shown to reduce disease levels and increase yield. The fungal pathogens that cause leaf spot, Rhizoctonia limb rot, and white mold survive between peanut crops on peanut crop debris, as survival structures in the soil, and on volunteer peanuts. The time that passes between consecutive peanut crops allows for the degradation of the peanut crop debris, thus depriving the fungal pathogens of a source of nutrition. Also, fungal survival structures and spores that are present in the soil have a finite period of viability in which to germinate and infect another peanut plant before they are no longer viable. Fields with longer crop rotations will have less pressure from leaf spot diseases, Rhizoctonia limb rot, white mold, and perhaps CBR, than fields with shorter rotations, or no rotation at all. In Georgia, the Cooperative Extension recommends at least two years between peanut crops to help manage diseases.

Choice of rotation crops, along with the length of the rotation, will have an impact on the potential for disease in a field. Rotation of peanut with ANY other crop will reduce the potential for early leaf spot, late leaf spot, and peanut rust. The pathogens that cause these diseases do not affect other crops. Rotation of peanuts with cotton, or a grass crop such as corn, sorghum, or bahiagrass, will reduce the potential for white mold because the white mold pathogen does not infect these crops, or at least not very well. Rotation of peanut with a grass crop will reduce the risk of Rhizoctonia limb rot. However, because cotton is also infected by *Rhizoctonia solani*, rotation with this crop will not help to reduce Rhizoctonia limb rot. Other crops, such as tobacco and many vegetables are quite susceptible to diseases caused by *Rhizoctonia solani* and will not help to reduce the severity of limb rot in a peanut field.

Special note: Soybean may be a popular crop for growers in 2009. Growers must remember that soybeans and peanuts are affected by many of the same diseases. Planting soybeans in rotation with peanuts will not reduce the risk for CBR or peanut root-knot nematodes and will have only limited impact of risk to white mold and Rhizoctonia limb rot.

Field History

The history of disease in a field can be an important hint at the possibility of disease in the future, for much the same reason as noted in the crop rotation section above. Fields where growers have had difficulty managing disease in the past, despite the implementation of a good fungicide program, are more likely to have disease problems in the future than are fields with less histories of disease.

There is some difference between white mold and Rhizoctonia limb rot with regards to field history. Where white mold has been a problem in the past, it can be expected to be again in the future. Without effective crop rotation, outbreaks of white mold can be expected to become increasingly severe each season. Rhizoctonia limb rot is a disease that is more sensitive to environmental conditions, especially rainfall and irrigation, than white mold. Therefore, the severity of Rhizoctonia limb rot is likely to be more variable than white mold from year to year based upon the abundance of moisture during the season.

Irrigation

Irrigation is a critical component of a production system and can result in large peanut yields. However, the water applied to a crop with irrigation is also beneficial for the fungal pathogens that cause common diseases such as leaf spot, Rhizoctonia limb rot, and white mold. Rhizoctonia limb rot is likely to be more severe in irrigated fields with heavy vine growth; the increase in white mold may be less obvious. High soil temperatures as well as moisture from irrigation affect the severity of white mold.

Fungi causing leaf spot diseases need water for several important reasons, including growth, spore germination and infection of the peanut plant, and in some cases, spread of the fungal spores. Use of irrigation may extend the period of leaf wetness and the time of conditions favorable for leaf spot diseases beyond favorable conditions in a non-irrigated field. In two otherwise similar fields, the potential for disease is greater in the irrigated field.

Measuring TSWV Risk

Many factors combine to influence the risk of losses to TSWV in a peanut crop. Some factors are more important than others, but no single factor can be used as a reliable TSWV control measure. However, research data and on-farm observations indicate that when combinations of several factors are considered, an individual field's risk of losses due to TSWV can be estimated. There is no way to predict with total accuracy how much TSWV will occur in a given situation or how the disease will affect yield, but by identifying high risk situations, growers can avoid those production practices that are conducive to major yield losses. The University of Georgia Tomato Spotted Wilt Risk Index for Peanuts was developed as a tool for evaluation of risk associated with individual peanut production situations. When high-risk situations are identified, growers should consider making modifications to their production plan (i.e. variety, planting date, seeding rate, etc.) to reduce their level of risk. **Using preventative measures to reduce risk of TSWV losses is the only way to control the disease. After the crop is planted, there are no known control measures.**

The index combines what is known about individual risk factors into a comprehensive, but simple, estimate of TSWV risk for a given field. It assigns a relative importance to each factor so that an overall level of risk can be estimated. The first version of the index was developed in 1996 and was based on available research data. Small plot studies and on-farm observations have been used to evaluate index performance each year since release of the first version. In research plots where multiple TSWV management practices were used, as little as 5% of the total row feet were severely affected by TSWV compared to over 60% in high-risk situations. Yield differences were over 2000 lbs. per acre in some cases. Results of these and other validation studies have been used to make modifications in all subsequent versions of the index. Future changes are expected as we learn more about TSWV.

Keep in mind that the risk levels assigned by this index are relative. In other words, if this index predicts a low level of risk, we would expect that field to be less likely to suffer major losses due to TSWV than a field that is rated with a higher level of risk. A low index value does not imply that a field is immune from TSWV losses. Losses due to TSWV vary from year to year. In a year where incidence is high statewide, even fields with a low risk level may experience significant losses.

Measuring Risk to Fungal Diseases of Peanut

The index presented here is based upon better understanding of factors that affect disease incidence and severity. It is designed to help growers approximate the magnitude of the risk that they face from foliar and soilborne diseases in the coming season. More importantly, it should serve as an educational tool that allows the grower to predict the benefits of different management practices he makes in hopes of producing a better crop.

The risks associated with leaf spot, white mold and Rhizoctonia limb rot diseases are to be determined independently in the index system to be presented here. The magnitude of points associated with each variable is not linked between soilborne and foliar disease categories. However, the points allotted to each variable in the PEANUT Rx are weighted within a disease category according to the importance of the variable (such as variety or field history) to another variable (such as planting date). For example, within the category for leaf spot diseases, a maximum of 30 points is allotted to the variable “variety” while 0 points is allotted to the variable “row pattern”. The magnitude of points assigned within each category and to each variable has been checked to ensure that the total number of points assigned to a field is consistent with research and experience. For example, while it would be possible for a non-irrigated field planted to

Georgia Green to fall in the lowest risk category, a field of irrigated Georgia Green could be in a category of “medium risk” but not “low risk”.

NOTE: When weather conditions are favorable for fungal diseases, especially when rainfall is abundant, even fields at initial “low risk” to fungal diseases may become “high risk”.

PEANUT Rx

For each of the following factors that can influence the incidence of tomato spotted wilt or fungal diseases, the grower or consultant should identify which option best describes the situation for an individual peanut field. An option must be selected for each risk factor unless the information is reported as “unknown”. A score of “0” for any variable does not imply “no risk”, but that this practice does not increase the risk of disease as compared to the alternative. Add the index numbers associated with each choice to obtain an overall risk index value. Compare that number to the risk scale provided and identify the projected level of risk.

Peanut Variety

Variety[1]	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points[6]
			White mold
Flavorunner 458[2]	50	unknown	unknown
NC-V 11	35	30	30
AT-215*,[2]	30	30	30
Georgia Green	30	20	25
Florida Fancy*,[2]	25	20	20
AP-4*	20	20	15
Georgia Greener*[3]	10	20	20
Georgia-02C[2,3,4]	15	20	10
Georgia-06G	10	20	20
Florida-07[2]	10	20	15
Georgia-07W*	10	20	10
Tifguard[6]	10	15	15
York[2]	10	10	5
Georganic	5	10	10

**Data for these new varieties is limited and risk ratings will undergo changes as needed in the future.*
[1]*Adequate research data is not available for all varieties with regards to all diseases. Additional varieties will be included as data to support the assignment of an index value are available.*
[2]*High oleic variety.*
[3]*Varieties Georgia-02C and Georgia Greener have increased resistance to Cylindrocladium black rot (CBR) than do other varieties commonly planted in Georgia.*
[4] *The malady referred to as "funky" or "irregular" leaf spot tends to be more severe in Georgia-02C than in other varieties. Although this condition can look like early leaf spot (Cercospora arachidicola), the cause "funky" leaf spot is unknown. Disease losses are not typically associated with funky leaf spot.*
[5]*Tifguard has excellent resistance to the peanut root-knot nematode.*
[6]*Risk values for Rhizoctonia limb rot were eliminated from the 2011 Peanut Rx as much of this data is unknown.*

Planting Date

Peanuts are planted:	Spotted Wilt Points[1]	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
Prior to May 1	30	0	10	0
May 1 to May 10	15	0	5	0
May 11-May 31	5	5	0	0
June 1-June 10	10	10	0	5
After June 10	15	10	0	5

Plant Population (final stand, not seeding rate)

Plant stand:	Spotted Wilt Points[1]	Leaf Spot Points	Soilborne Disease Points	
			White mold[2]	Limb rot
Less than 3 plants per foot	25	NA	0	NA
3 to 4 plants per foot	15	NA	0	NA
More than 4 plants per foot	5	NA	5	NA

[1]*Only plant during conditions conducive to rapid, uniform emergence. Less than optimum conditions at planting can result in poor stands or delayed, staggered emergence, both of which can contribute to increased spotted wilt. Note: a twin row is considered to be one row for purposes of determining number of plants per foot of row.*
[2]*It is known that closer planted peanuts tend to have an increased risk to white mold.*

At-Plant Insecticide

Insecticide used:	Spotted Wilt Points*	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
None	15	NA	NA	NA
Other than Thimet 20G or Phorate 20G	15	NA	NA	NA
Thimet 20G, Phorate 20G	5	NA	NA	NA

**An insecticide's influence on the incidence of TSWV is only one factor among many to consider when making an insecticide selection. In a given field, nematode problems may overshadow spotted wilt concerns and decisions should be made accordingly.*

Row Pattern

Peanuts are planted in:	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
Single rows	15	0	5	0
Twin rows	5	0	0	0

Tillage

Tillage	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
conventional	15	10	0	0
reduced*	5	0	5	5

** For fungal diseases, this is does not apply for reduced tillage situations where peanut is following directly behind peanut in a rotation sequence. Limb rot can exist on some types of crop debris and use the organic matter as a bridge to the next peanut crop.*

**"Funky" or "irregular" leaf spot tends to be more severe in conservation tillage than in conventional tillage, though this malady is not typically associated with yield losses.

Classic® Herbicide

	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
Classic Applied	5	NA	NA	NA
No Classic Applied	0	NA	NA	NA

Crop Rotation with a Non-Legume Crop.

Years Between Peanut Crops*	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
0	NA	25	25	20
1	NA	15	20	15
2	NA	10	10	10
3 or more	NA	5	5	5

**All crops other than peanut are acceptable in a rotation to reduce leaf spot. Cotton and grass crops will reduce the severity of white mold. Rhizoctonia limb rot can still be a significant problem, especially with cotton, under a longer rotation with favorable conditions, e.g. heavy vine growth & irrigation/ rainfall. Rotation with soybeans can increase risk to white mold, Rhizoctonia limb rot, and CBR. Rotation with grass crops will decrease the potential risk of limb rot; tobacco and vegetables will not.*

Note that rotation of peanuts with soybeans may lower the risk for leaf spot diseases, but it does not reduce the risk to CBR or peanut root-knot nematodes and only has minimal impact on risk to white mold or to Rhizoctonia limb rot.

Field History

Previous disease problems in the field?*	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
NO	NA	0	0	0
YES	NA	10	15	10

** "YES" would be appropriate in fields where leaf spot and/or soilborne diseases were a problem in the field despite use of a good fungicide program.*

Irrigation

Does the field receive irrigation?	Spotted Wilt Points	Leaf Spot Points	Soilborne Disease Points	
			White mold	Limb rot
NO	NA	0	0	0
YES	NA	10	5*	10

** Irrigation has a greater affect on Rhizoctonia limb rot than on southern stem rot (white mold) or Cylindrocladium black rot.*

Calculate Your Risk

Add your index values from:

	Spotted Wilt Points	Leaf Spot Points	White Mold Points	Rhizoctonia Limb Rot Points
Peanut Variety				
Planting Date				
Plant Population		----		----
At-Plant Insecticide		----	----	----
Row Pattern				
Tillage				
Classic® Herbicide		----	----	----
Crop Rotation	----			
Field History	----			
Irrigation	----			
Your Total Index Value				

Interpreting Your Risk Total

Point total range for tomato spotted wilt = 35-155.
Point total range for leaf spot = 10-100.
Point total range for white mold = 10-95.
Point total range for Rhizoctonia limb rot = 15-75.

Risk

	Spotted Wilt Points	**Leaf Spot Points**	**Soilborne Points**	
			white mold	**limb rot**
High Risk	**≥115**	**65-100**	**55-80**	**To be detemined**
High Risk for fungal diseases: Growers should always use full fungicide input program in a high-risk situation.				
Medium Risk	**70-110**	**40-60**	**30-50**	**To be determine d**
Medium Risk for fungal diseases: Growers can expect better performance from standard fungicide programs. Reduced fungicide programs in research studies have been successfully implemented when conditions are not favorable for disease spread.				

Low Risk	≤65	10-35	10-25	To be determined
Low Risk for fungal diseases: These fields are likely to have the least impact from fungal disease. Growers have made the management decisions which offer maximum benefit in reducing the potential for severe disease; these fields are strong candidates for modified disease management programs that require a reduced number of fungicide applications.				

Examples of Disease Risk Assessment

Situation 1.
A grower plants **Georgia Green** (30 spotted wilt points, 20 leaf spot points, 25 white mold points) on **May 5** (15 spotted wilt points, 0 leaf spot points, 5 white mold points, 0 limb rot points), with **two years between peanut crops** (0 spotted wilt points, 10 leaf spot points, 10 white mold points, 10 limb rot points) on **conventional tillage** (15 spotted wilt points, 10 leaf spot points, 0 white mold points, 0 limb rot points), **single row spacing** (15 spotted wilt points, 0 leaf spot points, 5 white mold points, 0 limb rot points), in an **irrigated field** (0 spotted wilt points, 10 leaf spot points, 5 white mold points, 10 limb rot points) with **a history of leaf spot disease**, but **not soilborne diseases** (0 spotted wilt points, 10 leaf spot points, 0 white mold points, 0 limb rot points) using **Classic® herbicide** (5 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), **Temik 15G at-plant insecticide** (15 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points) with a **final plant population** of 2.8 plants per foot of row (25 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points).

Points:
Spotted wilt: **120** (high risk) leaf spot: **60** (medium risk), white mold: **50** (medium Risk), Rhizoctonia limb rot: **20** (to be determined).

Situation 2.
A grower plants **Georgia-02C** (15 spotted wilt points, 20 leaf spot points, 10 white mold points) on **May 15** (5 spotted wilt points, 5 leaf spot points, 0 white mold points, 0 limb rot points), with **three years between peanut crops** (0 spotted wilt points, 5 leaf spot points, 5 white mold points, 5 Rhizoctonia limb rot points) on **strip tillage** (5 spotted wilt points, 0 leaf spot points, 5 white mold points, 5 limb rot points), **twin row spacing** (5 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), in an **irrigated field** (0 spotted wilt points, 10 leaf spot points, 5 white mold points, 10 limb rot points) with **no history of leaf spot disease or soilborne disease** (0 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points) with **NO Classic® herbicide** (0 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), **phorate at-plant insecticide** (5 spotted wilt points, 0 leaf spot points, 0 white

mold points, 0 limb rot points) with a **final plant population** of 4.2 plants per foot (5 spotted wilt points, 0 leaf spot points, 5 white mold points, 0 limb rot points).

Points:
Spotted wilt: **40** (low risk), leaf spot: **40** (medium risk), white mold: **30** (medium risk), Limb rot **20** (to be determined).

Situation 3.
A grower plants **Georgia Green** (30 spotted wilt points, 20 leaf spot points, 25 white mold points) on **May 15** (5 spotted wilt points, 5 leaf spot points, 0 white mold points, 0 limb rot points), with **one year between peanut crops** (0 spotted wilt points, 15 leaf spot points, 20 white mold points, 15 limb rot points) on **conventional tillage** (15 spotted wilt points, 5 leaf spot points, 0 white mold points, 0 limb rot points), **twin row spacing** (5 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), in an **irrigated field** (0 spotted wilt points, 10 leaf spot points, 5 white mold points, 10 limb rot points) with **a history of leaf spot disease, white mold, but not Rhizoctonia limb rot** (0 spotted wilt points, 10 leaf spot points, 15 white mold points, 0 limb rot points) with **NO Classic® herbicide** (0 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), **Orthene insecticide** (15 spotted wilt points, 0 leaf spot points, 0 white mold, 0 limb rot points) with a **final plant population** of 3.5 plants per foot of row (15 spotted wilt points, 0 leaf spot points, 0 white mold, 0 limb rot).

Points:
Spotted wilt points: **85** (medium risk), leaf spot risk: **65** (high risk), white mold: **65** (high risk), limb rot: **25** (to be determined))

Situation 4.
A grower plants **Georgia-07W** (10 spotted wilt points, 20 leaf spot points, 10 white mold points) on **April 28** (30 spotted wilt points, 0 leaf spot points, 10 white mold points, 0 limb rot points) with **one year between peanut crops** (0 spotted wilt points, 15 leaf spot points, 20 white mold points, 15 limb rot points) on **strip tillage** (5 spotted wilt points, 0 leaf spot points, 5 white mold points, 5 limb rot points), **twin row spacing** (5 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points) in a **non-irrigated** field (0 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points) with **a history of leaf spot, white mold, and Rhizoctonia limb rot** (0 spotted wilt points, 10 leaf spot points, 15 white mold points, 10 limb rot points), with **NO Classic® herbicide** (0 spotted wilt points, 0 leaf spot points, 0 white mold points, 0 limb rot points), using **Thimet at-plant insecticide** (5 spotted wilt points, 0 leaf spot points, 0 white mold, 0 limb rot points) with a **final plant population** of 4.4 plants per foot of row (5 spotted wilt points, 0 leaf spot points, 5 white mold, 0 limb rot).

Points:
Spotted wilt risk: **60** (low risk) leaf spot risk: **45** (medium risk), white mold: **60** (high risk), limb rot: **35** (to be determined)

"Planting Windows" to Attain Low Risk for Spotted Wilt

If planting date were the only factor affecting spotted wilt severity, growers would have no flexibility in when they planted. Fortunately, other factors are involved and by choosing other low risk options, growers can expand their planting date window. Remember, the goal is to have a total risk index value of 65 or less, regardless of which combination of production practices works best for you. The following table demonstrates how the planting date window expands as other risk factors go down. For example, where a grower achieves a good stand, uses strip tillage and twin rows, and Thimet, but does not use Classic, he may plant a "10" or "15" point variety at ANY time in the season and still be at "Low" risk for spotted wilt.

	Points assigned to the peanut variety of interest		
	20	15	10
Production practices and final stand	**Planting date options to achieve a "LOW RISK" for Spotted Wilt using above varieties**		
Poor stand, conventional tillage, single rows, Temik, Classic is used	NONE	NONE	NONE
Average stand, twin rows, conventional tillage, Thimet, no use of Classic	May 11-25	May 11-June 5	May 1-June
Good stand, strip tillage, twin rows, Thimet, no use of Classic	After May 1	ANY	ANY

Burrower Bug is 'Insect Pest of the Year' for 2010

David Adams

The burrower bug, ***Pangaeus bilineatus***, became the most significant single insect problem during the final weeks of the 2010 growing season. The bug was not detected early enough to make any control decisions within the season. Also, populations rose to economic significance in production areas that had not previously been affected. Damage from the bug was not identified until after harvest during the grading process. These events quickly drew attention to the need for more information about the nature of this pest.

We have been aware of the bugs' ability to directly damage pods that could result in Seg 2 and even Seg 3 grades. In GA prior to 2010, any significant problems were limited to peanuts grown in the eastern production area. In 2010, damage from burrower bugs was more widespread.

The most recent research, conducted by Dr. Jay Chapin, Clemson University, suggest the most significant problems will be confined to peanuts grown in strip-till cultures, especially non-irrigated. Of course, this leads to the conclusion that drought conditions can exacerbate the population and resultant damage potential. Historically, the bug was given credit for a 20% yield loss in 1960. From that point in time, there is no mention of any significant problems until the early 2000's. In hindsight, the shift to more aggressive cultivation, including deep-turning, reduced the burrower bug damage potential by disturbing the over-wintering population prior to emergence in the late spring/early summer. In the recent past, a variety of cultural practices have replaced the widespread use of the turn-plow. It is not unusual for a pest to rise or fall in economic significance following shifts in farming activities. After all, deep-turning was a significant change that reduced disease potential for several decades.

If burrower bugs continue to rise in significance, we may be pushed to alter some of our cultural practices. Even though a soil insecticide may help in reducing burrower bugs in a given field, it is not the most effective control procedure due to our inability to hit the target. Aggressive harrowing prior to planting winter cover crops has been shown to be useful in reducing the over-wintering population of bugs. The most effective tool for preventing burrower bug problems is aggressive field cultivation during land preparations. In season cultivations may also reduce the bug's potential. Irrigated, strip-till peanuts appear to have fewer problems than non-irrigated strip-till peanuts. Also, a soil insecticide gives better results in fields under irrigation.

In season applications of foliar insecticides have not been evaluated as it pertains to timing or efficacy. Scouting for burrower bugs can be accomplished but, it has not been evaluated for its potential in making legitimate control decisions.

We also do not want to overstate the significance of the burrower bug. In 2010,there was ca. 1.4% Seg 2 peanuts. The burrower bug was not responsible for 100% of these Seg 2 grades. With that said, the bug caused significant losses to those growers with infestations and, we will continue to address future management practices.

ATTENTION !

Pesticide Precautions

1. Observe all directions, restrictions, and precautions on pesticide labels. It is dangerous, wasteful, and illegal to do otherwise

2. Store all pesticides in original containers with labels intact and behind locked doors. **"KEEP PESTICIDES OUT OF REACH OF CHILDREN."**

3. Use pesticides at correct label dosages and intervals to avoid illegal residues or injury to plants and animals.

4. Apply pesticides carefully to avoid drift or contamination of non-target areas.

5. Surplus pesticides and containers should be disposed of in accordance with label instructions so that contamination of water and other hazards will not result.

6. Follow directions of the pesticide label regarding restrictions as required by State an Federal Laws and Regulations

7. Avoid any actions that may threaten an Endangered Species of its habitat. Your county Extension agent can inform you of Endangered Species in your area, help you identify them and through the Fish and Wildlife Office, identify actions that may threaten Endangered Species of their habitat.

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J. Scott Angle, Dean & Director

College of Agricultural and Environmental Sciences