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TABLE OF CONTENTS

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1995 - Charlotte, NC
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1996	H.T. Stalker, B.B. Shew, G.M. Garcia, M.K. Beute, K.R. Barker, C.C. Holbrook, J.P. Noe and G.A. Kochert
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1995	P.D. Brune
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1989	R.M. Cu

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2005	Now presented by: Peanut Foundation and renamed – Peanut Research and Education Award
1997	Changed to American Peanut Council Research and Education Award
1989	Changed to National Peanut Council Research and Education Award

ANNUAL MEETING PRESENTATIONS
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HARVESTING, CURING, SHELLING, STORING, AND HANDLING PROCESSING AND UTILIZATION

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BAYER EXCELLENCE IN EXTENSION

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WILD SPECIES SYMPOSIUM

HARVESTING, CURING, SHELLING, STORING, AND HANDLING PROCESSING AND UTILIZATION

The Effect of Cultivar, Maturity, and Curing Conditions on Seed and Milling Quality. C.L. BUTTS*, W.H. FAIRCLOTH, and M.C. LAMB, USDA, ARS, National Peanut Research Laboratory, P.O.Box 509, Dawson, GA 39842.

Four runner peanut cultivars, Florida 07, Georgia Green, Georgia Greener, and Georgia 06G, were dug on seven different digging dates according to an adjusted growing degree-day (*a*GDD) model for peanut maturity. Each digging date was separated by approximately 100 GDD, beginning at 2100. At digging, a 4-5 plants sample was collected, pods sampled, blasted, and classified according to exposed mesocarp color. The peanut maturity index was determined for each cultivar and each digging date. Peanuts were windrowed and allowed to partially cure in the windrow then harvested using a conventional peanut combine equipped with a sacking attachment. Each cultivar was divided into four 0.03 m3 (9 – 14 kg) subsamples and placed on four separate sample dryers. Each dryer cured one sample of each variety. Two dryers implemented a low temperature regime and heated air 8 C above ambient, but no higher than 35 C. The other two dryers employed a high temperature curing regime, heating the air 22 C above ambient, but no higher than 41 C. Two target cutoff moisture contents, 11 and 10%, were used. After curing, peanuts were stored in mesh bags for approximately 90 days on pallets in ambient storage. Peanut samples were shelled using a Model 4 rotary sample sheller to approximate commercial shelling outturns. As in previous research, percent splits and bald kernels increased when drying air temperature increased. Peanuts cured using the high curing temperature had 15.1% splits and 2.7% bald kernels. Peanuts cured using the low curing temperature had 12.6 and 0.7% splits and balds, respectively. Cutoff moisture had no effect on milling quality. Statistically significant differences in milling quality due to cultivar were observed. Percent splits ranged from 15.8 in the Georgia Green to 11.3 for Georgia 06G. Florida 07 and Georgia Greener averaged approximately 14% splits.. Florida 07 had the highest percentage of bald kernels at 2.4% and Georgia 06G had 1.2% bald kernels. Seed quality was measured by determining the seed vigor index on three 50-seed samples from the medium sized kernels from each sample in the study and will be reported during the presentation. Effect of maturity on milling quality and seed quality will also be discussed.

Estimating the Kernel Mass Ratio in Peanuts Nondestructively Using a Low-Cost Impedance Meter: CHARI V. KANDALA* AND JAYA SUNDARAM, National Peanut Research Laboratory, USDA, Dawson, GA 39842

Earlier, we investigated the possibility of estimating the mass of the

kernels in a given volume of unshelled peanuts using a commercial impedance meter. Measurements of impedance and phase angles of peanut samples were made from 1 to 10 MHz at intervals of 1 MHz. The measured values were correlated to the mass ratio of the kernels and an empirical equation was developed from which the mass ratios of unknown samples were estimated. The results were encouraging and to make the process simpler and lower in costs, we identified three frequencies in this range and made measurements at these frequencies using an impedance meter developed in our laboratory. Impedance and phase angle of about 150g of peanut samples held between two parallel-plate electrodes in a vertical cylinder were measured using this impedance meter. The samples were then shelled, and mature kernels were collected and weighed. The ratio of the kernel weights to the in-shell peanuts (mass ratio) was correlated to the measured values using an empirical equation. The equation is validated using it to estimate the mass ratio of peanut samples not used in the calibration, and comparing the results with those obtained by weighing the kernels. This method is low-cost, fast and nondestructive.

Digital Analysis System to Evaluate Peanut Maturity: Predicting Yield and Grade. D.L. ROWLAND*, Agronomy Department, The University of Florida, Gainesville, FL 32611; W.H. FAIRCLOTH, USDA-ARS, National Peanut Research Lab, 1011 Forrester Dr. SE, Dawson, GA, 39842; and J.A. FERRELL, Agronomy Department, The University of Florida, Gainesville, FL 32611.

The color class method developed by Williams and Drexler in 1981 for the prediction of peanut harvest has proven to be a relative description of peanut maturity and is still the accepted method used by most growers today. However, the method requires the subjective visual classification of pods based on the development of color in the mesocarp layer of the hull. This naturally introduces variability in maturity prediction based solely on observer bias. A more recent problem with the method has arisen with the anecdotal reports of variability in color type and progression among different peanut cultivars in comparison to the cultivar, Florunner, which was the basis of the current color classes. These problems introduce error in the current process and underscore the need for a more objective color sorting method that could include specific classification schemes for different peanut cultivars. Toward this end, our team has developed a method to acquire and analyze color digital images of pod mesocarp color in an effort to classify sample maturity and provide harvest predictions. Replicated plots were established in Georgia and Florida in 2010 and sequential harvests starting at 120 DAP and progressing in weekly intervals were conducted. At harvest, yield and grade were evaluated on each plot. Simultaneously, pod samples were collected from each plot for color classification by a single observer using the current subjective method.

These same samples were then imaged and analyzed with color classification software. Preliminary tests were run to determine the optimum color definition scheme and then all samples were digitally analyzed and the results were tested to determine their ability to predict yield and grade of each sample. The ultimate aim of this work is to develop an imaging system that could be accessed by growers, consultants, and extension agents for objective analysis and prediction of peanut maturity.

Measurements of Oil Density to Rapidly Segregate High Oleic Peanuts

J.P. DAVIS*, K.M. PRICE, L.L. DEAN, and T.H. SANDERS, USDA ARS Market Quality and Handling Research, Raleigh NC 27695.

Segregation of high oleic seed throughout the production chain is a significant challenge facing the peanut industry. Measurement of oil fatty acid profiles (FAP) via gas chromatography (GC) is the definitive method to determine the fatty acid composition of a sample; however, this method is: 1) time consuming, with a minimum of 30 min to obtain results, 2) expensive due to instrument costs and 3) requires a skilled operator. In this study, we examined the potential of measuring oil density, using an automated density meter, to segregate high oleic peanuts. Oils from multiple normal and high oleic cultivars were mechanically expressed. FAP of expressed oils were determined by GC. An Anton Paar DMA 5000 automated density meter was used to determine oil density at a constant temperature of 23°C. All high oleic samples had lower ($p<0.05$) densities than normal oleic samples. Across samples, increasing oleic acid and decreasing linoleic acid contents correlated ($R^2 > 0.95$) with decreasing oil density, and these trends result from the different fatty acid geometries. FAP data for oils from blends of normal and high oleic cultivars were also examined and highly correlated to density. The simplicity, decreased cost, and rapid data collection (<1 min for expressed oil) for measurements of oil density as compared to FAP determination by GC, suggest automated density measurements could be a viable tool for the peanut industry to help segregate high oleic material.

Peanut Maturity Determination: Past, Present, and Future. J.P. BEASLEY, JR.*, Crop and Soil Sciences Department, University of Georgia, Tifton, GA 31793-5737, G. VELLIDIS, Biological and Agricultural Engineering Department, University of Georgia, Tifton, GA 31793-5737, and W.H. FAIRCLOTH, USDA-ARS, National Peanut Research Lab, Dawson, GA 39842-0509.

Determining optimal maturity of peanut is crucial to maximizing pod yield, percent total sound mature kernels, and flavor. Throughout the early years of peanut production in the southeastern United States, when to harvest was based on shelling out a random sample of pods collected from a harvestable area and determining the percent of hulls with darkened inner hull layer. In the 1970's, research evaluated the potential

of arginine levels as an indicator of optimal maturity. In the late 1970's and early 1980's, scientists with the University of Georgia and USDA-ARS developed the Hull-Scrape Maturity Profile method for determining optimal peanut maturity. The Hull-Scrape Maturity Profile became the standard for maturity determination in the early 1980's and is still used as the primary determinant of optimal maturity thirty years later. Currently, research is evaluating the potential of a degree day model and light reflectance for more accurately determining optimal maturity. Initial data indicate both models work very well and could be used independently, or in conjunction with the Hull-Scrape Maturity Profile.

Evaluation of an adjusted growing degree day model for improved prediction of peanut maturity. W.H. FAIRCLOTH*, C.L. BUTTS, USDA-ARS, National Peanut Research Laboratory, Dawson, GA 39842; J.P. BEASLEY, Univ. of Georgia, Tifton, GA 31793; D.L. ROWLAND, and J.A. FERRELL, Univ. of Florida, Gainesville, FL 32611.

An adjusted growing degree day model (*a*GDD), developed previously by our research group, has shown a high correlation with both maturity index and the hull scrape method. Briefly, the *a*GDD model calculates growing degree days using a temperature threshold of 13.3 C and includes water received (rain and/or irrigation) as an adjusting factor. Field-level evaluation of this model was begun in 2009 and continued in 2010 to verify accuracy in prediction of digging date and to develop the model into a user-friendly interface prior to widespread implementation. Field sites, each with multiple cultivars and digging dates, were evaluated at Camilla, GA (three trials, 2009/2010), Citra, FL (one trial, 2010), Dawson, GA (one trial, 2010), and Tifton, GA (one trial, 2010). Cultivars common to all sites and years were Georgia-06G and Georgia Green. Cultivars common to at least three site-years were Georgia Greener and Georgia-02C. Other cultivars evaluated (number of site years in parenthesis) included AP-4 (1), DP-1 (1), Florida 07 (2), Georgia-03L (1), Tifguard (2), and York (2). The *a*GDD model more accurately predicted digging date versus the hull scrape method at all locations and years except Citra 2010. Accuracy was determined to be the date of highest crop value (yield x grade) at digging. Slight variations in the minimum *a*GDD required were noticed for cultivars. Further investigations are needed as new cultivars a presented for growers.

Fructose as Probe for Studying Flavor Generation and Color Development in Roasting Peanut Seed. D.A. SMYTH*, E.M. ROSSWURM, C.I. BENSLEY, Kraft Foods EHTC-103, Research & Development, 200 DeForest Ave., East Hanover, NJ 07936.

High free sugar concentrations in harvested peanut seeds (*Arachis hypogaea* L.) are usually associated with cultivation in growing environments with abiotic stress such as cool temperature. Free sugars and amino acids in the seed are the basic precursors that lead to color

and flavor formation during roasting for snack nut products so it is important to understand the influence of seed composition. Seeds that contain greater than 5% sucrose developed roast color and flavors during roasting for snack nut products at a more rapid rate than seeds with 3-5% sucrose content. In this study, both flavor development and color changes were evaluated in seeds infused with an additional 0.05-0.5% seed weight of sucrose or fructose prior to roasting. Added sucrose at 100 mg/100 g seed weight had little impact on CIE L* value and additional generation of flavor marker compounds such as methyl pyrazine, 2,5-dimethyl pyrazine, 2-ethyl,6-methyl pyrazine, 2-ethyl,5-methyl pyrazine, and trimethyl pyrazine. Roast color development and pyrazine formation was accelerated in seeds infused with 100 mg fructose/100 g seed dry weight. The ground CIE L* value dropped from 67.4 in the saline control to 62.7 in the fructose-infused seed after standard hot air roasting. The ground red hue increased from a CIE a* of 11.5 in saline treatment up to 13.2 in the fructose treatment. The two major pyrazines measured increased 28-34% in the infusion with 100 mg fructose compared to saline control, and in another experiment, increased 45-51% with 50 mg fructose infusion compared to saline control treatment. These experiments suggest that the seed matrix has additional free amino acid precursors available for flavor formation because the addition of small amounts of free sugar was able to drive additional pyrazine formation during roasting. Changes in seed sucrose content had little impact on roast characteristics measured here. It seems possible that changes in the concentration of minor free sugars in the seed due to plant growing environment or plant genetics might have significant impact on flavor potential for snack nut products.

Bioactivity of Solvent Extracts from Peanut Skins. L. DEAN*, J. DAVIS, T. SANDERS, Market Quality and Handling Research Unit, USDA, ARS, Raleigh, NC 27695-7624 and W. LEWIS, K. CONSTANZA, Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University, Raleigh, NC 27695-7624.

Although currently a waste disposal problem for the peanut shelling industry, peanut skins have been reported to contain significant amounts of phenolic compounds that could potentially be beneficial to human health. These compounds can be removed from the bulk of the material by use of solvents such as alcohols which could allow for the production of functional ingredients for the food industry. After selecting solvent mixtures that produced the optimum levels of total phenolics, extracts of milled peanut skins obtained from a commercial blanching operation were produced and spray dried to create materials with levels of over 70,000 mg GAE/100g in total phenolics. When maltodextrin is added before spray drying to create a more easily handled, free flowing powder, the level of total phenolics is decreased to about 11,000 mg GAE/100g, but is still very high compared to products such as cocoa at 700 mg

GAE/100g. These powders have been found to have very strong antioxidant activities as measured using the Oxygen Radical Absorbance Capacity (ORAC) assay. When tested with a cell based system, the extracts were found to inhibit inflammation although the specific biological pathway being affected is still being determined.

Antioxidant and Anti-glycation Properties of Peanut Plants Grown by Aquatic Floating Cultivation System. R. POKKAEW*, R.Y.-Y. CHIOU, Department of Food Science, National Chiayi University, Chiayi 60051, Taiwan, ROC.

Aquatic floating cultivation system (AFCS) is growing plants on a board floating on aquatic cultivation solutions. In this study, three cultivars of peanut were grown with AFCS in RO water and MS solution without artificial aeration or circulation of the nutrient solution. After cultivation, the plants were harvested and separated into sublots of roots, stems and leaves. After drying in a forced-air oven at 50^{o}C, they were pulverized and subjected to extraction with various solvents and the extracts were subjected to determination of total phenolic contents and assessments of antioxidant and anti-glycation activities. As generally observed, MS is better than RO water in cultivation of peanuts and 60% ethanol is appropriate in extraction of antioxidant and anti-glycation components. In comparison of plant parts, leaf extracts have exhibited the higher antioxidant and inhibitory activities against formation of advanced glycation endproducts (AGEs). It is of merit to demonstrate peanut leaves as a potent source of natural antioxidants and inhibitors against AGEs formation.

Antioxidant and Anti-cancer Activities of Peanut Arahypin-5 and Other Stilbenoids. F. LI, J.-C. CHANG, D.F. DIBWE, S. AWALE, S. KADOTA, R.Y.-Y. CHIOU*, Division of Natural Products Chemistry, Institute of Natural Medicne, University of Toyama, Toyama 9301394, Japan; and Department of Food Science, National Chiayi University, Chiayi 60051, Taiwan, ROC.

Arahypin-5 (Ap-5) is a recently identified *gem*-dimethylpyrano stilbene isolated from peanuts. Its biological activities deserve further investigation. In this study, Ap-5 was extracted from germinated peanut kernels and its structure was confirmed by H- and C-NMR spectrometric analyses. In antioxidant characterization, Ap-5 and other peanut stilbenoids, namely, resveratrol (Res), arachidin-3 (Ar-3) and arachidin-1 (Ar-1) were subjected to trolox equivalent activity (TEAC) and antioxidative potency (AOP) determinations. As compared on molecular basis, the most potent antioxidant was Ar-1. In further cytotoxicity assessments, the above compounds were introduced for cultivation of a pancreatic tumor cell line of PANC-1 in a nutrient deficiency medium (NDM) and a nutrient rich medium (DMEM). As compared, the trend of antioxidant activities among the tested stilbenoids did not coincide with

the tested cytotoxic activities against pancreatic tumor cells. From the viewpoint of structure-activity investigation, the enhanced cytotoxic activities related to bearing hydroxyl-, isopentenyl- and *gem*-dimethylpyrano moieties are demonstrated.

ECONOMICS, PHYSIOLOGY AND PRODUCTION TECHNOLOGY

Economic Analysis of Inoculants and Starter Fertilizer for Peanut Under Conservation Tillage. A.R. SMITH*, N.B. SMITH, Department of Agricultural and Applied Economics, The University of Georgia, Tifton, GA 31793-1209; and R.S. TUBBS, Department of Crop and Soil Sciences, The University of Georgia, Tifton, GA 31793-0748.
Soil application of inoculants at planting is an economical way to assist in nodulation and nitrogen fixation for peanut (*Arachis hypogaea*). To counter potential failure of the inoculants, some farmers apply small "starter" quantities of nitrogen. Three types of inoculants and one control were analyzed across three rates of fertilizer with one control in a randomized, complete block design in a two factor, factorial arrangement for the AP-3 peanut variety under conservation tillage production. Systems costs of the varying inoculants and fertilizers were calculated, as well as, revenue data as determined by yield and grade. Initial analysis of the agronomic results indicates that the nitrogen had a negative impact on nodulation. Partial budgeting will be utilized to determine how this impacts profitability.

Peanut (*Arachis hypogaea*) seed vigor evaluation compared to field performance. T.L. GREY*[1], J.P. BEASLEY, JR. [1], J.E. PAULK[1], and J.W. DAVIS[2] [1]Crop and Soil Science Department, University of Georgia, P.O. Box 748, 115 Coastal Way, Tifton, GA 31794 and Experimental Statistics, University of Georgia, 1109 ExperimentStreet, Griffin, GA 30223.
Field and laboratory studies were conducted to evaluate peanut vigor germination data comparing with field evaluations for yield and other parameters for multiple cultivar seed lots. Experiments were conducted in 2008 and 2009. Peanut seed lots from the 2007- and 2008-growing seasons were used. Peanut was stored under two different regimes, a steel frame warehouse building and a geodesic dome structure made of concrete. The peanuts from both locations were put into mesh bags unshelled and placed into the storage facilities after harvest. Test consisted of nine peanut cultivars with three replications. The seed varieties were Georgia Green, Georgia-03L, Georgia-02C, Georgia-06G, Georgia-01R, AP-3, C-99R, York, and AT 3085RO. Samples were removed from storage in late February, processed with a box sheller, then screened. Following processing, all seed were evaluated for

germination using standard parameters, and on a thermo-gradient to evaluate seed vigor from 14C to 30 C. Field tests were then conducted on all cultivars seed storage regimes. Field experiments included two planting timings (April and June) with different depths (5 and 8 cm). Data included stand establishment, disease incidence, stand at harvest, and yield. There were significant differences between cultivars for yield, tomato spotted wilt incidence and early and final stand counts. Georgia-06G for both the April and June planting, had the highest yield among any cultivar, followed by AP-3. Initial germination testing indicated that AP-3 and Georgia-06G seed were as vigorous as Georgia Green, but Georgia Green yield was less. As the incidence of TSWV increased, the yield reductions were reflective as with Georgia Green and Georgia-01R. In contrast, the weakest cultivars for the germination study, York, Georgia-01R, and Georgia-02C, had lower yield.

Field Variety Assessment of Spanish Peanuts, West Texas. CALVIN L. TROSTLE, SEAN WALLACE, Extension Agronomy, Texas AgriLife Extension Service, Lubbock, TX 79403-6603.

The demand for Spanish peanut production in the Southwest U.S. peanut production region has shifted to high oleic fatty acid content. The objective of Spanish variety testing is to identify yield potential, grade, but additional parameters such as emergence vigor and hull-scrape maturation—which are usually not included in variety trial testing—were also included. Also, Spanish trials since 2006 compared the most common Runner peanut, long-season Flavor Runner 458, for yield comparison in the event that this Runner peanut, even if dug with Spanish peanuts, may be a more profitable alternative. Nine site-year Spanish variety tests were conducted from 2004 to 2008. Tamspan 90 traditional fatty acid peanut (4,620 lbs./A) still outyielded high oleic lines OLin (4,390 lbs./A) and AT9899-14 (3,898 lbs./A). For the three years in which FR 458 was included, it outyielded Tamspan 90 by 6%, suggesting that the additional yield as well as acceptable grade even at Spanish digging dates makes farming Runner peanuts potentially more attractive. Early season vigor ratings demonstrate which varieties emerge more quickly, and we find that hull-scrape maturity assessment is essential in aiding producers and industry accurate assessment of varietal suitability for production in the Southwest U.S.

Rapid Single Kernel Refractive Index Test that Differentiates Regular from High Oleic Peanuts. D.S. SWEIGART*, C.A. HOMICH, D.A. STUART, Natural Product Sciences, The Hershey Company, 1025 Reese Avenue, Hershey, PA 17033.

Maintaining a high purity level in high oleic peanut seed is critical for production of commercial lots of high oleic peanuts that meet the purity standards required by the confectionery industry. Many peanut containing confectionery brands require a 95% minimum purity on a

single kernel basis to maintain product freshness and achieve the shelf-life benefits of high oleic peanuts. Over the past several years there has been a significant deterioration in the purity of the high oleic peanut seed supply, which has underscored the need for more accurate, cost effective and rapid methods for determining high oleic purity. A new method has been developed that differentiates regular peanut kernels from high oleic peanuts. The method is based on the refractive index (RI) of the oil expressed, under pressure, from a single kernel. The method provides a rapid result with low labor cost. Critical to the method are: 1) Use of a multi-cell press which does not cross-contaminate expressed oil, 2) Measurement of oil refractive index with a device capable of reading to the fifth decimal place (0.00001 RI), and temperature control to +/- 0.1°C. Validation of this method has been done with parallel determination of oleic and linoleic composition by Gas Chromatography. Gas chromatographic method employed an HP 6890 system equipped with a Supelcowax capillary column and an FID detector. Comparison of O/L ratios to the oil RI provides unequivocal 100% separation of the two types of peanuts. The method can also differentiate high oleic from regular peanuts of any maturity class. The authors will provide a press design, a suitable refractometer model (Bellingham & Stanley RFM 340+) and protocol details at the meeting. This test has obvious application for screening high oleic purity in breeder's selections, in foundation seed stocks, throughout the seed supply system and for quality specifications of shelled peanuts.

Evaluating the Potential of Variable Rate Fungicide Application to control Sclerotinia blight. C.B. GODSEY*, Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078; J.P. DAMICONE, Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK 74078; R.K. Taylor, Biosystems and Ag Engineering, Oklahoma State University, Stillwater, OK 74078.

Profit margin has continued to decrease in southwest peanut (*Arachis hypogaea* L.) production over the last several years. The most logical ways to increase profit margin is to either increase yields or decrease inputs. Precision management technologies have been adopted relatively slow in peanut production. Fungicide application is the largest expense in many peanut fields, especially in Sclerotinia blight (S*clerotinia minor)* infected fields. Use of current technology may allow for targeting fungicide applications to control Sclerotinia. The objectives of this study were to 1) determine the potential for using past season aerial imagery and other data layers to delineate fungicide management zones. Two peanut fields in SW Oklahoma were identified in 2009 and aerial photographs were taken. Prior to planting in 2010, fields were grid soil sampled on 0.5 ac grid size to determine sclerotia densities throughout the field. In addition, electrical conductivity was collected on these fields with a Veris EC machine. Use of aerial imagery, elevation,

and soil type appear to hold some promise in reducing fungicide application to control Sclerotinia. Variable rate applications of Omega, based on sclerotia counts, were applied across the field. No yield differences were observed between the farmer practice (10 oz. Omega) and the variable rate fungicide strips that varied from 0 to 12 oz.

Conservation tillage systems for peanut cultivars in rotation with pasture in Brazil. D. BOLONHEZI*, O. GENTILIN Jr., L-A. FERREIRA NETO, Experimental Station of Agronomic Institute - APTA, Ribeirao Preto; I-J. GODOY, Center of Grains and Fiber, Agronomic Institute-APTA, Campinas, Brazil; A-L-M. MARTINS, C-L. JUSTO, R. MOLINARI, R., Experimental Station, of Agronomic Institute – APTA, Pindorama, Brazil; A-C. BOLONHEZI, Sao Paulo State University, Ilha Solteira, Brazil *E-mail:dbolonhezi@gmail.com

The cultivated area with peanut in Brazil is approximately 120,000 ha, with 80 % in Sao Paulo State. Despite the importance of peanut as a crop rotated with sugarcane system, one third of area this legume has been grown in rotation with pasture, mainly in the Western Sao Paulo. Although in Brazil no-tillage system is used for different crops in more than 26 million ha, conservation tillage for peanut are not widely used because there are many doubts about the profitability. In the past the practical experiences were not good due to the lack of information about planter machines, digging and herbicides. Thus it is important to study a sod-based rotation in which the peanut crop is cultivated each two years. In order to study the interaction of peanut cultivars and tillage in rotation with pasture (*Brachiaria* spp. for more than 25 years continuously), five field trials were carried out from 2000 to 2005 in different types of soils (Oxisol and Ultisol), located in Ribeirao Preto, Pindorama and Mirassol cities, Sao Paulo State, Brazil. Tillage systems included reduced tillage (chisel), no-tillage and conventional tillage (plowing and disking), which were arranged in a split-plot randomized complete block design with four replications. Tillage treatments were main plots while subplots were peanut cultivars, IAC-Tatu (Valencia market-type, erect growth habit, red seed coat, maturity range around 100 days after planting) and IAC-Caiapo (Runner market-type, prostate growth habit, pink testa, maturity range more than 135 days). It were evaluated the effect of treatments on the agronomic characteristics and on some attributes of soil. Four out five experiments showed no statistic difference on pod and just one showed significant interaction between cultivars and peanut. On the other hand, no-tillage system reduced the CO_2 flux from soil, increased the soil moisture (12% higher) and the nodulation. In conclusion, the conservation tillage under pasture, independently of peanut cultivars, it seems to be the way to reduce the costs with acceptable yield and sustainability. The next steps will be to study a sod-based rotation in which the peanut is grown each two years.

Peanut Response to Interactions of Tillage, Planting Date, and Cultivar.
D.L. JORDAN*, W.L. DRAKE, and P.D. JOHNSON, North Carolina Cooperative Extension Service, Raleigh, NC 27695.
Research was conducted during 2009 and 2010 (5 experiments during this period of time) in North Carolina to determine disease reaction and pod yield when the cultivars Bailey, CHAMPS, Gregory, Perry, Phillips, and VA 98R were planted in early or late May in conventional and strip tillage systems. Peanut response to these treatment factors generally responded independently. Cultivar response was dictated by disease incidence in a particular field. When pooled over other treatment factors, yield difference between conventional and strip tillage was 95 pounds/acre and did not favor one tillage system over the other by more than 350 pounds/acre. When planted in early May, pod yield was higher in 2 of 5 experiments compared with planting in late May. The initial goal of this experiment was to further develop recommendations for managing tomato spotted wilt virus in North Carolina. However, during the course of these experiments very little tomato spotted wilt was observed.

Cultivar and Digging Date effects on Peanut Peg Strength and Digging Loss.
R.C. NUTI*, USDA-ARS National Peanut Research Laboratory, Dawson, GA 39842; C. HOLBROOK, USDA-ARS Crop Genetics and Breeding Research, Tifton, GA 31793; and A. CULBREATH, Department of Plant Pathology, University of Georgia, Tifton, GA 31794.
Variability in phenotypic peg strength may contribute to greater digging losses in some peanut cultivars. It is currently unknown how cultivars compare to each other and how variability in peg strength may affect the harvestable yield among cultivars in different soil types. In 2010, field studies were conducted in Tifton and Dawson, Georgia. The objective was to compare the peg strength, yield, and digging loss of 9 peanut cultivars when dug over a range of harvest dates. Peanuts were produced under current best management practices for high yield. Cultivars included Georgia Green, Georgia Greener, Georgia-02C, Georgia-06G, Georgia-07W, Florida-07, Tifguard, and the advanced breeding lines AT-271516 and C724-19-25. The strength of each gradable pod was measured from 3 plants per plot before each harvest date of 130, 140, and 150 days after planting. After plots were harvested, a peanut scavenger was used to recover pods in the upper 3 inches of soil from a 60 ft^2 area. Peg strength was greater and digging loss was lower in Dawson compared to Tifton. Cultivars with the greatest peg strength in Dawson were Georgia-02C and Georgia-06G. In Tifton, Georgia-06G had significantly greater peg strength compared to all other entries. Scavenged yield was lowest at all digging dates for Georgia-02C in both Tifton and Dawson, however this cultivar was also the lowest yielder in most cases. Differences in peg strength and/or scavenged yield within an individual variety did not contribute directly to

ranking in harvested yield.

Peanut Response to Starter Fertilizer, Tillage, and Planting Date Interactions. R.S. TUBBS*, University of Georgia, Tifton, GA 31793; K.S. BALKCOM, USDA-ARS NSDL, Auburn, AL 36832; G.H. HARRIS, J.P. BEASLEY, JR., University of Georgia, Tifton, GA 31793.

Starter fertilizers are used in some crops for rapid early season establishment and growth. In peanut (*Arachis hypogaea* L.), fast growth beyond emergence may allow for earlier planting, especially in strip-till management, and the ability to quickly grow through early season thrips feeding, thus potentially reducing tomato spotted wilt virus (TSWV) incidence or severity. A trial was established in Tifton, GA in 2008 and 2009 to evaluate peanut performance with three at-plant fertilization regimes (untreated, N only, N+P) at two placements (5 cm below and beside seed [5x5] or behind subsoil shank at 30 cm depth) in either conventional or strip-till management, on two different planting dates (late April vs late May/early June). Effects of starter fertilizer application and placement were essentially non-existent for nearly all measured variables in both years of this experiment. There was a yield advantage for conventional tillage in 2008 (5236 kg/ha) over strip-till (4738 kg/ha), however no statistical difference in 2009. There was likewise a grade advantage for conventional tillage peanut for the late planting date in 2008, and both planting dates in 2009. The early planting date resulted in higher yields in both years (+614 kg/ha in 2008; +1358 kg/ha in 2009), although grades were improved by planting late (+8-9% in 2008; +6% in 2009). Inconsistent results were observed with regards to TSWV. Based on these results, applying a starter fertilizer on peanut would not be a worthwhile expense. Tillage and planting date play greater roles in terms of plant response, which an early season nutrient boost could not influence. These results are encouraging to growers who would prefer to get an early start with planting.

Utilization of Two Planting Dates to Evaluate the Agronomic Performance of High-Oleic Peanut Cultivars in Georgia. W.D. BRANCH*, Dept. of Crop and Soil Sciences, University of Georgia, Coastal Plain Expt. Stn., Tifton, GA 31793-0748.

The number of high-oleic, runner and virginia-type peanut (*Arachis hypogaea* L.) cultivars has been steadily increasing during the past several years. To evaluate the agronomic performance of these high-oleic cultivars, two planting date tests were utilized. The first planting date test was in mid-April to allow for increased incidence of tomato spotted wilt disease caused by *Tomato spotted wilt virus* (TSWV). The second planting date test was in mid-May to allow for less TSWV and provide more of an optimum time by comparison. Each year, these two replicated field tests were conducted using recommended production

practices with irrigation at the UGA Coastal Plain Experiment Station. Each of three different high-oleic peanut cultivar entry lists were analyzed over a three-year period for a total of five-years(2005-09). Significant differences (P≤0.05) were found within each of the three (3-yr average) entry list for TSWV and total disease (TD) incidence, pod yield, and dollar values. Among the virginia-types (Georgia Hi-O/L, Georgia-05E, and Georgia-08V) and among the runner-types (Georgia-02C and Georgia-09B) were found to have consistently the lowest TSWV and TD incidence and the highest pod yield and dollar values in both the mid-April and mid-May planting date tests during this 5-yr study.

WEED SCIENCE

General Summary of Interaction Trials with Multiple Components in the Mixture. G.B. CHAHAL, D.L. JORDAN*, B.B. SHEW, and R.L. BRANDENBURG. North Carolina Cooperative Extension Service, Raleigh, NC 27695.

Numerous agrochemicals can be applied to manage peanut, and timing of application of agrochemicals often overlaps. Growers routinely apply multiple agrochemicals simultaneously. Research has been conducted for many years to define interactions mostly with two or three components. Research was conducted from 2008-2010 to determine interactions of mixtures containing five components. Results across and within herbicides with different weed species varied considerably, making general recommendations a tremendous challenge. Many of the interactions caused only minor changes in herbicide efficacy, especially when comparing two or three components with four or five components. Seldom did decreases in efficacy occur above a two-way interaction at an appreciable level.

Peanut Response to Ignite (Glufosinate) in Georgia – 2010. E.P. PROSTKO* and T.L. GREY, Department of Crop & Soil Sciences, The University of Georgia, Tifton, GA 31793; and T.M. WEBSTER, Crop Protection and Management Research Unit, USDA/ARS, Tifton, GA 31793.

Ignite (glufosinate) has become an important herbicide in Georgia cotton production systems because it can effectively control glyphosate-resistant Palmer amaranth when applied postemergence to small plants. A recent informal survey of local agrichemical dealers indicated there was an increase in Ignite sales ranging from 74% to 448% in 2010 when compared to 2009. Because more Ignite is being applied to cotton, it is anticipated that sprayer contamination and/or off-target movement into peanut will become a problem. Thus, the objective of this research was to evaluate the tolerance of peanut to Ignite. Field trials were conducted in 2010 at the University of Georgia Ponder Research Farm near Ty Ty,

Georgia, and the Southwest Research and Education Center near Plains, Georgia. A split-plot design with 4 replications per treatment was used at both locations. Whole plots were Ignite timing [30, 60, and 90 days after planting (DAP)]. Sub-plots were Ignite 2.34SL rates of 0, 2, 4, 8, 16, and 32 oz/A. The plot areas were maintained weed-free throughout the season. Data were analyzed using PROC MIXED with locations as a random effect, while application timing and rate were fixed effects. There was a significant interaction between Ignite timing and rate. There was a strong linear correlation ($R^2 > 0.80$) between Ignite rate (x) and peanut yield loss (y). The following equations were fit to these data: 30 DAP, $y = 3.3895x - 0.3999$, $R^2 = 0.89$; 60 DAP, $y = 1.6072x + 3.5968$, $R^2=0.81$; 90 DAP, $y = 2.1558x + 15.036$, $R^2 = 0.82$. There was also a strong linear correlation ($R^2 > 0.83$) between visual estimates of peanut injury (x) and peanut yield loss (y) for the 30 and 90 DAP timings. The following equations were fit to these data: 30 DAP, $y = 0.9708X + 3.8955$, $R^2 = 0.96$; 90 DAP, $y = 0.7385x + 6.4602$, $R^2 = 0.84$. Generally, peanut was less sensitive to Ignite when applied at 60 DAP. These data will be useful when assessing peanut damage from off-target movement or sprayer contamination of Ignite.

Peanut Response to Ignite (glufosinate) in Texas - 2010. P.A. DOTRAY*, Texas Tech University, Texas *Agri*Life Research, and Texas *Agri*Life Extension Service, Lubbock, TX 79409-2122; W.J. GRICHAR, Texas *Agri*Life Research, Beeville, TX 78102; and L.V. GILBERT, Texas *Agri*Life Research, Lubbock, TX 79403.

The use of Ignite 280 (glufosinate ammonium) may increase with the registration of GlyTol® plus LibertyLink® cotton in 2011. The objective of this research was to determine peanut response to over-the-top treatments of Ignite 280 when applied at different peanut growth stages. Ignite 280 was applied at 0, 2, 4, 8, 16, and 32 oz/A (a normal use rate is 22 to 29 oz/A) at 30, 60, and 90 days after planting (DAP). Studies were conducted in the Texas Southern High Plains and in South Texas in 2010. In the High Plains, Flavorrunner 458 was planted on April 28 and applications were made May 26, June 25, and July 26 using a carrier volume of 15 gallons per acre (GPA). A herbicide rate by timing interaction occurred at all rating dates and for yield; therefore, injury and yield from each of the Ignite 280 rates are discussed separately at each application timing. On June 9, 14 days after the 30 DAP application, Ignite 280 injured peanut 20 to 94%. Injury increased as rate increased. On July 7, 12 days after the 60 DAP application, peanut was injured 13 to 92%. On August 9, 14 days after the 90 DAP application, peanut was injured 25 to 83%. Late-season (Sept 20) injury was apparent from all Ignite 280 rates and ranged from 6 to 61% following the 30 DAP treatments, 4 to 96% following the 60 DAP treatments, and 24 to 76% following the 90 DAP treatments. Only the 2 and 4 oz rate of Ignite 280 at 30 DAP did not reduce yield when compared to the non-treated

control. At each Ignite 280 rate except for the 32 oz rate, yield decreased as application timing was delayed. At each application timing, yield decreased as rate increased. There was no herbicide rate by application timing interaction for peanut grade; therefore, grade was pooled within application timing and within Ignite 280 rate. Only the 2 oz rate of Ignite 280 did not reduce grade when compared to the non-treated control. The lowest grade followed the 60 DAP application.

In South Texas, Florida 07 was planted on May 27, and applications were made June 28, July 29, and August 30. A herbicide rate by timing interaction was observed for peanut injury at all rating dates and for yield; therefore, injury and yield were compared separately at each application timing. On July 6, 10 days after the 30 DAP application, Ignite 280 injured peanut 8 to 98%. Injury increased as rate increased. This injury was apparent all season and ranged from 3 to 89% on October 11. On August 2, 4 days after the 60 DAP application, peanut was injured 23 to 74% and this injury was still apparent on October 11 (8 to 93%). On September 15, 16 days after the 90 DAP application, peanut was injured 7 to 39% and this injury was still apparent on October 11 (10 to 35%). With the exception of the 8 oz rate at 60 DAP and the 2 oz rate at 90 DAP, all Ignite 280 rates caused a yield loss when compared to the non-treated control. There was no herbicide rate by application timing interaction for peanut grade (SMK+SS); therefore, grade was pooled within application timing and within Ignite 280 rate. Ignite 280 at 32 oz reduced peanut grade (64%) when compared to the non-treated control (71%). When Ignite 280 was applied at 30 DAP, peanut grade was reduced (66%) when compared to the 60 DAP (69%) and 90 DAP (72%) applications.

Results from this study suggest that peanut is very susceptible to Ignite 280. Visible injury following application was very apparent and yield and grade loss was significant. At each application timing, visible injury increased as rate increased. In general in the Texas High Plains, as rate increased and application timing was delayed, greater yield loss was observed; however, in South Texas, the 16 and 32 oz rate caused less yield loss when applied at 90 DAP when compared to earlier applications. This study also supports previous research that Ignite 280 applications in LibertyLink cotton are effective at controlling volunteer peanut.

New Peanut Variety Response to Chlorimuron. R.M. MERCHANT* and E.P. PROSTKO, Department of Crop & Soil Sciences, The University of Georgia, Tifton, GA 31793; R.C. KEMERAIT, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793; and T.M. WEBSTER, Crop Protection and Management Research Unit, USDA/ARS, Tifton, GA 31793.

Chlorimuron is a postemergence herbicide commonly used for the control of Florida beggarweed (*Desmodium tortuosum*). Historically, chlorimuron has been known to cause increases in the expression of tomato spotted wilt virus (TSWV) and decreases in yield of some older varieties of peanut. Newer varieties of peanut (*Arachis hypogaea*) are now being planted in the southeast. Currently, three of the most popular varieties are GA-06G, Florida-07 (FL-07), and Tifguard. From 2008-2010, field trials were conducted in Georgia to determine the response of these new varieties to chlorimuron. Studies were conducted at the Ponder Research Farm near Ty Ty, GA and the Attapulgus Research and Education Center. In all trials, Classic 25DF (chlorimuron) @ 0.50 oz/A was applied at 60-69, 70-79, 90-99, and 100+ days after peanut emergence (DAE). All treatments included a NIS @ 0.25% v/v and were applied using a CO_2 –powered backpack sprayer calibrated to deliver 15 GPA with 11002DG spray tips. During this time period, two site years of data were collected for GA-06G and FL-07 and 1 site year for Tifguard. The data were analyzed with the PROC MIXED procedure of SAS with site year considered to be a random effect. Means were separated using Fisher's Protected LSD test (P = 0.10). Chlorimuron had no effect on the incidence of TSWV of GA-06G and FL-07. When chlorimuron was applied to Tifguard at 60-69 or 100+ DAE, TSWV was increased 3-4%. Yields of GA-06G were reduced 8-11% when chlorimuron was applied at 60-69, 70-79, and 90-99 DAE. Chlorimuron had no effect on the yield of FL-07. Yields of Tifguard were reduced 18-23% when chlorimuron was applied 90-99 and 100+ DAE.

GRADUATE STUDENT COMPETITION

Cover Crop Decomposition and Nutrient Cycling in Conventional and Strip-Tillage Peanut. D.Q. WANN*, R.S. TUBBS, G.H. HARRIS, and J.P. BEASLEY, JR., Department of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793.

Many peanut growers have adopted cover cropping and conservation tillage techniques to reduce soil losses on the highly-erodible soils where peanut is typically grown. Cover crops are also able to scavenge plant nutrients and cycle them back to soils as their residues decompose. The objective of this experiment, therefore, was to evaluate the rate of decomposition and nutrient cycling potential of crimson clover (*Trifolium incarnatum* L.), rye (*Secale cereale* L.), and wheat (*Triticum aestivum* L.) cover crops grown in either conventional or strip-tillage and their impacts on a subsequent peanut crop. Field trials were conducted in Tifton, GA in 2009 and 2010. Crimson clover, rye, wheat, and no cover treatments were established in the fall preceding each year of the trial in conventional and strip-tillage. Soil samples and plant tissue samples from cover crop residues and peanut plants were collected at various

points throughout the growing season and analyzed for nutrient concentration and biomass. Wheat residues displayed the greatest rate of decomposition in conventional tillage both years, although not different from crimson clover in 2009. Decomposition rates did not differ among cover crops in strip-tillage. Conventional tillage resulted in more rapid decomposition in 2009, but not in 2010. Crimson clover residues also released the greatest amounts of Ca and B in conventional tillage ($P \leq 0.05$). However, strip-tillage tended to result in greater total S, B, and Zn release than conventional tillage ($P \leq 0.05$), as a result of greater total biomass loss over the growing season. Soil nutrient levels did not differ among cover crops or tillage at any sample date, but levels did tend to increase within the first 60-90 days after cover crop burndown, as residues began to decompose. Cover crops did not improve total nutrient uptake in peanut vegetation, but actually resulted in reduced uptake of K, Mn, and Zn compared to no cover in 2009 ($P \leq 0.05$). Alternatively, strip-tillage increased total N, Mg, S, and Zn uptake in peanut pods ($P \leq 0.05$). However, there were no significant differences among all treatments in peanut dry matter production, yield, or grade. These results indicate that cover crops have little impact on nutrient uptake or yield of peanut. Tillage has some impact on nutrient uptake in pods, but does not translate to yield or grade improvement.

Resistance of new Peanut genotypes to Rust (*Puccinia arachidis)*. I.L. POWER*, A.K. CULBREATH, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793 and B.L. TILLMAN, North Florida REC, Agronomy Department, The University of Florida, Marianna, FL 32446.

Peanut rust, caused by the fungus *Puccinia arachidis* Speg, is an important foliar disease of peanut that can cause yield losses as high as 50% in peanut producing countries with warm, tropical climates. We conducted field experiments near Gainesville, FL in 2010 to evaluate the resistance of breeding lines to rust. Peanut rust severity was assessed using the 1-9 ICRISAT rating scale. Eighteen of the 25 genotypes demonstrated resistance to rust. Out of these, genotypes 97x36-HO2-1-B2G3-1-2-2, 99x33-1-B2G-13-1-1, BOL3-7, York were resistant to rust and to late leaf spot (*Cercosporidium personatum*) as well. Tifrust 10 (PI 561685) and Tifrust 13 (PI 561688), two lines registered for their resistance to rust, appeared to be highly susceptible to leaf spot, with more than 90% defoliation at harvest. PTBOL3-3 is another example of a genotype that was resistant to rust but susceptible to leaf spot. Altika and BOL11-b7 were susceptible to both rust and leaf spot. The results indicate the presence of rust resistance among these breeding lines. Additional evaluations in the field and in the greenhouse are in progress.

Agronomic and Economic Evaluation of Double-Crop and Relay-Intercropping Systems of Peanut with Wheat. J.W. MOSS*, R.S. TUBBS, and T.L. GREY, Department of Crop and Soil Sciences,

University of Georgia, Tifton, GA 31793; N.B. SMITH, Department of Agricultural and Applied Economics, University of Georgia, Tifton, GA 31793; J.W. JOHNSON, Department of Crop and Soil Sciences, University of Georgia, Griffin, GA 30223.

Multiple cropping systems for peanut (*Arachis hypogaea*) have potential in the southeastern U.S. where there is a prolonged growing season. Full season wheat (*Triticum aestivum*) production typically pushes peanut planting later than optimum, but a relay-intercrop system may allow peanut to be planted on-time while still gaining a grain crop of wheat. However, practical approaches to achieve an economically sustainable method for this system must be identified. The objectives of this project were to determine the most effective cropping systems to maximize wheat and peanut yield potential and evaluate the economic viability of the system. Studies were conducted in Tifton, GA in 2009 and in Plains, GA in 2010. A split-plot design was used with 8 cropping systems as main effects: wide tramline relay-intercrop (WRI), narrow tramline relay intercrop (NRI), double crop conventional-till (DCCT), double-crop strip-till (DCST), strip-till peanut with wheat cover (STWC), conventional-till peanut with wheat cover (CTWC), peanut only (optimum planting) (PO), and peanut only (planted late) (PL). The subplot effect was three peanut cultivars: Georgia Green, Georgia-06G, and Tifguard. Wheat yields in 2009 were lower for WRI (1280 kg/ha) versus NRI (2560 kg/ha), with both yielding lower than the DCCT (4245 kg/ha) and DCST (4040 kg/ha) treatments, while in 2010 the WRI (3100 kg/ha) and NRI (2930 kg/ha) treatments compared to the DCST (4110 kg/ha) and DCCT (4180 kg/ha) treatments. In 2009, peanut yields in NRI (3500 kg/ha) and DCCT (3550 kg/ha) treatments were significantly lower than PO (5960 kg/ha) and STWC (5100 kg/ha) treatments, though they were not significantly different from all other treatments (3715-4550 kg/ha). Peanut yields in 2010 were significantly lower in WRI (3590 kg/ha) plots versus PL (4920 kg/ha), but were not different from all other treatments (3650-4710 kg/ha). There were differences among cultivars in both years, with Georgia-06G (4470 and 4465 kg/ha, respectively) and Tifguard (4650 and 4170 kg/ha) providing better yields than Georgia Green (3920 and 3855 kg/ha). Wheat yields were consistently higher in the DCCT and DCST treatments compared to the WRI and NRI treatments. Peanut yields within the WRI and NRI treatments were consistently among the lowest. Tifguard and Georgia-06G yielded higher than Georgia Green. At this time, relay-intercropping of peanut with wheat does not provide any yield or economic advantage over double cropped peanut after wheat. Additional research is needed to improve management of relay-intercrop systems to fully realize the benefits that such systems can provide.

Screening of the U. S. Peanut Minicore Collection for Tolerance to Verticillium Wilt and Pod Rot. M. GREGORY, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409; K. MOORE, AgResearch Consultants Inc., Ashburn, Georgia 31714;

C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; M.D. BUROW, and J. WOODWARD, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

The U.S. peanut minicore collection was screened in the field for tolerance to Verticillium wilt and pod rot. Significant differences in disease severity were found for both diseases among minicore accessions and compared to check cultivars. Several individuals have been found to be tolerant to one or the other disease. Yields are currently being evaluated to determine the best accessions considering yield and tolerance to disease. Identification of tolerant germplasm is expected to allow breeding to improve disease tolerance of peanut cultivars.

Relationships Between Defoliation by Late Leaf Spot and Yield in New Runner-Type Peanut Cultivars. P.A. NAVIA GINE*. A.K. CULBREATH, Dept. of Plant Pathology, Univ. of Georgia, Tifton, GA 31793-0748; B.L. TILLMAN, North Florida REC, Agronomy Dept., Univ. of Florida, Marianna, FL 32446; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; and W.D. BRANCH, Dept. of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793; N.B. SMITH, Dept. of Agricultural and Applied Economics, Univ. of Georgia, Tifton, GA 31793.

Early and late leaf spot caused by *Cercospora arachidicola* and *Cercosporidium personatum,* respectively, can cause severe losses on susceptible peanut (*Arachis hypogaea*) cultivars. Losses are primarily due to loss of peg integrity and loss of mature pods when peanut plants are inverted. Losses to both diseases have been correlated with levels of leaf spot induced defoliation late in the season. Recently, several new peanut cultivars have been released with excellent yield potential and field resistance to tomato spotted wilt virus. However, the relationship between late-season levels of defoliation by leaf spot and yield has not been characterized for these cultivars. To examine this relationship, field experiments were conducted in 2010 in Tifton. In the first experiment, four cultivars, Florida-07, Georgia-06G, Georgia-07W, and Tifguard, were combined in factorial arrangement with four fungicide treatments, 7, 4, and 3 applications of 1.1 lb ai/A of chlorothanonil (Bravo WeatherStik). All application regimes began approximately 35 days after planting, and subsequent applications were made at ca. 14 day intervals. A second trial was conducted in which these same treatments were used on Georgia-06G. Applications of 1.0 lb ai/A of flutolanil (Convoy) were made at ca. 60 and 90 days after planting in each trial to minimize effects of *Sclerotium rolsii* on yield. Multiple visual leaf spot ratings were made to estimate the levels of defoliation. Late leaf spot was the predominant

foliar disease in both trials. Final defoliation and yield (lb/A) were determined for each plot. In the first experiment, mean final defoliation and yield for the 7, 4, 3, and 0 fungicide application regimes were 0%;5716 lb/A; 1%:5644 lb/A; 5%:5644 lb/A; and 70%;5398 lb/A, respectively for Florida-07; 0%:5753 lb/A; 0.3:5736 lb/A; 9%:5592 lb/A; and 69%:5260 lb/A, respectively, for Georgia-06G; 0%:5837 lb/A; 1%:5821 lb/A; 4%:5817 lb/A; and 49%:5471 lb/A, respectively, for Georgia-07W; 0%:5945 lb/A; 0.2%:5640 lb/A; 7%:5670 lb/A; and 64%:5748 lb/A, respectively, for Tifguard. In the second experiment on Georgia-06G, final defoliation and yield for the 7, 4, 3, and 0 application regimes were 3%:5892 lb/A; 6%:5645 lb/A; 41%:5321 lb/A; and 96%:4566 lb/A, respectively. All of the cultivars evaluated were able to maintain good yields with yield losses of less than 10% from late leaf spot, with moderate levels of final defoliation. Losses in yield in Georia-06G were only 33% where final defoliation was much higher. Additional evaluation of disease and yield loss relationships and economic aspects associated with those are in progress.

Determining the Relationship between Field Emergence and Late Leaf Spot Resistance in Peanut. S. THORNTON*, M. GALLO, Agronomy Department, The University of Florida, Gainesville, FL 32611-0300; B. TILLMAN, Agronomy Department, North Florida Research and Education Center, University of Florida, Marianna FL, 32446-8091.

Several late maturing cultivars with superior disease resistance have been released. These cultivars derive their resistance to late leaf spot from a common parent, PI203396 (Gorbet 1999). Despite their superior resistance, commercial seed companies discontinued production of these varieties because of poor field emergence that resulted in unacceptable plant stands. The poor emergence is believed to be caused by poor accumulation of calcium the seed of these cultivars, as previous research has shown that these cultivars have lower calcium concentrations than susceptible cultivars. In order to study the relationship between leafspot resistance and germination, the leafspot resistance, seed calcium concentration, and field emergence was evaluated in a group of about 175 breeding lines at the F_3 and F_4 stages. These lines were derived from crosses between York (a resistant cultivar with poor emergence) and several unrelated, susceptible lines and cultivars. Significant differences existed between cultivars for resistance ratings, calcium concentration, and field emergence.

Developing an Economic Threshold for Peanut Pod Rot in the Texas South Plains. S.A. RUSSELL*, Texas Tech University, Lubbock, TX 79416, T.A. WHEELER, Texas AgriLife Research, Lubbock, TX 79403, , M.G. ANDERSON, Texas AgriLife Extension Service, Seminole, TX, 79360 and J.E. WOODWARD, Texas Tech

University, Lubbock, TX 79416.

Pod rot is a serious disease of peanut (*Arachis hypogaea* L.) in the Texas South Plains, with growers and consultants ranking it as a top concern. To manage the pathogens causing pod rot, producers routinely apply fungicides based on calendar dates at approximately 60 and 90 days after planting. In an effort to develop an economic threshold, a multi-year project was initiated. Two fields in Gaines and Terry counties were intensively scouted (101 points of 1.5 row-ft./field) on a weekly basis from early July thru September. In one field in 2009 and both in 2010, fungicide treatments were initiated based on calendar or threshold timings. The thresholds were low (1-2% pod rot), medium (3-4% pod rot) and high (>5% pod rot). In 2009, disease incidence increased from July through mid-August for both fields. Rates of disease incidence in August were 8 and 9.2 percent in the Gaines County and Terry County fields, respectively. In 2009 and 2010, calendar treatments receiving Abound FL or Abound FL rotated with Ridomil Gold EC + Provost had less pod rot during the season than did threshold treatments. The low threshold was intermediate and not different from the calendar treatments in 2009. In general, *Pythium* spp. were the most consistently isolated pathogen, though *Rhizoctonia solani* was infrequently isolated from one field in 2009, but was commonly isolated each week from both fields in 2010. In both years, there was no significant difference between calendar and threshold applications with respect to value (yield x kernel value minus fungicide costs). Calendar applications resulted in the least amount of pod rot during the season, though a threshold at 1-2% pod rot resulted in similarly low levels of pod rot in one site. In general, calendar applications resulted in more applications than using a threshold based system. Yield and value trends suggested that calendar or low thresholds would result in the highest economic returns. In order to more thoroughly develop these thresholds and recommendations additional research is planned.

POSTER SESSIONS

A Spanish bunch groundnut variety resistant to drought, leaf spots and sucking pests released for AP, India-. A. PRASANNA RAJESH, K.S.S. NAIK, D. SAMPATH KUMAR, K. VEMANA, N.C. VENKATESWARLU, AND D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515 591, A.P, India.

A variety resistant to drought, leaf spots and sucking pests necessitated the release of Kadiri Anantha (K1271) in AP. K1271 was evaluated in All India Coordinated drought trials over 8 locations for 4 years. It recorded highest pod yield 1282 kg/ha in drought and it gave 19.4% higher pod and 21.7% higher kernel yield over TMV 2, 16% and 14% higher over JL

24 and 22% higher than GG2 in all three drought situations. In station trials It gave 26.8% and 25.2 % higher pod and kernel yield over JL 24, 21.1 and 14.1% higher over Vemana and 41.4% higher pod yield in 288 minikits and 42.7% higher In Front Line Demonstrations than JL-24. The intensity of Leaf Spots and rusts were lower than JL 24 over locations and years. The incidence of PSND, PBND and stem rot were minimal. Under severe drought it gave 30% higher pod and 21% higher kernel yield over Kadiri 6. It also gave 36.6% and 26.6% higher pod and kernel yields over JL 24, 28% and 16% over Vemana and 32% and 29.1% higher pod and kernel yield over Tirupati 4. The drought resistant character was attributed to it's high proline, high RWC and quick regenerative capacity.

Integrated Management of Major Diseases in Groundnut (*Arachis hypogaea*). K. VEMANA*, N.C. VENKATESWARLU, A.P. RAJESH, K.S.S. NAIK, D. SAMPATH KUMAR, S.M. BASHA, D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515 591, A.P, India.

Foliar (early and late leaf spots, rust), seed and soil borne (collar, stem and root rots) diseases were causing severe yield reduction in rainfed agriculture in India. The experiment was conducted for 3 consecutive rainy seasons (2008 to 2010) using different combinations of a foliar and seed treatment fungicides including a bio-control agent in randomized block design with 4 replications at Agricultural Research station, Kadiri. The pooled data over years revealed that numerically least incidence of major diseases (collar rot: 0.8 %; dry root rot: 3.3 %; stem rot:2.5 %; early leaf spot: 31.7 % PDI; late leaf spot:33.9 % PDI) were effectively controlled and highest dry pod (1019 kg/ha), haulm 1855 kg/ha) yields including CB ratio (1.7) were obtained by treating the seed with tebuconazole (1.5g/kg), followed by 2 foliar sprays of tebuconazole (1ml/l) at 45 and 60 DAS. However, above treatmental combination was at par with another treatmental combination in reducing major diseases i.e. seed treatment with *Trichoderma viride* (10 g/kg seed) + Soil application of *Trichoderma viride* (4.0 kg/ha) and neem cake (250 kg/ha) + two sprays of hexaconazole (1 ml/l). However, it's CB ratio was given third rank due to high cost of neem cake.

Peanut Response to Interactions of Soil pH and Gypsum Rate. D.L. JORDAN* and P.D. JOHNSON, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

Maintenance of soil pH between 5.8 and 6.2 is recommended for optimum peanut production. Routine applications of gypsum are recommended at flowering for production of Virginia market type cultivars. Research was conducted to determine peanut response to gypsum rates of 0.5 and 1.0 times the current recommended use rate (600 pounds/acre, USG Ben Franklin, on an 18-inch band on 36-inch

rows) when soil pH was 4.8 to 6.0. In a second series of experiments at one pH, gypsum was also applied at these rates. When pooled over 10 experiments when soil pH exceeded 5.8, pod yield with gypsum at 0, 300, and 600 pounds/acre was 3360, 3880, and 3970 pounds/acre, respectively. In one experiment over three years, pod yield at pH 5.6 was 2720, 2700, and 2190 pounds/acre at these respective gypsum rates. In the same experiment, gypsum at 0, 300, and 600 pounds/acre resulted in yields of 2900, 3320, and 3250 pounds/acre, respectively. These results, along with previously published findings, suggest that higher rates of gypsum applied at lower soil pH (approximately 5.5) may have a negative effect on peanut yield. Additionally, these data suggest that at pH 6 gypsum rates below those currently recommended (0.5 times the recommended rate) often increase yield similar to the current recommended gypsum rate.

Root system of Brazilian peanut cultivars grown in different tillage under sugarcane straw. D. BOLONHEZI*, O. GENTILIN Jr., L-A FERREIRA NETO, Experimental Station of Agronomic Institute - APTA, Ribeirao Preto; I-J GODOY*, Center of Grains and Fiber, Agronomic Institute-APTA, Campinas, Brazil; A-L-M MARTINS, C-L JUSTO, R. MOLINARI, R., Experimental Station, of Agronomic Institute – APTA, Pindorama, Brazil; A-C BOLONHEZI, Sao Paulo State University, Ilha Solteira, Brazil. *E-mail:dbolonhezi@gmail.com

Peanut production in Brazil has traditionally been a tillage intense operation, and the cultivated are is concentrated (80%) in Sao Paulo State. Of the 120,000 ha of peanut grown in Brazil, about 60% is used as crop rotation with sugarcane, and 30% is planted after pasture. Although in Brazil no-tillage system is used for different crops in more than 26 million ha, conservation tillage for peanut are not widely used because there are many doubts about soil compaction, efficiency of digging and herbicides. When it comes to soil compaction, the first question is about the peanut root distribution, due to in sugarcane area the harvester machine can increase the soil bulk density. In order to study the interaction of peanut cultivars and tillage in rotation with sugarcane, two field trials were carried out from 2003 to 2005 in Oxisol, located in Ribeirao Preto city, Sao Paulo State, Brazil. Tillage systems included reduced tillage (chisel), no-tillage and conventional tillage (plowing and disking), which were arranged in a split-plot randomized complete block design with four replications. Tillage treatments were main plots while subplots were peanut cultivars, IAC-Tatu (Valencia market-type, erect growth habit, red seed coat, maturity range around 100 days after planting) and IAC-Caiapo (Runner market-type, prostate growth habit, pink testa, maturity range more than 135 days). It were evaluated the effects of treatments on the dry biomass of root and on physics attributes of soil. The conventional soil core-sampled method (COR) it was used during the peak of flowering. Samples were taken in different depths

(from 0,1 m to 0,7 m) each 0,10 m using a metal cylinders with known dimensions. Considering all the soil profile (from the top to 0,70 m) and both cultivars, the dry biomass of root was higher (P≤0,05) in no-till (0,12 mg cm-3) than in the reduced (0,08 mg cm-3) and conventional tillage (0,04 mg cm-3). The cultivar IAC-Tatu (0,09 mg cm-3) showed higher dry biomass than IAC-Caiapo (0,068 mg cm-3) at 60 days after planting. The distribution of root system showed that almost 45% of biomass is concentrated from 0,10 to 0,20 cm in conservation tillage, but only in no-tillage was observed root bellow 0,60 m.

Influence of Sub-lethal Rates of Dicamba, Glufosinate, and 2,4-D on Peanut Yield, Quality, and Pod Maturation. J. JOHNSON*, D.L. JORDAN, and L.R. FISHER, North Carolina State University, Raleigh, NC 27695.

Development and utilization of dicamba, glufosinate, and 2,4-D resistant crop cultivars potentially will have a significant influence on weed management in the southern United States. However, off-site movement to adjacent non-tolerant crops and other plants is a concern in many areas of eastern North Carolina and other portions of the southeastern United States, especially where sensitive crops are grown. Peanut most likely will be grown in close proximity. Research was conducted with rates of glufosinate, dicamba and 2,4-D designed to simulate drift on peanut to determine effects on yield and quality and to test correlations of visual estimates of percent injury with crop yield and a range of growth and quality parameters. Experiments were conducted in North Carolina near Lewiston-Woodville and Rocky Mount during 2009 and 2010. Peanut was treated with dicamba and the amine formulation of 2,4-D at 1/2, 1/8, 1/32, 1/128, and 1/512 the manufacturer's suggested use rate of 280 g ai/ha and 540 g ai/ha, respectively. Glufosinate was applied at rates equivalent to 1/2, 1/4, 1/8, 1/16, and 1/32 the manufacturer's suggested use rate of 604 g ai/ha. A wide range of visual injury was noted at both one and two weeks after treatment (WAT) for all crops. All herbicides reduced peanut yield at one or both locations each year at the 1/2 rate with the exception of 2,4-D only causing a yield reduction at one location in 2009. Peanut was most sensitive to dicamba and glufosinate, resulting in a yield loss from the second highest rates applied. Correlations between visual injury one and two WAT and peanut yield were significant for all herbicides; the strongest coefficient is that of glufosinate -0.62 and -0.64, one and two WAT, respectively. Correlations of peanut market grade characteristics were significant although the correlation coefficients were relatively poor indicating. These data provide information on relative crop sensitivity to dicamba, glufosinate, and 2,4-D. Peanut showed the highest degree of susceptibility to dicamba and glufosinate while expressing an extraordinary tolerance to 2,4-D. Visual estimates of percent injury of peanut are a moderate indicator of yield response.

Segregation of an F_2 Derived Population for Leafspot Resistance. M.R. BARING* and J.N. WILSON, Soil and Crop Sciences Department, Texas AgriLife Research, College Station, TX 77843-2474; C.E. SIMPSON and J.M. CASON, Soil and Crop Sciences Department, Texas AgriLife Research Center, Stephenville, TX 76401.

A cross was made between peanut cv. Tamrun OL07 and breeding line Tx964117 in 2007 at College Station, Texas. Tamrun OL07 is a high yielding, high oleic, runner-type peanut with moderate resistance to *Tomato spotted wilt virus* and *Sclerotinia*. Line Tx964117 has a high level of resistance to early and late leafspot, but has average yield potential, normal oleic fatty acid chemistry and low levels of resistance to either TSWV or *Sclerotinia*. Ninety individual F_2 seeds from a single F_1 plant were tested for O/L and increased as individual lines to the $F_{2:4}$ generation. These ninety lines were yield tested in replicated trials at three locations across Texas in 2010 as $F_{2:5}$ progeny. The study was conducted in an attempt to determine whether there were any interactions between leafspot resistance and yield, grade, O/L values, or *Sclerotinia* resistance in this population. Preliminary findings indicate several combinations of lines with either high oleic and good leafspot ratings, high yield and good leafspot ratings, high yield and low leafspot ratings, etc. Only one breeding line out of the original ninety was determined to be high oleic, and performed equal to Tamrun OL07 for yield and value/ha under *Sclerotinia* incidence as well as performing equal to Tx964117 for leafspot ratings.

Interactions of Proline with Optimize Lift and Orthene Applied in the Seed Furrow at Planting. P.D. JOHNSON*, D.L. JORDAN, B.B. SHEW, and R.L. BRANDENBURG, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

Changes in regulations associated with use of metam sodium to control CBR have increased interest in alternatives to suppress this disease. While rotation and CBR-resistant varieties reduce disease and maintain yield, chemical control may be needed to further minimize CBR, especially in situations where rotations are limited and resistant varieties are not suitable due to other considerations. Prothioconazole (Proline) is one possible alternative. Additionally, eventual removal of aldicarb from the market will require development of alternates for tobacco thrips control. Orthene (acephate) applied in the seed furrow at planting is one possible alternative. Growers also apply in-furrow inoculant to optimize biological nitrogen fixation (BNF). Defining interactions of in-furrow applications of Proline, Orthene, and inoculant will be important in developing effective strategies of disease and insect management in peanut and to ensure adequate BNF. Research was conducted at 6 locations during 2009 and 2010 (3 locations each year) to determine early season damage from thrips feeding and pod yield. Two of these locations were in new peanut ground. A range of interactions were noted

at each location when Proline, Orthene, and Optimize Lift were applied in the seed furrow. Optimize Lift and Proline did not adversely affect efficacy of Orthene in minimizing damage from tobacco thrips. In some instances peanut had less damage from thrips when Proline was applied, however, this may have been a reflection of improved seedling health from Proline rather than an effect on thrips populations. Likewise, Orthene and Proline did not adversely affect performance of Optimize Lift with pod yield increasing in two experiments where peanut was planted in fields not having been planted to peanut in previous years when Optimize Lift was applied regardless of Orthene or Proline treatment.

Influence of Water Source on In-furrow Inoculant Performance Under Greenhouse Conditions. P.M. EURE*, D.L. JORDAN, G.B. CHAHAL, and V.A. JOHNSON. North Carolina State University, Raleigh, NC 27695.

Bradyrhizobia is used routinely in peanut to facilitate biological nitrogen fixation. When inoculants perform poorly, water quality may be a contributing factor in some instances. Research was conducted in the greenhouse in sterilized soil to determine the effect of water quality (water collected from 25 sources in North Carolina) when Optimize Lift was applied immediately after mixing or 4 and 8 days after mixing. Leaf color (SPAD meter representing chlorophyll leaf content) was recorded 90 days after planting. Solution pH and hardness, calcium, and chlorine concentration ranged from 3.8 to 8.2, 2 to 351 ppm, 0.6 to 58 ppm and 0 to 150 ppm, respectively, when comparing water sources. Water source and time between solution preparation and in-furrow application affected inoculant performance. Preparing solutions up to 8 days prior to application resulted in leaf color similar to the non-treated control for fewer than 4 of 25 samples. Preparing solutions 4 days prior to application did not negatively affect inoculant performance.

Response of Rainfed Groundnut to application of Consortia of Beneficial Micro-organisms D. SAMPATH KUMAR*, N.C. VENKATESWARLU, K. VEMANA, K.S.S. NAIK, A.P. RAJESH and D.L. REDDY. Acharya N.G.Ranga Agricultural University, Agricultural Research Station, Kadiri-515 591, Andhra Pradesh, India.

Consortium1 (Non fluorescent pseudomonas), Consortium 2 (PGPR + PSM + Rhizobia) and Consortium 3 (PGPR +PSM + Rhizobia) as seed inoculation before sowing along with application of 100 % or 75 % recommended dose of fertilizers (RDF) were tested comparing with 100 % RDF alone without any consortia, 75 % RDF + FYM (10t/ha) and control (without any consortia and fertilizers). Highest pooled mean pod (726 Kg ha^{-1}) and haulm yield (1594 Kg ha^{-1}) were observed with 100% RDF + Consortium 3, which was significantly superior over control but was on par with all other treatment combinations. Pod yield, haulm yield and number of pods per plant due to application of any of the consortium

1, 2 or 3 along with 75 % RDF were statistically on par with 100 % RDF, which indicates 25 % saving in RDF due to use of consortia. These treatments are again on par with 75 % RDF + FYM @ 10 t ha^{-1}, which further indicates that inoculating groundnut seeds with any of the consortium is equivalent to that of FYM @ 10 t ha^{-1}. The increase in yield due to inoculating the seeds with any of the consortium was due to increase in number of pods per plant.

Evaluation of LEM17 Fungicide on Foliar and Soilborne Disease of Peanut in Texas. A.J. JAKS*[1], W.J. GRICHAR[1], and J.E. WOODWARD[2], [1]Texas AgriLIFE RESEARCH, Beeville, TX 78102 and [2] Texas AgriLIFE EXTENSION, Lubbock, TX 79401.

Field tests were conducted in central and south Texas to determine the efficacy of LEM17 (DuPont) fungicide on soilborne and foliar peanut diseases. Trials conducted in central Texas evaluated the fungicide for control of *Sclerotinia minor* from 2008-2010. South Texas studies evaluated LEM17 for the control of *Sclerotium rolfsii, Rhizoctonia solani* and *Cersospora arachidicola* from 2006-2008. Under severe Sclerotinia blight pressure (>50% incidence), plots treated with LEM17 generally exhibited less diseases when compared to untreated plots. Disease control was similar to plots treated with Omega (Syngenta) and Endura (BASF) in 2008 and 2009; however plots treated with LEM17 in 2010 did not differ from the untreated controls. Applications of LEM17 at a rate of 24 fl oz/A resulted in a 494 lb/A yield increase when compared across cultivars and years. In south Texas tests, LEM17 provided good control of *S. rolfsii* and *R. solani* under light to moderate disease pressure. Differences in fungicide formulation were observed, where the 200SC formulation provided better soilborne disease control than the 50WG formulation. Under severe foliar disease pressure, control of early leaf spot by LEM17 was intermediate. However, the addition of Punch 3.3EC (DuPont) resulted in excellent control of both soilborne and foliar diseases and higher yields.

Alternatives to Temik 15G for Thrips Control in Peanut. D.A. HERBERT, JR.*, S. MALONE, J. SAMLER, Department of Entomology, Virginia Tech Tidewater Agricultural Research and Extension Center, Suffolk, VA 23437; T.P. KUHAR, Department of Entomology, Virginia Tech, Blacksburg, VA 24060; V. MASCARENHAS, Syngenta Crop Protection, Inc., Nashville, NC 27856; and R. WILLIAMS, E.I. DuPont de Nemours and Company, Raleigh, NC 27613.

With the loss of aldicarb (Temik) registration, peanut farmers need new thrips management options. A new at-plant thrips product, Cyazypyr 20SC (cyantraniliprole, an anthranilic diamide insecticide by DuPont), was evaluated as a liquid in-furrow in 2008-2010 in Suffolk, VA. A Cyazypyr 10OD formulation, applied as a foliar broadcast at late ground cracking, was also tested in 2010. Standard insecticides were included

for comparison. Thrips counts, visual thrips injury ratings, *tomato spotted wilt* hits, and yield were determined. All products had significantly fewer immature thrips relative to the untreated control on May 25 and June 1, with no differences between treatments. Thrips injury ratings were generally lowest (best) in the Temik, Temik plus Orthene, Thimet, Cyazypyr 20SC at 0.134 lb ai/A (liquid in-furrow) plus Cyazypyr 10OD at 0.088 lb ai/A (broadcast at late ground cracking) plots. All products significantly reduced the incidence of *tomato spotted wilt* relative to the untreated control. Yields were not significantly different, but Cyazypyr 20SC at 0.134 lb ai/A (liquid in-furrow) plus Cyazypyr 10OD at 0.088 lb ai/A (broadcast at late ground cracking) yielded 4728 lb/A, numerically similar to both Temik 15G at 7 lb/A (4790 lb/A) and Thimet 20G at 5 lb/A (4714 lb/A).

We evaluated several experimental seed treatments from Syngenta in 2009 and continued this research in 2010. In general, immature thrips numbers in the peanut seed treatments (Cruiser 70WS, Cruiser 5FS, A17461-a) were similar to, but slightly higher than, the in-furrow insecticides (Temik, Thimet). The seed treatments kept thrips injury ratings low through June 2, while Temik and Thimet maintained low thrips injury ratings through at least June 17. All treatments had higher yields than the untreated control and Dynasty alone, with no significant differences between the insecticides.

Evaluation of Peanut R_x Programs for Controlling Foliar and Soil-borne Diseases in an Irrigated Production System in Southeast Alabama. H.L. CAMPBELL*, A.K. HAGAN, and K.L. BOWEN, Dept of Entomology and Plant Pathology, Auburn University, AL 36849; L. WELLS, Wiregrass Research and Extension Center, Headland, AL 36345

In 2010, four fungicide R_x programs were compared for the control of early and late leaf spot and stem rot (SR) at the Wiregrass Research and Extension Center in Headland, Alabama. Recommendations of the Alabama Cooperative Extension System for tillage, fertility, weed, and nematode control were followed. Programs evaluated included those recommended by BASF (Headline), Nichino America (Artisan), and Syngenta Crop Protection (Tilt-Bravo and Abound) and were compared against chlorothalonil (Bravo) only programs. Plots consisted of four 30-ft rows spaced 36-in apart. Leaf spot was rated using the Florida 1-10 leaf spot rating system and hit counts for SR were made immediately after plot inversion (1 hit equals 1 ft of consecutive symptoms and signs of the disease). Yields were reported at 7.37% moisture. When grouped according to fungicide program, the Headline/Muscle/Headline high risk index had higher leaf spot severity than did either the low or medium risk indices, however there were no significant differences among the indices. Stem rot incidence tended to be lower for the medium risk index

but did not differ significantly between treatments. Yield was highest for the low risk index and lowest for the high risk index regime. Among those treatments that included Artisan, leaf spot severity was lowest with the high risk index schedule and had significantly better control than both the medium and low risk index. Stem rot incidence among the Artisan risk index programs was not statistically different. Yield response was higher with the Artisan medium risk index. For programs that included Tilt-Bravo/Abound/Bravo, the medium risk index had the highest leaf spot severity while the high risk index had the lowest severity. There were no significant differences among the risk schedules for stem rot control. Similar yields were obtained with all Tilt-Bravo/Abound/Bravo programs. Among the Bravo Weather Stik programs, the high risk index, which included seven total applications, gave better leaf spot control than medium and low risk programs. Yield among the three indices were not statistically different. Over the three risk regimes, the Headline program resulted in lowest leaf spot intensity and the Artisan program had the highest leaf spot. Stem rot incidence was lowest with the medium risk index that included Artisan but was similar to all other treatment programs except the high risk Headline index and the medium and high risk indices of Bravo full season which had significantly higher incidence. Over the three risk regimes, the Headline and Tilt-Bravo programs had the greatest yields and the Artisan program had the lowest yield. Among the fungicide programs, the low risk regimes had the highest yields.

Screening of the ICRISAT Mini-Core Collection for Possible Sclerotinia Blight Resistance and Oleic Acid Composition. K.D. CHAMBERLIN* and H.A. MELOUK, USDA-ARS, Stillwater, OK 74075.

Cultivated peanut, the second most economically important legume crop throughout the United States and the third most important oilseed in the world, is consistently threatened by various diseases and pests. *Sclerotinia minor* Jagger (*S. minor*), the causal agent of Sclerotinia blight, is a major threat to peanut production in the Southwestern U.S., Virginia, and North Carolina and can reduce yield by up to 50% in severely infested fields. Although host plant resistance would provide the most effective solution to managing Sclerotinia blight, limited sources of resistance to the disease are available for use in breeding programs. Peanut germplasm collections are available for exploration and identification of new sources of resistance, but traditionally the process is lengthy, requiring years of field testing before those potential sources can be identified. Molecular markers associated with phenotypic traits can speed up the screening of germplasm accessions. This study objective of this study was to characterize the ICRISAT mini-core collection with regards to oleic acid composition and a molecular marker associated with Sclerotinia blight resistance. One hundred twenty-four (124) accessions from the collection were available and genotyped using

the SSR marker and 67 were identified as potential new sources of resistance and targeted for further evaluation in field tests for Sclerotinia blight resistance. Capillary electrophoresis profiles of oil extracted from each accession determined that none were high oleic in composition.

A High Yielding Groundnut Variety With Multiple Resistances to Biotic and Abiotic Stresses Suitable for Semi-Arid Regions of India. K.S.S. NAIK*, A. PRASANNA RAJESH, D. SAMPATH KUMAR, K. VEMANA, N.C. VENKATESWARLU, D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515591, A.P, India; and SHEIKH M. BASHA, RAMESH KATAM, Plant Biotechnology Laboratory, Center for Viticulture and Small Fruit Research, Florida A&M University, 6505 Mahan Drive, Tallahassee, FL 32317, USA

Genetic improvement in Spanish type groundnut varieties has contributed greatly to higher productivity. In South India, only Spanish types are grown. A Spanish groundnut variety Kadiri Harithandhra (KH) was developed at Agricultural Research Station, Kadiri, India and evaluated in All India Coordinated trials for three years over 14 locations. The superior performance of KH was established in these trials over the checks (TAG 24 & R 8808) and the qualifying varieties (R 2001-2, R2001-3). The mean pod (3762 kg/ha) and kernel yields (2554 kg/ha) of KH across 14 locations over 3 years were higher by 18.2 & 17.6 % over TAG 24 and 18.8 & 17.6% over R 8808, respectively. The intensity (1-9 scale) of rust (3.7), early leaf spot (3.2) and late leaf spot (4.0) was lower in KH than check varieties. PSND (3.25%) and PBND (3.56%) damage was also lower than TAG 24. The sucking pests (thrips and Jassids) damage was also minimal (19.1% and 6%) when compared to R 8808 in KH. The Helicoverpa damage in KH is lower (31.9%) than R 8808 (46.5%). Hence it is released as a better alternative to TAG 24, R 8808, R 2001-2, R 2001-3, JL 24 and Vemana.

Peanut Tolerance and Weed Control with Valor SX and Gramoxone Inteon Tank Mix Combinations. L.V. GILBERT*, Texas AgriLife Research, Lubbock, TX 79403; P.A. DOTRAY, Texas Tech University, Texas AgriLife Research, and Texas AgriLife Extension Service, Lubbock, TX 79403; and W.J. GRICHAR, Texas AgriLife Research, Beeville, TX 78102

There is interest in tank mixing flumioxazin (Valor SX) with Gramoxone Inteon (paraquat). Trials were conducted in 2009 and 2010 in west and south Texas to evaluate peanut tolerance and weed control. Valor SX at 0, 0.064, and 0.096 lb ai/A (0, 2, and 3 oz/A) and Gramoxone Inteon at 0, 0.125, and 0.25 lb ai/A (0, 8, and 16 oz/A) plus non-ionic surfactant at 0.25% v/v were applied alone and in tank mixture preemergence (PRE) or at-crack (AC). In 2009 at Lamesa, Tamrun OL02 stand ranged from 9.2 to 10.8 plants per 3 feet of row and no treatment caused a reduction relative to the non-treated control (9.7 plants/3 feet). Valor applied AC at

2 and 3 oz/A injured peanut up to 5% on June 4. On June 18 and July 2, Valor at 3 oz/A injured peanut 6%. Yield from Valor-treated plots ranged from 3424 to 3608 lb/A, and were not reduced relative to the non-treated control (3297 lb/A). At Lubbock, Valor PRE at 2 or 3 oz/A alone and in tank mixture with Gramoxone Inteon controlled Palmer amaranth at least 99%, 7 days after treatment. Palmer amaranth was controlled at least 98% following Valor applied PRE at 2 or 3 oz/A when evaluated as late as August 17. Palmer amaranth control was not altered (improved or reduced) with the addition of Gramoxone Inteon. When Valor at 2 or 3 oz/A was applied AC (just 1 week after the PRE application), Palmer amaranth control was less at each observation date relative to the same rate applied PRE. The addition of Gramoxone Inteon to either rate of Valor applied AC improved Palmer amaranth control when evaluated August 17 compared to Valor applied alone. When pooled over timing and Valor rates, Gramoxone Inteon at 16 oz/A controlled devil's-claw no greater than 56%. When pooled over Gramoxone Inteon rates, Valor at 2 or 3 oz/A applied PRE controlled devil's-claw 70 to 81% , and control was less when applied AC (33 to 58%). Devil's-claw control on August 17 following Valor PRE ranged from 79 to 80%, but ranged from 15 to 17% when applied AC. Gramoxone Inteon did not improve devil's-claw control when tank mixed with Valor applied PRE, but did improve control when tank mixed and applied AC. In 2010 using Flavorrunner 458, Valor at 2 and 3 oz/A applied AC injured peanut 22 to 26% on May 26, 28 days after planting (DAP), 24 to 34% on June 9 (58 DAP), and 12 to 14% on June 25 (42 DAP). Peanut yield ranged from 5049 to 5738 lb/A, but no difference was observed when compared to the non-treated control (5408 lb/A). Peanut grade ranged from 69 to 73% and was not different from the non-treated control (71%). In a second study in 2010 using OLin (a Spanish market type), Gramoxone Inteon caused 11 to 12% peanut injury when applied AC and no injury was observed when applied PRE. On June 22, Gramoxone Inteon at 16 oz/A caused 16% peanut injury when applied AC, which was greater than the injury observed following the 8 oz/A rate. On June 8, Valor at 3 oz/A caused 13 to 18% peanut injury when applied AC regardless of Gramoxone Inteon rate. No injury was observed following Valor applied PRE. Peanut yield ranged from 2479 to 3644 lb/A and was not different from the non-treated control (2859 and 3792 lb/A). Peanut grade ranged from 62 to 66% and was not different from the non-treated control (64%). In 2009 near Yoakum, Gramoxone Inteon applied PRE failed to control horse purslane 20 DAP. Gramoxone Inteon alone applied 7 DAC controlled horse purslane at least 91%, Valor alone applied PRE or 7 DAC controlled horse purslane at least 96%, and combinations of Gramoxone Inteon and Valor controlled horse purslane at least 93%. Smellmelon control with Gramoxone Inteon applied PRE was poor (<15%) while Gramoxone Inteon applied 7 DAC controlled smellmelon at least 92%. Valor alone applied 7 DAC controlled smellmelon 99% while PRE applications of

Valor provided erratic control (27 to 81%). Gramoxone Inteon in combination with Valor applied PRE failed to control smellmelon (31 to 57%) while all Gramoxone Inteon plus Valor combinations applied 7 DAC controlled smellmelon at least 99%. Palmer amaranth control with Gramoxone Inteon applied PRE was poor (<13%); however, Gramoxone Inteon applied 7 DAC controlled Palmer amaranth at least 99%. Valor alone or combination with Gramoxone Inteon controlled Palmer amaranth at least 96%. When peanuts were rated 20 DAP, treatments applied PRE caused no leaf burn on Tamrun OL02 while applications made 7 DAC resulted in at least 20% burn. When rated 35 DAP, leaf necrosis was worse with Gramoxone Inteon at 16 oz/A plus Valor at 3 oz/A applied 7 DAC. At Yoakum in 2010, horse purslane control with Valor alone or Gramoxone Inteon plus Valor combinations was at least 90% while Gramoxone Inteon alone applied 7 DAC controlled horse purslane 76 to 92%, 50 DAP. Gramoxone Inteon plus Valor applied PRE failed to control smellmelon (30 to 62%) while Gramoxone Inteon plus Valor applied 7 DAC controlled smellmelon at least 94%. Palmer amaranth control with Gramoxone Inteon at 8 oz/A applied 7 DAC was 85% while Gramoxone Inteon at 16 oz/A applied 7 DAC and all Gramoxone Inteon plus Valor combinations controlled Palmer amaranth at least 96%.

Valencia Peanut Yield to Digging Dates and Irrigation Rates: N. PUPPALA[1]* and R. NUTI. [1]New Mexico State University Agricultural Science Center, Clovis, NM 88101; [2]USDA-ARS RUSSELL NUTI, P.O. Box 509, USDA-ARS, Dawson, GA.

Currently, the majority of peanuts grown in New Mexico and West Texas are planted in single rows on beds 36 to 40 inches apart. In 2006-2008, several field studies were conducted with Valencia peanuts comparing single row, twin row, and diamond planting patterns in various populations. The basic conclusion of this research was that twin row and diamond planting patterns were at times superior to single row planting. It was also observed that increasing the seeding rate of Valencia peanuts could improve yield at an economically sustainable level. In 2010, we decided to start new experiments that include Valencia peanut market types in single row, twin row, and diamond planting patterns at the recommended six seed per foot of row. Because of the range of maturity in this market type, an early and a late harvest was made in an attempt to show the interaction of planting pattern yield potential over time and two irrigation rates. The early and late harvest were done at 130 and 150 DAP. The single row and twin row plots emerged with good uniformity. Yield for 'Valencia C' ranged between 2,500 and 3,830 lb/A when harvested early and 4,270 and 4,590 lb/A at the late harvest. Grade for 'Valencia C' improved between 4 and 6 points between harvest timings.

Can High Quality DNA be Extracted and Utilized from *Arachis* seeds in Long Term Storage with Zero Percent Germination? N.A. BARKLEY*, M.L. WANG, R.N. PITTMAN, USDA-ARS Plant Genetic Resources Conservation Unit, Griffin, GA 30223.

Plant germplasm collections are useful resources for both researchers and breeders. These collections provide a source of new gene combinations that can be used in breeding or molecular studies to thwart disease, introduce novel traits, and enhance nutritional benefits to a crop. The USDA maintains a germplasm collection of *Arachis* species which contains over 10,000 accessions of cultivated and wild peanuts. Many of the accessions stored in this repository in cold storage are old and some do not have any germination data collected. However, due to the high oil content in these seeds, the germination rate is known to drastically declines after 15 years or more of cold storage; therefore, shelf life for peanut seeds is time limited. The goal of this work was to acquire 0% germination seeds from cultivated and wild species and test their efficacy with molecular markers in comparison to 10 accessions with normal germination. Six seeds from five different accessions (4 cultivated and 1 wild) with 0% germination were obtained and DNA was extracted. DNA was quantified and subsequently diluted for PCR. SSR markers and SNP markers were tested on DNA extracts from seeds with a 0% germination rate and seeds with a normal germination rate. Overall, this work demonstrated that high quality DNA can be obtained from 0% germination seeds in wild and cultivated peanuts and the extracted DNA can be used as a PCR template with polymorphic fragments revealed from both SSR and SNP markers.

Induction of Tetraploidy in Diploid Wild Peanut (*Arachis paraguariensis)*. O-O. AINA*, M. GALLO, K-H. QUESENBERRY, Agronomy Department, University of Florida, Gainesville, FL 32611-0300.

The diploid wild *Arachis* species are important sources of novel genes for improving the tetraploid cultivated peanut (*Arachis hypogaea* L.). In an attempt to overcome the ploidy barriers that exist in gene transfer between the wild species and cultivated peanut, this study investigated the capacity of the antimitotic agent colchicine for *in vitro* induction of tetraploidy in wild peanut *Arachis* paraguariensis Chodat & Hassl. The experiment was laid out in a split plot with 4 (colchicine concentration) x 5 (treatment duration) factorial main plot and 3 explant-types as the subplot. Quarter-seed, callus and shoot tip explants were immersed in aqueous solutions of colchicine (0.05%, 0.1%, 0.2% and 0.5%) dissolved in 1% dimethyl sulfoxide for 4, 8 , 16, 20 and 24 hours. Controls were held in sterile, distilled water for similar durations. The treated explants were then regenerated on semi-solid MS callus induction medium supplemented with 4.4 g^{-1} thidiazuron (TDZ) and 2.2 g^{-l} 6-(ϒ , ϒ - dimethylallylamino) purine (2iP). Plantlets were allowed to form roots on MS basal medium with no growth regulators before *ex-vitro*

acclimatization. The ploidy levels of plantlets were determined via flow cytometry after two months in culture. The best results in which 39% and 43% of the explant produced tetraploid plants were 0.5% colchicine for 4 h and 8 h respectively. The flow cytometric analysis of induced tetraploids derived from quarter-seeds revealed that they were true-to-type with absence of chimerism but the plants derived from colchicine-treated callus were mixoploids. Besides, treating explants with high concentrations of colchicine for 24 h proved to be very lethal. Overall, the findings from this study should contribute towards the enhancement of gene introgression from wild *Arachis* into the cultivated peanut.

Next Generation Transcriptome Sequencing of the High Oleic Peanut Cultivar OLin and Identification of SNPs Between Cultivars. R. CHOPRA*, S. SWAROOP, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409; G. BUROW, Z. XIN, USDA-ARS, Plant Germplasm Development Unit, Lubbock, TX 79415; S.M. GOMEZ, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; A. FARMER, G. MAY, National Center for Genome Resources, Santa Fe, NM 87505; C. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; N. PUPPALA, New Mexico State University, Agricultural Science Center, Clovis, NM 88001; K. CHAMBERLIN, USDA-ARS, Stillwater, OK 74075; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409.

Total RNA was extracted from leaf, root and immature pod (yellow stage of development) tissue of greenhouse grown plants of the high oleic Texas AgriLife cultivar OLin and analyzed by next generation DNA sequencing. Illumina (Solexa) sequencing of the complete transcriptome of OLin provided 28.8 million short reads of which 21.3 million were aligned to the UGa Tifrunner reference set. Reads of OLin were assembled into 36,201contigs (putative genes) by comparing it to the 37,917 contigs from Tifrunner. A total of 72,586 polymorphisms were identified in 19,000 genes using a minimum quality score cutoff of ≥20. Initial bioinformatic analysis revealed that a number of contigs with homology to genes induced under water deficit stress contains single nucleotide polymorphisms (SNPs) that can aid in distinguishing OLin and Tifrunner. We expect that transcriptome sequencing and SNP identification would help to not only differentiate between the cultivars but will also prove useful in marker assisted selection, association mapping and eQTL analysis of biotic and biotic stress responses of peanut.

Characterization of Duplicate Genes Involved in Oil Pathways of Polyploid Peanut. Y. BRAND, F. SHILMAN, R. HOVAV*, Department of Field Crops, Plant Science Institute, ARO, Bet-

Dagan, Israel.

Peanut (*Arachis hypogaea*) is the fourth-largest edible oilseed crop in the world. Nevertheless, besides several studies regarding the high oleic-acid content trait (fad2) of peanut, there has been relatively little molecular research on the biosynthesis and metabolism of other fatty acids and oil related genes in this crop. Furthermore, studies sometimes ignore the fact that cultivated peanut is a true allopolyploid organism with a whole duplicated genome (AABB). Here, we have identified and characterized the expression pattern of 11 duplicated genes associated with five protein families that represent key stages in the lipid and oil biosynthetic pathway (FAD, SAD, DGAT, FATA and FATB). We measured the RNA expression levels of these genes in developing seeds of six peanut genotypes, representing different marketing types, pod types, oil contents and fatty-acid profiles. We sampled seeds of each of these genotypes at each of four different developmental stages (initial, expansion, breaker and full-ripe). In addition, leaf and root tissues were sampled and used as controls. RNA expression was measured using quantitative RT-PCR with three biological replications. Fatty-acid profiles for each Genotype × Seed Developmental Stage treatment were evaluated using GC-MS. Homeolog-specific analyses were performed using the same samples. These analyses involved either genome-specific real-time PCR or MALDI-TOF mass-spectrometry assays performed using the Sequenom MassARRAY platform. For each protein family, we detected homologous genes that are seed-specific, non-seed-specific or not expressed in seeds. Significant differences between genotypes, time points and Genotype × Time Point interactions were found for all variables (mRNA level, homeolog-specific bias, FA profile). The greatest changes in RNA expression levels were observed for seeds containing high levels of oleic acid (line 119), seeds with high oil contents (line 102) and seeds with low oil contents (line 117). This study provides an initial glimpse into pathways of oil biosynthesis during seed development in *Arachis hypogaea*.

Genetic linkage map and QTL analysis of resistance to TSWV and leaf spots in peanut (*Arachis hypogaea* L.). S. FENG*, B. ZHOU, T. JIANG, A. CULBREATH, Department of Plant Pathology, the University of Georgia, Tifton, GA; H. QIN, Hubei Academy of Agricultural Sciences, Cash Crop Research Institute, Wuhan; C. CHEN, USDA-ARS, National Peanut Research Laboratory, Dawson, GA ; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA; and B.Z. GUO, USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA.

The allotetraploid peanut genome assembly will be a valuable resource to researchers studying polyploidy species, in addition to peanut genome evolution and domestication other than facilitating QTL analysis and the

tools for marker-assisted breeding. Therefore, a peanut linkage map will aid genome assembly, acting as an independent resource against which contig assembly can be validated. The objective of this study was to develop a comparative integrated map from two recombinant inbred line populations. A total of 4576 SSR markers from three sources: published SSR markers, newly developed SSR markers from ESTs and from BAC end-sequences were used for screening polymorphisms. Two CAP markers were also included to differentiate *ahFAD2A* alleles and *ahFAD2B* alleles. A total of 324 markers were anchored on this integrated map covering 1,352.1 cM with 21 linkage groups (LGs). Combining information from duplicated loci between LGs and comparing with published diploid maps, 7 homoeologous groups were defined and 17 LGs (A1 to A10, B1 to B4, B7, B8, and B9) were aligned to corresponding A-subgenome or B-subgenome of diploid progenitors. The primary phenotype evaluations conducted in 2009 and 2010 has demonstrated that a significant divergence among RILs of both populations was obvious. TSWV disease ratings ranged from 1 to 10 in both populations and the parental line Tifrunner was 3 and C20 was 7.4, and NC94022 was 2.4 and SunOleic 97R was 6.8 in 2009. Late leaf spot was the dominate disease in 2010 and the disease ratings ranged from 4 to 8, and 3.5 to 8 for T and S population, respectively, and the parental line NC94022 was 4.2, SunOleic 97R had 5.8 and Tifrunner had 3.5 and C20 had 7.7. The identified QTL may explain about 40% phenotypic variation for TSWV based on 2009 ratings.

Effects of Drought Stress and Supplemental Soil Calcium on Pre-Harvest Aflatoxin Contamination of Peanut. S. UPPALA*, K.L. BOWEN, Department of Entomology and Plant Pathology, Auburn University, AL, 36849.

Aflatoxins are potent carcinogens that can contaminate peanut either in the field (pre-harvest) if severe late season drought occurs or during storage (post-harvest) if improper moisture and temperature conditions exist. Drought stress is known to play an important role in predisposing peanuts to pre-harvest aflatoxin contamination. In the absence of irrigation, no consistently effective control of aflatoxin contamination of peanut is known. We evaluated the effects of drought stress and supplemental soil calcium on aflatoxin contamination by growing Georgia Green peanuts in soil with different levels of supplemental soil calcium and drought periods. For this effort, a factorial experiment was conducted in the greenhouse. Five levels of supplemental soil calcium; 0, 250, 500, 750 and 1000 parts per million (ppm) (0, 2146, 4292, 6438 and 8584 lbs/acre of gypsum, respectively) and three periods of drought (no drought, drought from 90 days after sowing (DAS) to harvest, and drought from 115 DAS to harvest) were evaluated. Soil with low initial calcium (41 ppm) was used for this study. Calcium supplementation was done by the addition of gypsum. Plants were inoculated with *A. flavus*

strain NRRL 3357 at 75 DAS and irrigated regularly until 90 DAS. After 90 days, plants were subjected to various watering schedules to reflect the different drought scenarios. Upon seed maturity, peanuts were harvested and assayed for aflatoxins using high pressure liquid chromatography. Data were analyzed by mixed model and multivariate regression procedures. Aflatoxin contents of peanuts were generally low in this experiment. However, significant differences in aflatoxins were observed due to drought, soil calcium and the two-way interaction of drought and added calcium. No significant differences in aflatoxins were observed between the two drought treatments. Total aflatoxins were significantly higher in drought-stressed peanuts compared to non-drought-stressed peanuts (averages were 15.6 ppb and 10.8 ppb, respectively). Total aflatoxins significantly declined with increases in supplemental soil calcium levels. With the increase in added calcium from 250 ppm to 1000 ppm, total aflatoxins in drought- stressed peanuts declined by 47.4% and by 38.0% in non-drought stressed peanuts. Significant negative correlations were also observed between total aflatoxins and calcium content of leaves (Pearson's correlation co-efficient (r) = -0.42), shells (r= -0.39) and peanut kernels (r = -0.31).

Effect of Ribose on Mature/Immature Raw Peanut Proteins and Their Allergenic Properties. S.-Y. CHUNG*. Southern Regional Research Center, USDA-ARS, New Orleans, LA 70124.

Mature and immature roasted peanuts are reportedly different in the level of Maillard reaction adducts (MRA) and IgE binding (i.e., allergenic capacity). Heating and sugar-protein interaction are the cause for the difference. Our objective was to determine if mature and immature raw peanuts (not roasted) (MIRP) are also different through treatment with a reducing sugar such as ribose, glucose or fructose at a mild temperature. Extracts from MIRP were treated with individual sugars at 37 ^{o}C and 50 ^{o}C, respectively, for 0-10 days, and then assayed for MRA with nitroblue tetrazolium (NBT) in a time-course manner for 60 min. IgE binding was determined in an enzyme-linked immunosorbent assay (ELISA), using a pooled plasma from peanut-allergic individuals. Of the sugars tested, only ribose produced a big difference or a unique curve pattern in MRA between MIRP. The unique curve pattern was more pronounced at 50 ^{o}C (day 5-10) than at 37 ^{o}C. IgE binding under this condition increased, but only with the ribose-treated mature raw peanut. We concluded that mature and immature raw peanuts were different in MRA and IgE binding when treated with ribose only, and that under such a condition, mature and immature raw peanuts could be identified.

Planting Seed Quality among Peanut Market Types, West Texas. SEAN WALLACE*, CALVIN L. TROSTLE, Extension Agronomy, Texas AgriLife Extension Service, Lubbock, TX 79403-6603.

Peanut seed quality can make the difference between an early season

vigorous stand and delayed growth and development. This is particularly important where season-long growth in the U.S. Southwest encounters cool conditions both in the Spring (early planting) and in the Fall as heat units become limiting and maturation is incomplete. Furthermore, dry arid conditions may lead to increased splits and breakage of planting seed. The objectives of this work include among Runner, Spanish, Valencia, and Virginia market types include: 1) general assessment of peanut seed quality in terms of seed size, splits, foreign matter, etc., 2) standard and cold temperature germination, and 3) limited testing of Runner seed with additional seed vigor measures coupled with field testing. For Objectives 1 & 2, over 50 samples of farmer planting seed across two years were evaluated in the lab as well as using standard Texas Department of Agriculture seed vigor tests including cold germ tests at 18ºC for 15 days. Objective 3 was evaluated using 8 Runner peanut cultivars. Overall seed quality was similar but the percent splits in numerous samples exceeded 10%, and germination tests results suggested lower than desired germination for some Virginia samples. The data suggest that careful handling of peanut seed is important to minimize the physical damage to seed. Although peanut seed parameters for quality may appear low relative to other crops, peanut is in fact more prone to physical damage and reduced germination.

Peanut Cultivar Response to *S*-metolachlor and Paraquat Alone and in Combination. W. JAMES GRICHAR*, Texas AgriLife Research, 3507 Hwy 59E, Beeville, TX 78102; and PETER A. DOTRAY, Texas AgriLife Research, Texas AgriLife Extension, and Texas Tech Univ., 1102 E FM 1294, Lubbock, TX 79403.

Field experiments were conducted in the south Texas and the Texas High Plains area to evaluate peanut variety tolerance to *S*-metolachlor or paraquat alone or in combination applied 7, 14, 21, and 28 days after peanut ground cracking (DAC) under weed-free conditions. Runner market-type peanut were evaluated at the south Texas location (Tamrun OL02, York, and Florida 07) while runner (Flavorrunner 458) and Virginia market-types (NC-7 and Gregory) were evaluated at the High Plains location.

South Texas. *Peanut stunting*. In 2007, *S*-metolachlor alone caused 7% stunting when applied 7 DAC while *S*-metolachlor + paraquat caused 8% stunting when applied 14 DAC. In 2008, *S*-metolachlor alone did not cause stunting at any application timing while paraquat alone caused at least 10% stunting when applied 21 and 28 DAC. *S*-metolachlor + paraquat caused at least 10% stunting with all application timings with the exception of 14 DAC timing application.

Peanut yield. In 2007 with the cultivar York, only paraquat alone applied 21 DAC reduced yield when compared with the untreated check. However, paraquat alone applied 7 DAC did produce a greater yield than the untreated check or *S*-metolachlor + paraquat applied 14 or 21 DAC.

None of the herbicide treatments affected Tamrun OL02 yield when compared with the untreated check. Paraquat alone applied 28 DAC produced the greatest yield and this was better than all herbicide treatments with the exception of the untreated check, *S*-metolachlor alone at 14 DAC, and *S*-metolachlor + paraquat applied 7 and 28 DAC. In 2008 with the cultivar Florida 07, no response to herbicide treatment was noted when compared with the untreated check. *S*-metolachlor alone applied 7 DAC produced the greatest yield and this was better than *S*-metolachlor alone applied 14 DAC, paraquat alone applied 7 and 14 DAC, or *S*-metolachlor + paraquat applied 7, 21, and 28 DAC. With Tamrun OL02, no yield differences were noted between the untreated control and any herbicide treatments. Paraquat alone applied 14 DAC produced the highest yield and this was greater than paraquat alone applied 28 DAC or *S*-metolachlor + paraquat applied 28 DAC.

High Plains. *Runner market types*. Peanut stunting. In 2007, *S*-metolachlor alone caused stunting when applied 7 DAC but no stunting was observed at any other application timing with this herbicide. Stunting from paraquat alone was greatest when applied 14 DAC or later. The combination of *S*-metolachlor + paraquat caused stunting at all application timings. In 2008, no stunting was noted with any *S*-metolachlor alone application timing. Similar trends as seen in 2007 were noted with paraquat alone and combination treatments of *S*-metolachlor + paraquat.

Peanut yield. In 2007, the untreated check produced the lowest yield when compared with *S*-metolachlor while paraquat and *S*-metolachlor + paraquat were intermediate in yield. In 2008, *S*-metolachlor + paraquat reduced peanut yield when compared with the untreated check and either *S*-metolachlor or paraquat alone. No response with respect to yield was noted with application timing in either year.

Virginia market types. Peanut stunting. In 2007, *S*-metolachlor alone applied 7 DAC caused stunting; however, no stunting was noted with any other application of *S*-metolachlor alone when evaluated prior to peanut digging. Paraquat alone or the combination of *S*-metolachlor + paraquat applied at 7, 14, 21, or 28 DAC resulted in stunting when compared with *S*-metolachlor alone applied 21 and 28 DAC. In 2008, *S*-metolachlor alone applied 7 or 21 DAC, paraquat alone at all application timings, and *S*-metolachlor + paraquat applied 21 and 28 DAC resulted in stunting when compared with *S*-metolachlor + paraquat applied 7 DAC.

Peanut yield. No yield differences were noted with herbicide treatment or application timing in either year.

The Peanut Information Network System: An Online Tool for Peanut Research. Y-C. HUNG*, B. WATERS Department of Food Science and Technology, The University of Georgia, Griffin, GA 30223 1791.

The Peanut Information Network System (PINS) is a Web-based

(www.worldpeanutinfo.com), USAID Peanut-Collaborative Research Support Program (CRSP) funded, system. The purpose of PINS is to provide a means for peanut knowledge to be collected and dispersed on a global scale. PINS helps distribute information on peanut organizations, peanut related publications and training materials. It also provides information on world-wide peanut producer, processor and consumer values, peanut meetings and workshops, and other related news and useful links. More specific areas of peanut knowledge and research can be explored in subsections. Information can be accessed by navigating the site menus or by keyword searches using a Google site search. PINS is updated on a regular basis, and site users are able to contribute information to PINS via a submission site located on the main page of the site. The success of the site relies on regular input by the community, so efforts are being made to reach out to the peanut community by needs surveys and collaboration with industry, research organizations, scientists and peanut producers. A computer demonstration will be presented during the 2011 APRES annual meeting poster session.

An Economic Feasibility Study on Small Scale Processing of Organic Peanuts. N.B. SMITH*, W. BLACK, J. MCKISSICK, Department of Agricultural and Applied Economics, The University of Georgia, Athens, GA 30602-7509; R.S. TUBBS, Department of Crop and Soil Science, The University of Georgia, Tifton, GA 31793-0748; and J. TESCHER, Georgia Organics, Atlanta, Georgia 30324.
Georgia is the largest peanut producing state in the U.S. but produces zero organic peanuts for the commercial market. Less than fifty acres of peanuts were certified organic in 2009 and only twenty acres in 2010 were certified organic. The production of organic peanuts in the last five years has been largely a result of technology transfer by The University of Georgia (UGA) and USDA Agricultural Research Service (ARS) to producers. UGA and ARS have established cultivars and recommended practices to successfully produce organic peanuts in Georgia. Growth of organic production in Georgia is hampered by the lack of certified organic handlers and first level processors. The feasibility of developing a certified organic small-scale processing operation is examined for a case farm in Southeast Georgia. Developing or dedicating a certified organic line in existing large scale processors is cost prohibitive for the current scale of production. The costs and returns are estimated for an on-farm operation that will meet the national organic procedures and food safety regulations. The economic feasibility is determined for small-scale processing for the certified organic market in Georgia.

An Economic Analysis of On-Farm Peanut Drying. K. KIGHTLINGER, N.B. SMITH* Department of Agricultural and Applied Economics, The University of Georgia, Tifton, GA 31793; C.L. BUTTS,

USDA/ARS, National Peanut Research Laboratory, Dawson, GA 39842; and D.S. CARLSON, Cooperative Extension, The University of Georgia, Fitzgerald, GA 31750.

The majority of peanuts grown in Georgia are harvested at moisture levels greater than ten percent. High moisture peanuts are generally dried mechanically to between ten and seven percent moisture before being graded and given a value. Commercial drying of peanuts is more common than on-farm drying in Georgia, however, some operators utilize on-farm drying facilities to improve their harvest efficiency. The economics of an on-farm peanut drying facility is analyzed using a South Georgia case study. Estimates are derived for capital and operating costs required to dry peanuts using dual dryers on 14 foot wagons. Assumptions for the analysis include six 10 horsepower dual dryers with 18,000 CFM capacity. The total expected tonnage to be dried on-farm is estimated at 770 tons. The operating costs are estimated to total $20.86 per ton given 8,500 cfm per 14 foot wagon, eight points of moisture removed, 12 hours drying time, at 110 degree Fahrenheit drying temperature, $0.11 per kilowatt hour electricity price, and $1.80 per gallon LP price. The capital recovery cost for a six dual dryer on-farm system is estimated to be $3.91 per ton. Total cost for the on-farm case example equals $24.77 per ton. No additional hired labor is assumed in the analysis. If included, hired labor cost per ton would be estimated at $1.70 per ton. For analysis purposes the labor time required to dry on-farm is assumed equal with uncertain wait time at a buying point. This analysis is considered a conservative estimate of costs per ton to dry peanuts on-farm with the given set-up. Sensitivity analysis is conducted for LP cost related to different average ton per wagon loads and different LP prices ranging from $1.60 to $3.00 per gallon.

Generation Means Analysis of Oil Content in Peanut. J.N. WILSON*, M.R. BARING, Texas AgriLife Research, College Station, TX 77843; M.D. BUROW, Texas AgriLife Research, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Stephenville, TX 76401; W.L. ROONEY, Texas AgriLife Research, College Station, TX 77843; J.L. STARR, Department of Plant Pathology, Texas A&M University, College Station, TX 77843.

This study was conducted to determine the types of gene action governing the inheritance of oil content in peanut by generation means analysis. The F_1, F_2, and backcross generations of two sets of crosses involving a proprietary high oil breeding line developed by the TAMU breeding program and two widely adapted high-oleic inbred runner genotypes (Tamrun OL07 and Tamrun OL01) were evaluated in College Station, TX in 2010. Significant differences in oil content between the generations evaluated were observed. Generation means analysis detected significant additive, dominance, and epistatic effects governing oil content for both sets of crosses. The broad-sense heritability

estimates were 0.87 and 0.81 for Tamrun OL07 and Tamrun OL01 crosses, respectively. Narrow sense heritability estimates were 0.55 and 0.53 for Tamrun OL07 and Tamrun OL01 crosses, respectively.

PLANT PATHOLOGY, NEMATOLOGY, AND ENTOMOLOGY

Response of New Medium-Maturity Runner-Type Cultivars to Fungicides for Management of Leaf Spot Diseases. A.K. CULBREATH*, T.B. BRENNEMAN, R.C. KEMERAIT. Dept. of Plant Pathology, Univ. of Georgia, Tifton, GA 31793-0748; B.L. TILLMAN, Agronomy Dept., Univ. of Florida, Marianna, FL 32446-8091; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; and W.D. BRANCH, Dept. of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793-0748.

In the southeastern U.S., there has been a rapid transition to new peanut (*Arachis hypogaea*) cultivars with greater levels of field resistance to Tomato spotted wilt virus and yield potential than Georgia Green, the predominant cultivar grown since the late 1990s. However, additional information is needed on disease control inputs needed for management for fungal diseases on these new cultivars. Management of early and late leaf spot diseases caused by *Cercospora arachidicola* and *Cercosporidium personatum,* respectively, is heavily dependent on multiple applications of fungicides, with seven or more fungicide applications made in many fields. The objective of this work was to determine whether reductions number of fungicide applications might be possible with new cultivars. Whole-plot treatments consisted of 7 applications of fungicides, 4 applications of fungicides and a nontreated control. Both the 7 and 4 application treatments included four applications of mixtures of 0.20 lb ai/a of tebuconazole (Muscle 3.6F) and 0.75 lb ai/a of chlorothalonil (Bravo 720F). The 7 spray treatment had three additional applications of chlorothalonil (1.1 lb ai.a) in sprays 1,2, and 7. Sub-plot treatments in both years included Georgia Green, Tifguard, Georgia-06G, and USDA breeding line C724-19-25. In 2010, Georgia-07W, and Florun-107 were also included. Late leaf spot, was the predominant foliar disease in both years. In 2009, final Florida 1-10 scale ratings for leaf spot in nontreated plots were 8.1, 8.8, 8.3 and 8.4 for Georgia Green, Georgia-06G, Tifguard, and C724-19, respectively. In 2010, leaf spot ratings for nontreated plots were 7.6, 7.3, 6.3, 5.9, 8.3 and 7.8 for Georgia Green, Georgia-06G, Tifguard, C724-19-25, Florun-107, and Georgia-07W, respectively. Leaf spot ratings decreased with addition of 4 and 7 fungicide applications. In nonntreated plots in 2009, yield was 3596 lb/A for Georgia Green, and 4703 lb or higher for the other three genotypes. Yield for Georgia Green was 4117 and 4698 lb/A for the 4 and 7 fungicide applications, respectively whereas yields in the other three genotypes ranged from 5502 to 5678 lb/A in the 4 application

treatment with no additional increase with the 7 spray treatment. In 2010, yields of Georgia Green were 3853, 5232 and 4985 for the 0, 4 and 7 application treatments respectively. Yields of the other genotypes ranged from 4619 to 5398 lb/A for nontreated plots, from 5675 lb/A to 6303 lb/A for the four spray treatment, and from 5753 to 5900 lb/A for the seven spray treatment. Although none of the new cultivars have high levels of resistance to *C. personatum,* all of those evaluated show potential for maintaining yield with only 4 fungicide applications.

Peanut yield and disease intensity as influenced by cultivar selection, seeding rate, and planting date. A.K. HAGAN*, H.C. CAMPBELL, K.L. BOWEN. Auburn University, AL 36849; and L. WELLS. Wiregrass Research and Extension Center, Headland, AL 36849.

Impact of cultivar selection, seeding rate, and planting date on peanut yield as well as the severity of tomato spotted wilt virus (TSWV), leaf spot diseases, stem rot, and Cylindrocladium black rot (CBR) was evaluated on a site in a peanut – cotton – peanut rotation under conventional tillage. Weed control and soil fertility recommendations of the Alabama Cooperative Extension System were followed. The study was irrigated as needed. In 2009, a split plot design with peanut cultivar as the whole plot and seeding rate as sub-plots was used, while a split-split plot design with planting date as the whole plot, peanut cultivar as the split plot, and seeding rate as the split-split plot was employed in 2010. Whole plots were randomized in four complete blocks. In each year, the smallest experimental units consisted of four 30-ft rows spaced 3-ft apart. While Florida 07, Georgia Green, and Georgia-06G were included in both study years, AT3085RO and York were evaluated in 2009. Seeding rates were 2, 3, 4, and 6 seed/row ft. A single May 30 planting date was used in 2009 compared with April 18 and May 20 planting dates in 2010. Seven applications of Bravo Weather Stik 6F at 1.5 pt/A at 2-wk intervals were made on a standard calendar schedule for leaf spot control. TSWV incidence and leaf spot intensity was assessed just prior to plot inversion; stem rot and CBR incidence was determined immediately after plot inversion. In 2009, Georgia-06G displayed among the lowest ratings for TSWV, leaf spot, and CBR as well as highest yield. While Georgia Green and AT3085RO suffered serious TSWV and CBR damage, respectively, yield of both cultivars were similar to Florida 07 and York, which shared similar TSWV, leaf spot, and CBR ratings with Georgia-06G. Seeding rate had little impact on TSWV incidence and yield, while leaf spot intensity and CBR incidence were higher at a seeding rate of 6 compared with 4 and 3 seed/row ft, respectively. TSWV pressure was low in 2010; however, disease incidence was higher in Georgia Green at the April planting date compared to May planting which was similarly low to TSWV levels in Georgia-06G and Florida 07 at both planting dates. Leaf spot intensity and white mold incidence increased significantly at seeding rates of 4 and 3 seed/row ft, respectively when compared with lower seeding rates.

In contrast, yield was not influenced in 2010 by seeding rate. Planting date impacted yield of Florida 07 but not Georgia Green or Georgia-06G. While leaf spot intensity was low, disease ratings were higher for Florida 07 and Georgia Green than Georgia-06G. When compared with Georgia Green, lower stem rot ratings recorded for Georgia-06G and Florida 07 were reflected in significantly higher yields. The magnitude of the decline in leaf spot intensity and soil disease incidence obtained at reduced seed rates would likely be insufficient to change fungicide input decisions.

Comparison of full-season, weather-based, and prescription fungicide programs using Peanut Rx for management of peanut diseases in Georgia. A.M. FULMER*[1], F.H. SANDERS[1], R. OLATINWO[2], M. BOUDREAU[2] , N. SMITH[3], and R.C. KEMERAIT, JR.[1]. [1]Department of Plant Pathology, the University of Georgia, Tifton, GA 31793, [2]Department of Biological and Agricultural Engineering, the University of Georgia, Athens, GA 30605, and [3]Department of Agricultural and Applied Economics, the University of Georgia, Tifton, GA 31793.

Peanuts in the southeastern US are affected by numerous fungal diseases and management programs often include 7 fungicide applications per season. Since 2007, a risk index, Peanut Rx, has been updated by researchers from the University of Georgia, the University of Florida, and Auburn University. From points assigned to production variables, disease risk is described as low, moderate or high. Prescription fungicide programs have been developed appropriate for risk (4, 5, or 7 applications/season).The objectives of this study were to compare disease control, yield, and economic returns where plots were managed using a full-calendar program, prescription programs, or a weather-based advisory. Studies were conducted at 3 sites in Georgia in 2010 to assess programs that included flutolanil, propiconazole, tebuconazole + prothioconazole, tetraconazole, tebuconazole, azoxystrobin, thiophanate methyl, and chlorothalonil. Plots were planted to 'Georgia-06G' and maintained according to recommendations from Cooperative Extension. Fungicides were applied at timings appropriate for each programs. Severity of leaf spot diseases was reduced in all fungicide programs as compared to the untreated control; incidence of southern stem rot tended to be significantly lower in fungicide programs than in the untreated control. Yields in treated plots were numerically, often significantly, greater in treated versus untreated plots. Differences in control of stem rot and yields were not different within related prescription programs, i.e. azoxystrobin programs; however leaf spot severity was frequently greater in plots sprayed 4 times versus 7 times.

Can the multiple-disease resistant cultivar Bailey be grown with reduced inputs? B.B. SHEW*, Department of Plant Pathology, T.G. ISLEIB and D.L. JORDAN, Department of Crop Science, NC State

University, Raleigh, NC.

The new virginia-type cultivar Bailey was selected for resistance to multiple diseases, including Sclerotinia blight, leaf spots, spotted wilt, and CBR. Although Bailey was not selected for southern stem rot resistance, field trials have indicated high levels of partial resistance relative to other virginia types. The purpose of this research was to determine whether Bailey can be grown with fewer foliar fungicide sprays than more susceptible cultivars, and whether these reduced fungicide schedules can also be effective in controlling southern stem rot. Bailey and the susceptible cultivar Gregory were planted in irrigated fields at Lewiston, NC in 2009 and 2010. Both cultivars were sprayed according to a calendar schedule 5, 4, or 3 times in each season. The five-spray schedule began at R3, the four-spray schedule at R3 + 2 weeks, and the three-spray schedule at R4 + 4 weeks. For each schedule, three fungicide programs were tested. A program designated “leaf spot” used two (schedules with 5 or 4 sprays) or one (3 sprays) application of Headline, with Bravo used for the balance of the sprays. A similar program designated “stem rot” used Provost. The third program used Tilt/Bravo for all sprays. An untreated control was included. In 2009, Bailey’s unsprayed yield was 1398 lb/a higher than Gregory’s. All 5-spray programs gave equal and high yields on Bailey. The 4-spray leaf spot and stem rot programs on Bailey controlled both diseases and had similar yields to the 5-spray programs, but the 3-spray leaf spot and the 3- or 4-sprayTilt/Bravo programs had lower yields. Disease development was limited in 2010 by severe drought and high temperatures. Averaged across all fungicide programs, Bailey had significantly less leaf spot, defoliation, stem rot and CBR than Gregory and produced higher yield. On Bailey, all fungicide programs resulted in significant reductions in leaf spot and defoliation relative to the untreated control. There were no differences in leaf spot or defoliation among 3, 4, or 5 spray programs on Bailey, but the Tilt/Bravo treatments tended to yield less than the others. Bailey was also planted in three non-irrigated grower fields (two in 2009 and one in 2010) and was sprayed four or five times according to a single program that included Bravo, Provost, and Headline. In 2009, fungicide application (4 or 5 sprays) reduced disease compared to unsprayed treatments. In 2010, little to no leaf spot developed due to severe drought. Yields did not differ among treatments in any of the on-farm trials due to relatively low leaf spot and stem rot pressure. Taken together, these trials confirmed that Bailey has southern stem rot resistance much superior to that in Gregory and other virginia-type cultivars. Based on these results, we are recommending a four-spray program that includes Headline, Provost, or equivalent fungicides starting at R3 + 2 weeks (late July) for leaf spot and southern stem rot control on Bailey.

Effect of Post-Inoculation Relative Humidity (RH) on Peanut Infection by *Sclerotinia sclerotiorum*. M.J. BROWN (1), H.A. MELOUK (2),

R.M. HUNGER (1). Dept. Entomology and Plant Pathology, Oklahoma State University, Stillwater, (2) USDA-ARS, Dept. Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK, U. S. A.

Stems of six-week-old plants of the cv Okrun (susceptible to Sclerotinia blight) were inoculated with *S. sclerotiorum,* isolated from pumpkin. Two post-inoculation humidity regimes of 100% RH were used. In the first RH regime, one inoculation chamber was kept open for the duration of experiment (DOE), and five were closed for durations of 1, 2, 3, 4 or 7 days post-inoculation (PI). In the second RH regime, one chamber was kept open for the DOE, and five were closed for durations of 12, 24, 36, 48 and 60 hour PI. No infection occurred in chambers opened for the DOE or closed for 12 hr. Closure for 24 hr resulted in 63-75% infection, and closure for 48 hr or more resulted in 100% infection. Lesions on infected stems were measured up to 7 days after inoculation to calculate area under lesion expansion curve (AULEC). Closure for 24 hr produced AULEC of 9.3-9.5 cm^2, whereas significantly (P=0.05) higher AULEC of 17.07-22.1 cm^2 were obtained with closure of $\geq$ 48 hr. These findings indicate the importance of providing 100% RH for at least 48 hr post-inoculation to effectively quantify lesion expansion.

The Interactive Effects of Fungicide, Application Timing and Spray Nozzle on Peanut Diseases and Yield. J. AUGUSTO*, and T.B. BRENNEMAN, Department of Plant Pathology, University of Georgia, Tifton, GA 31793-0748.

Pyraclostrobin (Headline, 9.0 fl oz/A) and chlorothalonil (Bravo Weather Stik, 1.5 pt/A) were applied four times on Georgia Green peanut during the daylight (on unfolded leaves) or at night (on folded leaves) using either three TX-SS6, two 11003VS, or two AI11003VS spray nozzles per row. The TX-SS6, 11003VS and AI11003VS spray nozzles were set to deliver 20, 26 and 38 gallons per acre, at spray pressures of 40, 30 and 50 psi, respectively. The 2009 test received more precipitation and had higher leaf spot intensity and stem rot incidence than the repeated test in 2010. Fungicides delivered by the different sprayers had similar effects on disease control and peanut yield in both years. The interaction of fungicide $\times$ application timing was significant for stem rot incidence (P=0.009) and yield (P=0.017) in 2009, but not for leaf spot intensity. Applying pyraclostrobin at night improved stem rot control and increased yield compared with day application of the same fungicide. In 2010, the interaction of fungicide $\times$ application timing was not significant for all diseases and yield, but night application of pyraclostrobin tended to decrease stem rot incidence and augment yield compared with day application. Pyraclostrobin was more effective in controlling leaf spot than chlorothalonil in both years. Day and night application of pyraclostrobin, in both years, and chlorothalonil, in 2010, had similar control of leaf spot, but night application of chlorothalonil in 2009, with

high disease pressure, had decreased control of leaf spot compared with day application. The results are in line with our previous reports that night applications of systemic fungicides provide control of leaf spot at a level similar to day applications, but are beneficial in improving control of stem rot and increasing yield compared with day applications.

Improved Disease Resistance in Virginia-Type Peanuts - Developing Appropriate Management Programs for S. C. Production Conditions. J.W. CHAPIN* and J.S. THOMAS, School of Agriculture, Forestry, and Environment, Clemson University, Edisto REC, 64 Research Road, Blackville, SC 29817.

Stem rot, *Sclerotium rolfsii* Sacc., and late leaf spot, *Cercosporidium personatum* (Berk. and Curt.) Deighton, are the primary soil and foliar diseases, respectively, under S. C. peanut production conditions. Current disease management programs typically consist of five to six fungicide applications for leaf spot control, with four of these applications also targeting stem rot and other soil diseases using numerous combinations of fungicides. Over five years of field testing, Bailey cultivar and several related lines have consistently demonstrated a remarkable level of resistance to stem rot, as well as having improved resistance to late leaf spot; CBR, Cylindrocladium parasiticum Crous, Wingfield, & Alfenas; and tomato spotted wilt tospovirus. As this improved disease resistance becomes available to growers, there are many questions about appropriate disease management programs. Should this improved resistance be used primarily as a supplement to current fungicide programs? Or alternatively, can material and application costs be reduced? If so, what fungicide combinations and treatment timings offer adequate protection? In a two-year test, three levels of soil fungicide treatment (0, 2, and 4 tebuconazole applications) were applied to a standard (NC-V 11) and resistant (Bailey) variety to measure the effects on stem rot, yield, grade, and crop value. Leaf spot was controlled across all treatments with five chlorothalonil applications. In a separate test, 14 fungicide programs (including programs with 5, 4, and 3 total applications) were applied to Bailey to assess leaf spot efficacy, stem rot efficacy, and yield response. In the first study, stem rot incidence for untreated Bailey was barely detectable (0-2.5%) and invariably less than even the susceptible standard receiving all four soil fungicide applications. Despite the near absence of any stem rot symptoms in the resistant variety, there was a measurable yield response (4.3 – 5.0%) to four tebuconazole applications. However, the susceptible standard demonstrated a greater yield response (12.0-13.5%) to the same fungicide program. In the second test, a 4X chlorothalonil program was inadequate for late leaf spot protection (6% defoliation, 41% symptomatic leaflets), relative to a standard 5X chlorothalonil leaf spot program (no detectable defoliation, 1% symptomatic leaflets). However reduced application programs (3-spray and 4-spray) provided excellent late leaf spot control (no defoliation, ≤1%

symptomatic leaflets) when systemic fungicides (prothioconazole, pyraclostrobin) were incorporated. Despite very low levels of stem rot symptoms (0-2%) in the absence of soil fungicides on this resistant variety, we again measured a yield response to soil fungicide applications. We conclude that under typical leaf spot and stem rot disease pressure, Bailey variety responds to both foliar and soil disease control despite the very low levels of observable stem rot in the absence of any fungicide treatment. However, based on current knowledge, the foliar and soil disease resistance found in Bailey can significantly reduce the risk of yield loss due to disease even with some reduction in material and application costs. These results will be used to recommend trial disease management programs for Bailey to growers in 2011.

Evaluation of Fungicide Programs, Calcium Fertility, and Peanut Genotypes for Control of Pythium Pod Rot. J.P. DAMICONE*, Department of Entomology and Plant Pathology, and C.B. GODSEY, Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK, 74078.

Pod rot of peanuts, caused primarily by *Pythium myriotylum*, was widespread in Oklahoma during 2010 and most severe on virginia-type cultivars. Fungicide programs, calcium sulfate application, and peanut genotypes were evaluated as disease management strategies. Fungicide programs, consisting of applications at pegging and pod set (60 and 90 days after planting) were compared on the virginia-type cultivar “Jupiter”. Disease incidence (DI) was severe, exceeding 60% in non-treated plots. Plots treated with phosphorous acid (DI=39%) and phosphorous acid + azoxystrobin (DI=46%), but not mefenoxam, azoxystrobin, or mefenoxam + azoxystrobin significantly (P=0.05) reduced disease incidence compared to the untreated control. Over all plots, disease incidence was negatively correlated with yield (r= -0.47, P=0.02). All treatments except mefenoxam increased yield compare to the non-treated control. Yield responses ranged from 691 kg/ha for phosphorous acid to 1038 kg/ha for azoxystrobin + mefenoxam. Calcium sulfate was applied at pegging at rates of 0, 560, 1120, and 1680 kg/ha in an adjacent trial on the same cultivar. Treatment effects on pod rot were not significant (P=0.3), and disease incidence ranged from 47% for the non-treated control to 57% for the 560 kg/ha treatment. In evaluations of cultivars and breeding lines where pod rod was severe, virginia types (DI=38%) were more susceptible (P=0.05) than spanish (DI=17%) and runner (DI=21%) types. One or more entries within each market type had good resistance to pod rot (<10% DI). Planting resistant peanut cultivars was more effective than fungicide programs for control of Pythium pod rot, while application of calcium sulfate was not effective.

Comparison of ELISA and visual rating of disease symptoms of tomato spotted wilt virus in peanut P. DANG*, C.Y. CHEN, R. NUTI, and M. LAMB, USDA-ARS National Peanut Research Laboratory,

Dawson, GA 39842
Tomato spotted wilt virus infects peanut, causing a range of disease symptoms and can significantly reduce yield. Peanut plants are thought to be infected in the initial stages of development and throughout the year. Variable disease symptoms are displayed among cultivars at the threshold of disease tolerance of the plant. Visual rating of symptoms has been a standard practice and currently ELISA testing is also available. The goals of this research are to compare TSWV visual symptoms and ELISA results of five peanut genotypes to determine if disease symptoms can be directly correlated with ELISA results and to evaluate ELISA testing method to decide if the method can be used to quantify the disease severity of TSWV in peanut. Five genotypes with large ranges of disease tolerance were selected and planted in two locations in five different plating dates for two years. The results showed the disease symptoms significantly varied among genotypes and planting dates. Genotype by environment interactions were also observed in one year but not the other, indicating different TSWV strains could be present in different locations. The results also demonstrated a highly correlated relationship of the visual rating and ELISA testing. Because ELISA is a more quantitative measure compared to visual rating, ELISA could be used for more accurate phenotyping the TSWV resistance in peanut genomic research.

Characterization of Early and Leaf Spot Epidemics in Prescription Fungicide Programs R.C. KEMERAIT, JR.*[1], H. SANDERS[1], R. OLATINWO[2], M. BOUDREAU[2], J. PAZ[2], and G. HOOGENBOOM[2]. [1]Department of Plant Pathology, the University of Georgia, Tifton, GA 31693 and [2]Department of Biological and Agricultural Engineering, the University of Georgia, Athens, GA 30605.
Prescription programs based upon Peanut Rx are employed to manage diseases and maximize crop value by applying fungicides to a field based upon risk. Prescription programs typically vary between 4 and 7 applications per season based upon predicted risk to stem rot and leaf spot diseases. Research efforts have validated the efficacy of Peanut Rx and prescription programs but have not characterized differences between epidemics of early leaf spot (*Cercospora arachidicola*) and late leaf spot (*Cercosporidium personatum*). Field studies were conducted at the Attapulugus Research and Education Center (AREC) and the Coastal Plain Experiment Station (CPES) under irrigated and non-irrigated conditions to evaluate impact of prescription and weather-based programs leaf spot. Plots were planted to 'Georgia-06G' and managed according to recommendations from the University of Georgia Cooperative Extension. Included in the study were azoxystrobin, propiconazole, chlorothalonil, flutolanil, and thiophanate methy at rates and timings appropriate for high, moderate, and low risk programs and for a weather-based advisory. Plots were planted in May and data collection began during the first week of August 2010. Ten leaves were

sampled from the inner canopy of each plot on appropriate sampling dates and evaluated for sporulating early and late leaf spots and non-sporulating spots described as “other”. Incidence, severity and area under the disease progress curves (AUDPC) were reported. At both locations, epidemics of early leaf spot were established by early August; however initial detection of late leaf spot did not occur until late in August or into September. Disease progress and AUDPC values of early leaf spot (based upon sporulating lesions) were similar to assessments of “other” leaf spots indicating that these were likely the same disease. At each location, incidence and severity of early leaf spot was typically lower in treated plots than in untreated plots. At both trials in Attapulgus and in the non-irrigated trial at the CPES, AUDPC values were not different among fungicide programs for early or late leaf spot diseases. Under irrigated conditions at the CPES, AUDPC-incidence was statistically lower in plots treated 7 times for both programs than in plots treated 4 times based upon “low risk” or weather-based programs. The severity of early leaf spot in the 7-spray azoxystrobin program was significantly lower than the AUDPC-severity value for the “low risk” program; however this was not observed in the flutolanil program.

Greenhouse Evaluation of section *Arachis* wild species for Sclerotinia blight and CBR resistance. S.P. TALLURY*, J. HOLLOWELL and T.G. ISLEIB, Department of Crop Science, N.C. State University, Raleigh, NC 27695-7629.

Wild *Arachis* species from section *Arachis* have been promoted as sources of resistance to common peanut pathogens and insect pests. The objective of our study was to identify *Arachis* species for Sclerotinia blight (SB) and Cylindrocladium Black Rot (CBR) resistance. One hundred and ten accessions/entries from 24 *Arachis* species including *A. hypogaea* were evaluated in the greenhouses at North Carolina State University between January and March of 2010 in an 11x10 rectangular lattice experimental design with 4 replications for each test. For the SB test, seeds were planted in 4” clay pots and six-week-old plants were inoculated in a mist chamber with BEEM capsules containing the fungus inserted on the petioles of the 4th leaf from the apex. Lesion length was measured after 4, 5, 6, and 7 d of inoculations. For the CBR test, seeds were planted in soil mixed with 25 microsclerotia g^{-1} in conetainers partly immersed in water. Root damage was recorded after 60 days. Data analysis indicated significantly high ($p<0.01$) variation among and within *Arachis* species. *Arachis glandulifera* exhibited the highest level of Sclerotinia blight resistance followed by *A. magna* and *A. helodes*, although the latter two species were not significantly different from *A. hypogaea*. For CBR, *A. valida, A. cruziana*, *A. microsperma*, *A. williamsii*, *A. kempff-mercadoi*, *A. kuhlmannii*, *A. helodes*, *A. cardenasii* and *A. correntina* were resistant with *A. hypogaea* in the most susceptible group.

Early emergence applications of Proline and Propulse for peanut stem rot management. T.B. BRENNEMAN[1]*, J. AUGUSTO[1], and K. RUCKER[2], Department of Plant Pathology[1] University of Georgia, and Bayer CropScience[2], Tifton, GA 31794.

Prothioconazole, trade name Proline, is applied to peanut as an in furrow (IF) spray to control Cylindrocladium black rot (CBR), caused by *Cylindrocladium parasiticum*. It has also been evaluated experimentally as Propulse, a 1:1 mixture of prothioconazole and fluopyram. Recent work has shown that Proline can be applied in a banded (3-inch) high volume spray to the early emerging plants (EE) about 2-3 weeks after planting, and still provide levels of CBR control and yield increases similar to the IF applications. Data presented here document effects of EE sprays of Proline (5.7 fl oz/A) and Propulse (13.7 fl oz/A) on other diseases, specifically stem rot (*Sclerotium rolfsii*) and leaf spot (primarily *Cercospora arachidicola*). Two trials were conducted in 2010, both with GA-06G in fields with a history of continuous peanut production. Bravo (1.5 pt/A) was applied at sprays 3-7 in all treatments except one, where it was applied full season at a 2-week interval (sprays 1-7). Plots with five Bravo sprays were either not treated with other fungicides, or also received a Proline or a Propulse application either IF (3.8 GPA) or EE (40 GPA). At harvest, leaf spot intensity was lower in all IF Proline, and all except one IF Propulse treatment, than in the Bravo 3-7 treatment. These treatments also had less than or equal to the leaf spot intensity in the seven spray Bravo treatment. In one trial with heavy stem rot pressure, the EE sprays of both fungicides gave good season-long control and increased yield by about 1000 lb/A, whereas the IF sprays did not reduce stem rot in either test. In the second trial with lower disease pressure, EE sprays of Proline and Propulse both increased yields (P=0.10), whereas the IF sprays did not. These EE fungicide applications are not currently recommended for anything other than management of CBR. Results presented here indicate they have potential to provide supplemental control of foliar diseases, and greatly enhance control of stem rot in some situations.

BAYER EXCELLENCE IN EXTENSION

Evaluation of Day Versus Night and Early Morning Peanut Fungicide Applications to Reduce Disease Incidence and Increase Yield. D.E. MCGRIFF*, The University of Georgia Extension, Douglas, GA 31533; M. VON WALDNER, The University of Georgia Extension, Pearson, GA 31642; and T. BRENNEMAN, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793.

Peanut plants develop a very thick canopy that can be difficult to penetrate with foliar sprays. Reaching the lower plant parts is important for controlling soil borne pathogens because that is where they infect.

One concept for overcoming this limitation is to apply sprays at night when the peanut leaves are folded, producing a much sparser canopy. This allows more of the sprayed fungicide to penetrate the canopy and reach the lower portions of the plant where white mold and limb rot occur. We examined three fungicide programs sprayed in the afternoon (4-6 pm), night (10 pm-midnight) and early morning (4-6 am) at the Troy Aldridge farm in Douglas, Georgia in 2009 and 2010. These plots were rated for disease after digging and harvested for yield. The night and early morning fungicide spray applications showed a significant decrease in white mold and increase in yields compared to the day application.

Effect of Digger Timing on Pod Yield and Grade Factors of Valencia and Virginia Peanuts. J.E. WOODWARD*, Texas AgriLife Extension Service and Texas Tech University, Lubbock, TX 79403; and T.A. BAUGHMAN, Texas AgriLife Extension Service, Vernon, TX 76385.

Determining the optimum time to dig peanuts is a crucial management decision. Digging based on a calendar date (after planting) could lead to the inability to maximize yield and grade. Final decisions should be made based on overall pod maturity, weather forecast, vine integrity, late season disease issues and market-type. Large plot field trials were conducted in 2007, 2008 and 2009 to determine the effect of various digging dates on yields and grades of Valencia and Virginia peanuts. Treatments consisted of different digging conducted on a seven day interval. Digging of Valencia's was initiated 114 days after planting (DAP) and resulted in three, four and five date in 2007, 2008 and 2009, respectively. Virginia's were dug 140, 147, 154, 161 and 168 DAP each of the three years. Treatments were arranged in a randomized complete block design with four replications. An increase in yield was observed for the latest digging date in the Valencia trial in 2007. Maximum yields were obtained for the 121 and 135 DAP treatments in 2008 and 2009. Substantial rainfall occurred after peanuts were dug 128 DAP, resulting in a yield reduction of approximately 991 and 1226 lb/A in 2008 and 2009, respectively. Grades were improved for later digging dates in 2007, but did not differ in the other two years. Later digging dates (161 and 168 DAP) lead to an average yield increase of 1412 lb/A compared to earlier dates in 2007. Rain events also affected Virginia yields for the 154 and 161 DAP treatments in 2008 and 2009, respectively and no differences in yield were observed. Later digging dates generally improved grades when compared to the early digging date (140 DAP); however, a lower percentage of Jumbo kernels were observed with the 161 and 168 DAP dates in 2008. Results from this work suggest that substantial rainfall occurring after peanuts are dug could affect yield more severely than delayed digger timings. Fields should be actively scouted and pod development observed routinely as the crop matures with weather forecasts taken into consideration.

Issues that Affect Peanut Production in West Texas: A Bailey/Parmer County Perspective. M.R. VANDIVER*, Texas AgriLife Extension Service, Muleshoe, TX 79347; and J.E. WOODWARD*, Texas AgriLife Extension Service and Texas Tech University, Lubbock, TX 79403

Cotton, corn, wheat and peanut are the primary crops grown in the Northwest region of the High Plains of Texas. Peanut production in this region is comprised mostly by Valencia's. While yields may vary from year to year, they generally range from 2500 to 4000 lb/A. Production is closely tied to soil type and the availability and capacity of irrigation, with acreage being scattered across sandier irrigated areas. Irrigation factors that may affect peanut production include deficit irrigation, declining capacity, decreased water quality, and the potential for pumping restrictions. Weather conditions such as drought, wind, blowing sand and hail may adversely affect yield. Iron chlorosis, resulting from a deficiency of available iron in soils with a pH above 7.8, is common in the region. Soil applications of iron-based materials have been found to be ineffective or uneconomical. Applications of foliar products have been used with limited success and require multiple applications to correct severe deficiencies. Populations of Fall and Beet armyworm occur sporadically, but seldom warrant applications. Valencia's are susceptible to several foliar diseases, such as early leaf spot, web blotch and pepper spot. Management of these diseases is achieved through fungicide programs comprised of chlorothalonil and pyraclostrobin. In addition, there is an unidentified foliar problem that results in a severe decline late in the season. This problem has only been observed on Valencia and Spanish market-types and appears to be more severe on high pH soils. Black hull is a soilborne disease that affects the pods and has severe implications for the in-shell market. There are currently no fungicides labeled for control of this disease. Pythium and Rhizoctonia pod rot are occasionally observed infecting plants; however, pod rot pressure in the region is considered low. Production issues in this region are monitored weekly through the Texas AgriLife Extension Service Integrated Pest Management (IPM) scouting program. Information is disseminated via several means of communication. Most notably the Northwest Plains Management News, a weekly newsletter that has approximately 450 subscribers. In addition, efforts are being made to deliver real time, farm by farm information to producers via mobile technology.

Development of Peanut Learning Centers In Mississippi. M.S. HOWELL*, Mississippi State University Extension Service, Poplarville, MS 39470.

After the 2002 Farm Bill, peanut production in Mississippi began a rapid expansion in acres as well as areas of the state. Peanuts were traditionally grown in the southeastern portion of the state with approximately 2,000 acres in production. Expansion has seen peanuts move into 31 of the 82 counties covering most of the state. Acreage

peaked in 2009 with over 22,000 acres in production, and decreased slightly in 2010 to 18,000 acres. With the increase in acres and the number of new producers, the need for local peanut research was high. In 2010, through grant from the Mississippi Peanut Promotion Board, we established two Peanut Learning Centers. These centers are located in two of the largest peanut growing regions, Lucedale in the southeast and Hamilton in the Northeast. They are designed to provide locations for small plot peanut research and educational opportunities for growers. Research efforts have focused on many aspects of peanut production. Over the past two years, there have been a total of 43 small plot research trials conducted at these two locations. In 2009, the Lucedale site served as the location for a statewide peanut field day, and in 2010, both locations hosted field days. From data collected from evaluations at the field days, it was determined that over 60% of the peanut acres were represented each year with a documented economic benefit to growers of over $450,000. In addition to the field days, several growers visited the centers during the growing season. One grower stated that his 30 minute visit saved him over $45,000 on his 1,500 acre peanut farm.

An Overview and Summary of the Calhoun County Fungicide Evaluation Program 1999-2010. P.D. WIGLEY,* Calhoun County Extension, University of Georgia, Morgan, GA 39866; and R.C. KEMERAIT, Department of Plant Pathology, University of Georgia, Tifton, GA 31793-0748.

Field experiments conducted on more than 3,500 acres planted to peanuts between 1999 and 2010 were used to evaluate 81 different disease management programs that integrated 38 fungicides from at least four classes of chemistry. These large-plot trials were established on commercial farms and treatments were applied by the growers under the supervision of the county Extension coordinator in Calhoun County. Plots in each field study were replicated either three or four times and were evaluated for the control of leaf spot, stem rot (white mold) and Rhizoctonia limb rot. Yield data was collected from each trial. Over 1,000 visitors from every peanut producing state in the United States and from 11 foreign countries have visited the trials during the past decade. The results from these trials have been incorporated into disease management recommendations for peanut production from the University of Georgia Cooperative Extension and have been included in numerous industry advertisements and publications. The results from these trials have impacted sale of fungicides for use on peanuts not only in Calhoun County but over the production of areas of Georgia and beyond as well. Data from these trials have also been included in 50 presentations made on the international, national, regional, state, and local levels. Significant observations developed over the course of this extended block of county programming have included the importance of azoxystrobin for the management of Rhizoctonia limb rot, the

differentiation between commercial fungicide programs with regards to efficacy and value given the broad disease spectrum in Calhoun County and the slow shift of importance of Rhizoctonia limb rot to stem rot (white mold) during the period. The achievements were possible in large part due to the long-term commitment of Cooperative Extension, peanut producers in Calhoun County and representatives from the agrichemical industry to this project.

The Role of Cooperative Extension in Peanut Educational Efforts in Irwin County, Georgia. P. EDWARDS*, Cooperative Extension, University of Georgia, Ocilla, GA 31774

Irwin County, Georgia has a long history of high yields and quality peanuts. Over the past five years annual peanut acreage has averaged around 20,000 acres. Increasing profitability and quality through educational efforts continue to be a major goal of our Extension program. Farmers seek out the help of Extension on numerous subjects like variety selection, production issues, fungicide programs, maturity determination, crop budgeting, pesticide usage, and irrigation scheduling among many others. The county agent's objective is to meet farmer needs through many various methods. Some of these methods are accomplished through meetings and clinics focusing on production issues, crop budget planning, crop maturity and weed control. Many of the day to day educational efforts are achieved through one on one contact either by phone, office or farm visits. Information is also presented to farmers via newspaper articles, and more recently an email newsletter that reaches over 200 farmers, agribusinesses, area county agents, and is forwarded to a national farm related website. Other media, like television and video, are also utilized on a less frequent basis. Field work, including on-farm trials, use of new technology in irrigation and pest diagnosis, as well as peanut related studies, bring information directly to farmers. As time has progressed the role of Cooperative Extension has changed and will continue to change while still bringing effective educational efforts to the county and beyond.

Assessment of Varying Spray Volumes for Management of Soilborne Disease in Peanuts. P.M. CROSBY*, Emanuel County Extension, University of Georgia, Swainsboro, Ga. 30401; and R.C. KEMERAIT, Department of Plant Pathology, University of Georgia. Tifton, Ga. 31793-0748

Peanut producers in Southeastern Georgia are faced with environmental conditions that makes southern stem rot the number one yield reducing disease in peanut production. Therefore farmers are constantly searching for fungicides and application methods that will optimize southern stem rot management. In 2009 and 2010, field studies were initiated to evaluate the effectiveness of five spray volumes of spray water (6 gallons per acre, 8 gallons per acre, 11 gallons per acre, 15

gallons per acre, and 18 gallons per acre) on two different varieties (Georgia Green, Georgia 06-G). Spray volumes were managed by changing sprayer tips (8001.5, 8002, 8003, 8004, 8005) We also incorporated two fungicides into the trial (Tebuconizole (Tebuzole), Flutolanil (Convoy)).
The plots were sprayed a total of 7 times during the season with 2 applications of Bravo at 30 and 45 days after planting, followed by 4 applications of Tebuzole plus Bravo or Convoy plus Bravo applied at two week intervals. A final application of Bravo was applied at 105 days after planting. Using randomized, complete block design, the agent developed a spray program utilizing 88 separate plots. Each plot was 40 ft long by 12 ft wide. Each treatment was replicated 4 times. Prior to digging, the peanuts were rated for leaf spot and southern stem rot, and after digging the plots were again rated for southern stem rot by Dr. Kemerait. Plots were inverted on October 4th and harvested on October 11th. All research was conducted at the Southeast Georgia Research and Education Center in Midville, Georgia.
Data collected from the trials showed a steady increase in peanut yield as spray volume increased form 6 gallons per acre to 11 gallons per acre. The data was mixed as spray volumes increased over 11 gallons per acre.

The Adoption of Cultural Practices in Pitt County, North Carolina Contributing to the Increase of Peanut Yields from 2000-2009. R. MITCHELL SMITH*, D.L. JORDAN, B.B. SHEW, and R.L. BRANDENBURG, North Carolina Cooperative Extension Service, Raleigh, NC 27695.
Although county peanut acreage in Pitt County, North Carolina declined from 1990 to 2009, allowing for improved peanut rotations, a decline in yield was realized during the 1990 decade. From 1990 to 1999, county peanut yields averaged 2,391 pounds per acre. In contrast to this decade, the average county peanut yield increased from 2000-2009. From 2000-2009, county peanut yields increased to an average of 2,774 pounds per acre. The average increase in yields for the decade of 2000-2009 can be attributed to the adoption of certain cultural practices. Among the practices adopted include inoculation (78%), adding nitrogen fertilizers to peanut fields (56%), delayed planting date to reduce losses due to tomato spotted wilt virus (71%), incorporation of a residual herbicide to control resistant weeds (100%), and the application of fungicides every two weeks (70%) or relied on a peanut spray advisory (56%).

Randolph County Nighttime Peanut Fungicide Study: Year Three. V.S. HADDOCK*, Randolph County Extension, The University of Georgia, Cuthbert, GA 39840; T. BRENNEMAN, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793; and J.L. RIGSBY, Randolph County Peanut Producer, Cuthbert, GA

39840.

Previous research has shown the potential for increased efficacy on soil borne diseases and higher yields when peanut fungicides are sprayed at night. The premise is that the "relaxed" peanut canopy from leaves folding at night allows better spray penetration and efficacy. This concept was tested in a field trial in Randolph County that had a two year peanut rotation with a history of disease including Rhizoctonia limb rot (*Rhizoctonia solani),CBR (Cylindrocladium Black Rot)* and Southern Stem Rot**, also called white mold** ***(****Sclerotium rolfsii)*. There were three replications for night and daytime fungicide applications of Georgia Greener peanuts. All practices were the same in the plots with the exception of the soil borne fungicide application times. In 2009 four tebuconazole sprays (7.2 oz /A) were compared in replicated plots with early morning spray applications. In 2010 a Provost program (prothioconazole/tebuconazole 10 oz/A) was compared at both night and day in replicated plots. Night sprays were applied between 5:00 – 6:00 A.M. in order to utilize the moisture from dew. The incidence of soil borne diseases and intensity of leaf spot (*Cercospora arachidicola* and *Cercosporidium personatum*) were estimated at digging. In 2010, yields were 19 lbs/A more for the nighttime program, but had 16% less incidence of stem rot. The three year average yield increase for night sprays is 542 lbs/A. Although the field has a short rotation and normally high disease, the foliage was in excellent condition and the plot recorded its highest yield. There was no statistical difference in leaf spot control between the plots.

Impact of In-furrow Prothioconazole with Provost or Artisan/Initiate Fungicides Combined with Day/Night Applications on Severity of Soilborne Diseases of Peanut. W.G. TYSON*, University of Georgia Cooperative Extension, Effingham County, Springfield, GA 31329 and R.C. KEMERAIT, University of Georgia, Department of Plant Pathology, 4604 Research Way, Tifton, GA 31794.

Soilborne diseases are a critical problem for peanut producers in Effingham County and must be addressed with additional on-farm research to establish "best management" practices. The producers' current best line of defense to combat these problems involves selection of more-resistant varieties, judicious use of fungicides, and soil fumigation with metam sodium to reduce severity of Cylindrocladium black rot (CBR). Unfortunately, foliar fungicides and more-resistant varieties are insufficient to manage CBR in Effingham County and our growers are unlikely to use fumigation to manage the disease. In this study, the effectiveness of prothioconazole (Proline) applied in-furrow at planting was evaluated for the management of peanut diseases. Provost (prothioconazole + tebuconazole) and Artisan (flutolanil + propiconazole)/chlorothalonil were evaluated with Proline (prothioconazole) to assess the best program for overall disease protection. The importance of coverage was also evaluated when

applying soilborne disease fungicides in day versus night applications. Unlike white mold demonstrations, this project is unique in that limited research has been done on the management of CBR in the Southeast. Data collected included severity of leaf spot diseases, white mold, Diplodia collar rot, and Cylindrocladium black rot. As an in-furrow fungicide with known activity against CBR may also improve seedling health, it was hoped that use of Proline might reduce seedling disease and TSWV as well. In-furrow use of prothioconazole is a new practice for our peanut growers, and there is an important need for data on this product in the southeast from large-plot, on-farm trials. From the research in Effingham County, the effectiveness of prothioconazole as a part of a disease management program to improve plant stand and reduce other disease such as TSWV, CBR, and white mold has been addressed. These results will play an important role in recommendations for future use of prothioconazole in the Southeast.

Electronic Ag News for Farmers, Agribusiness and Community Leaders

W.J. ETHREDGE, Jr.*, Seminole County Extension Agent, The University of Georgia, Donalsonville, GA 39845

Seminole County Extension responds to need for farmers, agribusiness and general public to have timely tips and educational information. New era of electronic communication brings need for timely agricultural information through email and the internet. Agricultural awareness for community leaders and the general public is important as decisions are made by these folks who need to be more informed and up to date about what is going on in agriculture. New generation of farmers want information electronically available.

The agent developed “Seminole Crop E News” electronic newsletter to disseminate breaking news concerning agriculture. He developed an email list of farmers, agribusiness folks, and local community leaders and is continually expanding it. This newsletter contains many photos of crops, insects, disease problems and farm activities. It includes hot topics of concern to growers and excerpts from scientist’s newsletters and links to websites and downloads of timely interest.

“Seminole Crop E News” has been well received by farmers and others on the over 260 person email list that receives the newsletters, many pass it on, an estimate of views is 800 per issue.. Newsletters are placed on our UGA Seminole County Extension website (http://www.ugaextension.com/seminole/) and can also be accessed on other websites such as sowegalive.com, Agfax.com , and WTVY.com.

BREEDING, BIOTECHNOLOGY AND GENETICS

Gene expression profiling and identification of resistance genes to

Aspergillus flavus infection in peanut through EST and microarray strategies. B. GUO*, USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA; N. FEDOROVA, C. WAN, W. WANG, W. NIERMAN, The J Craig Venter Institute, Rockville, MD; X. CHEN, Guangdong Academy of Agricultural Sciences, Crops Research Institute, Guangzhou, China; D. BHATNAGAR, J. YU, USDA-ARS, Southern Regional Research Center, New Orleans, LA.

Aspergillus flavus and *A. parasiticus* infect peanut seeds and produce aflatoxins, which are associated with various diseases in domestic animals and humans throughout the world. The most cost-effective strategy to against aflatoxin contamination involves the development of peanut cultivars that are resistant to fungal infection and/or aflatoxin production. To identify peanut *Aspergillus*-interactive and *Aspergillus*-resistance genes, we carried out a large scale peanut Expressed Sequence Tag (EST) project followed by a peanut microarray construction. The fabricated microarray represents over 40% protein coding genes in the peanut genome. For expression profiling, resistant and susceptible peanut cultivars were infected with a mixture of *A. flavus* and *parasiticus* spores. Microarray analysis identified 65 and 1 genes in resistant and susceptible cultivars, respectively, that were up-regulated in response to *Aspergillus* infection. In addition we identified 40 putative *Aspergillus*-resistance genes that were constitutively up-expressed in the resistant cultivar in comparison to the susceptible cultivar. Some of these genes were homologous to peanut, corn, and soybean genes previously shown to confer resistance to fungal infection. This study is a first step towards a comprehensive genome-scale platform for developing *Aspergillus*-resistant peanut cultivars through targeted marker-assisted breeding and genetic engineering.

Phenotypic Variation in Total Sound Mature Kernel Percentage within the University of Florida Breeding Program. B.L. TILLMAN* and G. PERSON, North Florida REC, Agronomy Department, University of Florida, Marianna, FL 32446.

The percentage of total sound mature kernels (TSMK) is the basis of valuing farmer stock peanuts in the United States. Each percentage point of TSMK is worth about $4.85 (2008- $4.842; 2009- $4.852; 2010 $4.85). Each year, over two thousand breeding lines in the UF peanut breeding program are graded to determine TSMK. We summarized TSMK for runner types using frequency histograms for all runner types each year from 2007 to 2010 and categories incrementing by 2 points beginning with 61% and ending with 83%. Distribution of TSMK appeared normal each year although possibly skewed to the lower spectrum. The peak of the distribution occurred in the range $75\%<x\leq77\%$ in 2007 (694 of 2243) and 2008 (650 of 1952) and in the range of $77\%<x\leq79\%$ in 2009 (780 of 2173) and 2010 (660 of 2106).

Average TSMK was 75.3%, 74.9%, 77.3%, and 76.5% in 2007, 2008, 2009, and 2010, respectively. We will discuss grading procedures and selection of grade in various stages of the breeding program as well as progress in improving grade by analyzing recent cultivar releases and advanced lines.

Variability in seed dormancy within the U.S. peanut mini-core collection

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Seed dormancy is a naturally important biological process which can affect seed planting, germinating, and harvesting in agricultural production. The variability in seed dormancy within the U.S. peanut mini-core collection has not been determined. Freshly harvested seeds in the same field from 103 accessions were tested for germination with two treatments (H_2O only or 10 mM ethephon). The number of seed germinated or dead was recorded. Significant variability in seed dormancy was observed among accessions and botanical varieties. In comparison with H_2O treatment, ethephon can significantly promote dormancy release but the level of dormancy release was genotype dependent. The effect of genotype x treatment interaction was also identified. In comparison of seed dormancy among four botanical varieties, the botanical variety of *hypogaea* was more dormant than other three botanical varieties. However, significant variability was also identified within the botanical varieties. The accessions identified with more dormancy within the same botanical varieties would be good genetic materials to use in breeding programs for preventing preharvesting sprouts. There are six botanical varieties in cultivated peanuts but only four botanical varieties included in the U.S. peanut min-core. The variability in seed dormancy for other two botanical varieties needs to be investigated in future studies.

"Tingoora" – A High Oleic Ultra Early Maturing Variety Bred for Drought and Aflatoxin Avoidance.

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In Australia, dryland peanut production occurs in SE Queensland where there is a high frequency (>70%) of severe end-of-season droughts which limit pod yields and leads to high aflatoxin risk. Traditionally, full season virginia type varieites of 140+ days duration have been grown, however highly variable yield and quality in these types have led to reduced viability of the dryland peanut farming system in this region.

Recent crop modelling analyses have shown that varieties with crop durations of between 105 to 120 days (termed 'ultra early' types) should produce more stable yields with significantly reduced aflatoxin risk. In addition, these varieties could be planted later (e.g. mid January) and still mature before frost risk in May. Since the early 2000's, the Australian peanut breeding program has been developing new ultra early maturing types using crosses between drought tolerant germplasm from India and diverse locally bred high oleic, foliar disease tolerant material. 'Tingoora' is the first major ultra early variety release from the program, and possesses the following traits:- very early maturity (110 days) to avoid end-of-season drought and related aflatoxin risk; high pod yield potential in low and high yielding environments (2-6t/ha); a small erect canopy with compact and determinate pod set around the taproot for easy harvesting; moderate leaf rust tolerance; and great tasting, high oleic and large kernel size suitable for the runner type market.Tingoora has only taken 7 years from the initial cross to commercial release, which is in stark contrast to the mid 1990's when it took the program more than 13 years to release a new variety. New speed breeding approaches involving multiple generations per year in controlled environment facilities and winter field nurseries have allowed the program to speed up the ultra early variety development process.

Germination and Emergence Effects on Peanut Seed Planted Directly from Cold Storage. J.M. CASON*, B.D. BENNETT, C.E. SIMPSON. Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401.

Field and germinator experiments were conducted at the Texas AgriLife Research and Extension Center in Stephenville, TX to study the affects on germination and emergence when seed from cold storage (4^{o}C) are planted before warm-up. A second year of field tests will be conducted in 2011. The trials consisted of seven varieties with all four market types represented; three Runners, two Spanish, and one each of Valencia and Virginia. Two of the Runners and one Spanish were high O/L; the others had normal oil chemistry. The varieties tested were Florunner, Tamrun OL01, Tamrun OL07, Spanco, OLin, NC-7, and New Mexico Valencia C. In the field study seed were removed from cold storage and allowed to warm to 25^{o}C over 24 hours. A second group of seed was removed from cold storage and planted immediately into the soil. Stand counts were taken at 14, 21 and 28 days. A germinator study was also conducted in a Stultz germinator with the same varieties, with a day/night cycle of 30^{o}C day and 22^{o}C night (16/8 hr.) and no supplemental light. All data will be subjected to statistical analysis. Note to review committee. We are presently running the germinator tests and will submit our final abstract when the tests are completed and statistical analyses conducted.

Development of High-Yielding, High-Oleic, Early-Maturing Spanish Peanuts. M.D. BUROW* and J.L. AYERS, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Texas Tech University, Department of Plant and Soil Science, Lubbock, TX, 79409; A. MUITIA, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409; A.M. SCHUBERT, Y. LÓPEZ, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 79403; N. PUPPALA, Agricultural Sciences Center, New Mexico State University, Clovis, NM 88001; and M.R. BARING, Texas AgriLife Research, Texas A&M System, College Station, TX 77843.

We have tested and identified improved high-oleic Spanish peanut lines, with the goal of developing a peanut superior to the cultivar OLin. Over several years of testing at multiple locations, lines yielding better than or equal to OLin and earlier in maturity were identifed. Selections were similar in grade, with one grading 2 to 3 percentage points higher than either check. Lines were screened for tolerance to *Sclerotinia minor*, and tolerance was confirmed in several lines. Testing for flavor and blanching is underway.

Evaluation of Interspecific Lines and Breeding Populations of *Arachis hypogaea* L. for Yield and Resistance to Leaf spot Diseases in Ghana and Texas. N.N. DENWAR*, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409, and Savanna Agricultural Research Institute, Tamale, Ghana; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; J.L. STARR, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843; T.A. WHEELER, J.L. AYERS, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; M.R. BARING, Texas AgriLife Research, Texas A&M University, College Station, TX 77843; S.K. NUTSUGAH, Savanna Agricultural Research Institute, Tamale, Ghana; P. SANKARA, Département de Phytopathologie, Université de Ouagadougou, Ouagadougou, Burkina Faso; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

Early leaf spot, caused by *Cercospora arachidicola* S. Hori, and late leaf spot, caused by *Cercosporidium personatum* (Berk. and Curtis) Deighton], can cause serious yield losses in peanut (*Arachis hypogaea* L.) Our objectives were to select and field screen interspecific lines for yield and resistance to leaf spot diseases, and develop and evaluate breeding populations through introgression of resistant alleles into adapted cultivars. Approximately 350 interspecific lines in 35 BC_3F_1 families, developed from a cross between the synthetic amphidiploid

TxAG-6 and a Florunner component line as recurrent parent, were screened previously for resistance to early and late leaf spot, and for yield and maturity and evaluated in Ghana (2003) and Yoakum, TX (2004). Individual subline selections were made and twenty-nine lines selected for further evaluation in Ghana in 2006 and 2007. Significant differences were found for yield, early and late leaf spot resistance. Selected lines were crossed by adapted cultivars and three populations were developed and tested in Yoakum in 2007 and in Ghana in 2007, 2009 and 2010. Narrow-sense heritability values for leaf spot resistance measures in the breeding populations ranged from 0.04 to 0.22, and are consistent with other reported values. Late leaf spot disease pressure was lower in Yoakum, TX, with no significant differences among genotypes. Nevertheless, scores for the two diseases were consistently and significantly correlated in both areas and in all years of evaluation. This work resulted in the development and identification of lines with the potential for high yield and disease resistance that can either be recommended to farmers and/or used in further improvement work.

Genetic Sources for Tolerance of Pod Wart Disease and Other Pod Quality Limiting Factors in Virginia-Type Peanuts. Y. SHEM-TOV, I. CHEDVAT, Y. BRAND, I. GINZBERG, R. HOVAV*, Department of Field Crops, Plant Science Institute, ARO, Bet-Dagan, Israel.
One of the factors limiting the Virginia-type peanut industry in Israel is pod wart disease. This disease is caused by *Streptomyces* and is characterized by ugly scabs on the pods, which render the affected pods unmarketable. Currently, there is no effective treatment for this disease, which is spreading rapidly and endangers the entire local crop. All local cultivars are susceptible. Therefore, in order to develop resistance or tolerance, new genetic resources are needed. We imported the entire USA peanut mini-core collection and screened it for pod wart resistance, alongside 11 local cultivars, under field conditions in a plot with a history of intense pod wart disease. The experiment was set up in three randomized blocks. Three hundred pods were randomly collected from each Line × Block treatment and the severity of pod wart infection was measured. Additional variables such as pod maturity, mean pod weight, mean pod length/width ratio and the percentage of pods with pink-purple stains (caused by *Fusarium* fungus) were measured as well. The mean level of disease severity among the lines ranged from 1.3% to 69.4%. The common Israeli cultivar, ‘Hanoch’, had a disease-severity score of 24%. An ANOVA test revealed significant differences among the tested lines, but not among the blocks. Several Virginia-type lines showed significantly lower levels of disease severity than ‘Hanoch’ (6-10%). However, two lines with prominent pod reticulation, Line 111 (*hirsuta*) and Line 53 (*peruviana*), had particularly low levels of disease (1.7% and 1.3%, respectively). No significant correlation was found between disease severity and any of the other examined characteristics, except

for signs of *Fusarium* infection, which were negatively correlated with the severity of pod wart infection. Line 111, however, was found to be tolerant of both diseases. The potential of this line for use as a source of resistance should be examined in additional fields and growing seasons, as well as within the genetic backgrounds of common elite Virginia-type cultivars.

Another important factor affecting peanut marketability is pod tint; consumers usually favor bright yellow pods. Field observations have indicated that the type of soil in which the peanut pods develop can affect shell tint; "darker" soils tend to reduce pod brightness. To examine the effects of soil, genotype and any Soil × Genotype interactions on pod tint, we used the same plots that were used for the experiment described above, which had sandy soil, together with another reproductive plot that had dark soil. Color variables of 30 clean pods selected at random from each plot were measured using a colorimeter apparatus (L*a*b*). As expected, a significant soil effect was observed. Pods from plants grown in the darker soil had darker color (low L*) with increased red (a*) fraction, as compared to pods from plants grown in the sandy soil. The yellow fraction (b*) did not differ between soils. In addition, significant differences in all L*, a* and b* variables were noted between the examined lines. More interestingly, a significant Soil × Line interaction was also observed. For example 'Hanoch' which is a Virginia type, showed significant lower L* and increased a* values in the dark soil than the sandy soil. In contrast, the L* and a* values of a few Valencia-type lines characterized by very slight pod reticulation and strong yellow color did not differ between the two soils and the pods of these lines actually had the same visual appearance regardless of which of the soils they were grown in. Introducing this feature into local Virginia-type cultivars would increase the potential growing areas for the Israeli in-shell peanut industry, which is currently restricted to a relatively small region in the southern part of the country.

Integrated SSR/RFLP map of tetraploid peanut. S.M. GOMEZ*, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Texas A&M University, Stephenville, TX 76401; P.B. VIKAS, H. PATEL, Masters in Biotechnology program, Center for Biotechnology and Genomics, Texas Tech University, Lubbock, TX 79409; A.H. PATERSON, Plant Genome Mapping Laboratory, University of Georgia, Athens GA 30602; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

Several marker maps of peanut have been developed and, of the published maps, RFLP and SSR markers have provided useful coverage of the peanut genome. Numerous SSR markers have been developed or are under development, and these have greater potential for genome

mapping and QTL analysis of cultivated peanut. To date, there has been only one integrated map of peanut, a diploid map using RFLP and RAPD markers (Garcia *et al*., 2005). We are undertaking the mapping of SSR and ISSR markers on the tetraploid BC_1 mapping population made between Florunner and TxAG-6, where TxAG-6 is [*A. batizocoi* × (*A. diogoi* x *A. cardenasii*)]^{4x}. A total of 370 RFLP markers were mapped previously on this population (Burow *et al*., 2001). Of 300 SSR primer pairs and 50 ISSR primers tested previously, 22 and 14 percent, respectively identified polymorphism between the two parents using non-denaturing short PAGE gels for separation of SSR marker alleles. In order to increase the map density, we have screened 120 SSR primer pairs on the Beckman CEQ 8000 capillary electrophoresis system. Out of 120 primer pairs tested, 90 produced clear peaks in both of the parents, and 36 primer pairs were polymorphic between the parents, resulting in 40 percent parental polymorphism. Currently, a total of 116 markers were scorable on the BC_1 population. Twenty linkage groups have been constructed from the SSR and ISSR marker data, and 83 markers have been mapped. A total of 56 SSR and ISSR markers could be placed on 19 linkage groups of the RFLP map. It is expected that mapping of additional markers and use of a DNA sequencer for greater resolution will result in construction of a high density molecular map of tetraploid peanut and completing an integrated RFLP-SSR tetraploid map.

Segregation for Branching Pattern in Two Crosses Between Var. *Hypogaea* and Var. *Vulgaris* Parents. L.E. HASSELL, F. VILLEGAS CHIRINOS, S.R. MILLA-LEWIS, S.C. COPELAND, and T.G. ISLEIB*, Dept. of Crop Science, N.C. State Univ., Raleigh, NC 27695-7629.

Because the tropical peanut (*Arachis hypogaea* L.) is grown at fairly high latitudes and altitudes in parts of the U.S.A., there is interest in deployment of early maturing cultivars that would complete their life cycle before the onset of cool weather in those areas. Spanish-type peanut (*Arachis hypogaea* L. subsp. *fastigiata* Waldron var. *vulgaris* Harz) generally is earlier in maturity than peanut of subsp. *hypogaea* var. *hypogaea*, and some of the difference is thought to be due to the markedly different branching patterns exhibited by the two botanical types. The alternate branching pattern of var. *hypogaea* occurs in the preponderance of U.S. peanut cultivars, the runner and virginia market types. Genes that cause early maturity independent of branching pattern would be most useful in breeding early runner and virginia cultivars. Two populations of F_6-derived RILs from crosses of Chico-ol_1ol_2, a high-oleic backcross derivative of the early maturing spanish peanut Chico (PI 565455) with PI 313949 (132 RILs) and PI 365550 (50 RILs), two Bolivian overo-type peanuts (*A. hypogaea* subsp. *hypogaea* var. *hypogaea*). Maturity of the parents and RILs was determined by hull scrape of samples grown in replicated trials at the Peanut Belt Research

Station (PBRS) at Lewiston, NC in 2008 and 2009. The RILs were also characterized for their genotypes for 111 SSR markers. Subsequently, linkage maps were created using JoinMap v.4.0, and quantitative trait loci (QTL) mapping was performed using WinQTL Cartographer, version 2.5. Data from the two populations was combined and two QTL, associated with maturity level, were identified in different linkage groups . Because the populations segregated for branching pattern as well as for maturity, growth habit data was recorded to determine if the observed maturity QTL were related to growth habit as well. Numbers of reproductive (R) and vegetative (V) n+1 and n+2 nodes were recorded on two plants per RIL grown at PBRS in 2010. Using R/(R+V)=70% on the n+1 nodes as the threshold differentiating sequential from alternate branching habits, the RILs segregated 3:1 for alternate versus sequential branching, consistent with duplicate gene action. However, when mean R/(R+V) ratios for n+1 nodes were subjected to QTL analysis, no QTL was detected. However, one region with a LOD score that almost reached the threshold of 2.5 was found when the combined data from both crosses were used. Even if this putative QTL could be called significant, it occurred in a linkage group different than those wherein the maturity QTL were identified. Therefore, the two maturity QTL appear to be independent of branching pattern and should be useful in developing early runner and virginia cultivars.

WILD SPECIES SYMPOSIUM

Utilizing the *Arachis* Wild Species Collection for Improving the Cultivated Peanut: Introduction and History. C.E. SIMPSON*, M.D. BUROW, M.R. BARING, and J.L. STARR. Texas AgriLife Research, Stephenville, TX 76401; Texas AgriLife Research and Texas Tech Univ. Lubbock, TX 77403; Texas AgriLife Research and Soil and Crop Sci. Dept. and Plant Pathology and Microbiology Dept. Texas A&M Univ. College Station, TX 77843.

The idea of transferring genes from wild species of *Arachis* into the cultigen dates back to 1938 when Hull and Carver reported attempted crosses between *A. hypogaea* and *A. glabrata*, without success. W.C. Gregory attempted this and other crosses in 1946, but the first reported successful interspecific hybrid was made in 1951 when Krapovickas and Rigoni crossed *A. hypogaea* with *A. villosa correntina*. Following the large collection of new germplasm by Gregory, Krapovickas and Pietrarelli in 1959, ’60 and ’61, Walton and Margaret Gregory conducted the first extensive wild species cross-compatibility studies during the 1960’s and 1970’s, at NC State University, searching for taxonomic affinities in order to transfer genes from the wild species to *A. hypogaea*. J. Smartt, a student of the Gregory’s, made some significant strides towards introgression of genes with his fortuitous find of a tetraploid

interspecific hybrid within a hexaploid/pentaploid population from the cross, *A. hypogaea* X *A. cardenasii*. Progeny from that hybrid have played a major role in the NC State and ICRISAT programs. The paper published by Smartt, Gregory and Gregory (Euphytica, 1978) suggesting *A. cardenasii* as the A genome donor to *A. hypogaea* and *A. batizocoi* as the B genome donor and the J. of Heredity paper by Gregory and Gregory (1979) started us seriously thinking about and researching introgression pathways. The first reported variety release resulting from an interspecific cross was made by Hammons (also a student of the Gregory's) when he released Spancross in 1970; a variety which was selected from a cross between *A. hypogaea* and *A. monticola*. Tamnut 74 was released in Texas from the same cross combination. The programs at the USDA station at Stillwater, OK, NC State University, Raleigh, NC, ICRISAT in India, and the Texas Agricultural Experiment Station, Stephenville, TX became the most active introgression sites during the 1970's, 1980's, 1990's and continuing to the present. Unfortunately the Wild Species program at Stillwater, OK was closed in 1991. Other programs have become active in more recent years, especially with the dawn of the molecular age. A large number of new wild species accessions were added to the collection from 1976 to 2002. There are now 80 described species with 10 more yet to be described. Of these, 31 are cross-compatible with *A. hypogaea* and belong to the same *Arachis* section. The first variety released with an identifiable trait from a wild *Arachis* species was 'COAN' which contains a gene for resistance to the rootknot nematode, introgressed from the wild species *A. cardenasii* (confirmed with molecular markers). Two additional varieties have now been released which contain the same nematode resistance gene as COAN; 'NemaTAM' and 'Tifguard'. The introgression pathway for transfer of this nematode gene was developed over a period of 14 years and was originally designed and used to introgress early and late leafspot resistance into *A. hypogaea.* That accomplishment is to be discussed in a separate paper. The same pathway has been successful in introgressing peanut rust resistance and other traits are being researched at the present time. The introgression of genes can be greatly enhanced and facilitated by using molecular markers because, as in the case of the nematode resistance gene, the basic breeding technique is a more or less conventional backcrossing program. Molecular markers for genes combined with a backcrossing program can be useful for introgression of many traits relating to plant diseases, agronomic traits, as well as oil quality and quantity and enhancement of breeding with markers probably will not be restricted to single gene traits as the technology advances. Molecular technology is having a major, positive impact on utilization of the wild *Arachis* species for cultivar improvement.

The *Arachis* Species Program North Carolina. H.T. STALKER* and S.P.

TALLURY, Department of Crop Science, North Carolina State University, Raleigh, NC 27695.

The *Arachis* species program in North Carolina began in the 1950s at the time when there were few accessions available in the U.S. Many collection trips to South America were initiated with cooperators in South America to acquire additional germplasm that led to the discovery of a large number of new peanut species and greatly expanded the genetic resources of *Arachis*. Largely due to W.C. Gregory's influence, a wild species program was initiated at ICRISAT and the NC State collection served as their base genetic resources. A large wild species collection continues to be maintained at NC State University. To characterize *Arachis* species, a 100 x 100 diallel crossing program was conducted during the 1970s that resulted in a better understanding of evolutionary patterns in the genus. An *Arachis* monograph was later published that described 69 species. Early cytological research led to the discovery that most species in section *Arachis* have an 'A' genome whereas *A. batizocoi* has a 'B' genome. Later, hybrids were made between numerous A and B genome species to better understand biosystematic relationships. Species of section *Arachis* were karyotyped, including varieties of the cultivated peanut, and translocations were observed both within and among species. Cytologically, *A. monticola* is most similar to var. *vulgaris* and is thought to be an escape from cultivation rather than the progenitor of cultivated peanut. Beginning in the early 1980s, large numbers of accessions were evaluated in replicated tests for resistance to diseases, insects, viruses and post-harvest aflatoxin infection and also for fatty acids, proteins, and morphological variation. Very high levels of resistance have been identified in *Arachis* species. The inheritance of TSWV resistance in *A. diogoi* is monogenic and dominant and the first association between a molecular marker (RFLP) and a resistance trait *(M. arenaria*) was published, and current research is attempting to associate additional markers with other resistance genes. Research to introgress genes from *Arachis* species to *A. hypogaea* led to discoveries concerning embryo abortion and recovery, efficiency of cytological pathways to recover tetraploid hybrids, and have led to germplasm releases with high levels of leaf spot, nematode, and insect resistances. One introgression line serves as the basis of disease resistance in recent cultivar releases at NC State University. Molecular marker research was undertaken to identify biosystematic relationships among peanut species, and led to the conclusion that *A. duranensis* and *A. ipaensis* are the donors of the A and B genomes of *A. hypogaea*; but they also have led to questions about the sectional structure of the genus. Cooperative research resulted in the first molecular map in peanut (between the diploids *A. stenosperma* and *A. cardenasii)*. More recent cooperative work led to the first high density maps of A and B genome species. Future work will build upon the past by further expanding the peanut species collection, associating markers with traits

of agronomic importance, and utilizing *Arachis* species for cultivar improvement.

Evaluation and Use of *Arachis* species for Peanut Improvement. S.P. TALLURY*, J. HOLLOWELL, S.C. COPELAND, T.G. ISLEIB and H.T. STALKER, Dept. of Crop Science, N.C. State University, Raleigh, NC 27695-7629.

Arachis species attracted the attention of peanut researchers mainly because of their potential for introgressing high levels of disease and insect resistances into the cultivated peanut, *A. hypogaea* L. At NC State University, we have evaluated wild peanut species for disease and pest resistances using convention laboratory/greenhouse inoculations and also utilized molecular markers, specifically for nematode resistance. By comparing *Arachis* species to the most resistant cultivated germplasm identified at the time of testing, very high levels of resistance or immunity has been identified in the program for peanut stunt virus, tomato spotted wilt virus (TSWV), early and late leaf spots, tobacco thrips, potato leafhopper, corn earworm, lesser cornstalk borer, and post-harvest aflatoxin production. Recently, in an attempt to identify additional sources of resistance among the wild species to Cylindrocladium black rot (CBR) and Sclerotinia blight, 110 accessions of *Arachis* representing 24 species, including *A. hypogaea,* were evaluated in the greenhouse during 2010. Significantly high ($p < 0.01$) variation among and within the species was observed for both pathogens. *Arachis glandulifera* exhibited the highest level of Sclerotinia blight resistance followed by *A. magna* and *A. helodes*, although the latter two species were not significantly different from *A. hypogaea*. For CBR, *A. valida, A. cruziana*, *A. microsperma*, *A. williamsii*, *A. kempff-mercadoi*, *A. kuhlmannii*, *A. helodes*, *A. cardenasii* and *A. correntina* were resistant with *A. hypogaea* in the most susceptible group. The genetics of TSWV was discovered to be a simple dominant trait and molecular markers were linked to two genes conditioning *Meloidogyne arenaria* resistance. Attempts to link molecular markers with TSWV and Sclerotinia resistance are currently underway. However, transfer of resistances from resistant diploid wild species to *A. hypogaea* has been difficult due to sterility in hybrids, but introgression pathways have been designed to produce stable tetraploid interspecific hybrids. Fifteen germplasm lines have been released with high levels of resistance to leaf spots, root-knot nematode, and an insect complex. One of these lines, GP-NC WS 13, is the source of Sclerotinia, leaf spot and white mold resistance in the recent NCSU *A. hypogaea* cultivar release, Bailey, and many Bailey relatives currently in the testing program. Many of the advanced improved interspecific breeding lines have very high levels of leaf spot resistance in field tests and a sub-set of the lines are currently being evaluated in the greenhouse for CBR and Sclerotinia blight to identify improved breeding lines with high yields and multiple disease resistance

for future releases.

Marker-Assisted Breeding for Wild Species-Derived Traits in *Arachis*. Y. CHU, C. WU, P. OZIAS-AKINS*, Department of Horticulture, The University of Georgia Tifton Campus, Tifton, GA 31793-0748; and C.C. HOLBROOK, USDA-ARS, Coastal Plain Experiment Station, Tifton, GA 31793.

The recent evolutionary origin of tetraploid peanut, *Arachis hypogaea* L., imposed a genetic bottleneck on the species and limited variation for pest and disease resistance genes within the cultivated gene pool. However, considerable diversity for these resistance traits and at the molecular level has been identified over the last two decades among wild relatives of peanut, some of which are cross compatible with cultivated peanut. A few groups have persevered in utilizing wild germplasm to transfer traits of interest into cultivated peanut and these materials are being widely accessed by peanut breeders. A trait of particular benefit that was introgressed into cultivated peanut from *A. cardenasii* is resistance to *Meloidogyne arenaria*, the root-knot nematode. Given that molecular polymorphisms are frequent between wild and cultivated *Arachis* species, molecular markers can identify introgressed chromosomal segments associated with nematode resistance. We have used molecular markers associated with traits of interest to facilitate the combination of nematode resistance with high oleic/linoleic acid ratio in advanced breeding materials. Using high-throughput DNA extraction and polymerase chain reaction based methods, breeder-scale numbers of plants can be efficiently screened at the seed or seedling stage.

Nematode Resistance in *Arachis* Illustrates the Value of Wild Species. C.C. HOLBROOK[1*], Y. CHU[2], and P. OZIAS-AKINS[2]. [1]USDA-ARS, Coastal Plain Experiment Station, Tifton, GA 31793; [2]The Department of Horticulture, The University of Georgia Tifton Campus, Tifton, GA 31793.

The peanut root-knot nematode, *Meloidogyne arenaria*, causes significant economic losses in many peanut production areas of the World. A recent estimate put the cost of this pest to the U.S. peanut industry at $42 million annually. Chemicals for control of this pest are becoming increasingly limited, and the development of peanut cultivars with resistance is desirable. Although the entire U.S. germplasm collection of *Arachis hypogaea* has been screened, only moderate levels of resistance have been identified. Fortunately, very high levels of resistance exists in *Arachis* spp. This resistance has been introgressed into *A. hypogaea* by research groups in Texas and North Carolina using both a hexaploid and a diploid pathway and resulting in releases of highly resistant germplasm. Some of this germplasm was then used by the Texas group to develop 'COAN' the first peanut cultivar with resistance to *M. arenaria*. This resistance is conditioned by a single

dominant gene and confers near immunity to the nematode. COAN, and the subsequently released nematode-resistant cultivar, 'NemaTAM' are both highly susceptible to tomato spotted wilt virus (TSWV), and thus are not acceptable for production in the southeastern peanut production region. We crossed COAN with the the TSWV-resistant cultivar 'C-99R' to develop 'Tifguard' a cultivar with high levels of resistance to both the peanut root-knot nematode and TSWV.

Introgression of Early Leafspot Resistance from Wild Species into the Cultivated Peanut *Arachis hypogaea*. M.R. BARING, Soil and Crop Sciences Department, Texas AgriLife Research, College Station, TX 77843-2474; C.E. SIMPSON, Soil and Crop Sciences Department, Texas AgriLife REC, Stephenville, TX 76401; M.D. BUROW, Soil and Crop Sciences Department, Texas AgriLife REC, Lubbock, TX 79403.

Arachis hypogaea L., the cultivated peanut, is in most cases highly susceptible to both early leafspot caused by *Cercospora arichidicola* and late leafspot caused by *Cercosporidium personatum*. It has been well documented that several of the wild species of peanut have various levels of resistance to these two diseases. *Arachis diogoi* is essentially immune to late leafspot and *A. cardenasii* shows the same reaction to early. The Texas AgriLife Research peanut breeding program developed TxAG-6, a tri-species hybrid with resistance to *C. arichidicola* by crossing *A. diogoii*/*A. cardenasii* from which the F_1 progeny was crossed onto *A. batizocoi*. The F_1 tri-species hybrid progeny was treated with colchicine to double the chromosome number and the resulting tetraploid was released as TxAG-6. The resistance to *C. arichidicola* was then transferred from TxAG-6 to the cultivated peanut through a series of back-crosses with various accessions of the cultigen. Tx964117 is an example of one of the cultivated breeding lines developed in this program with excellent resistance to early leafspot. While this line is low oleic and has only average yield potential, we continue to use it as a primary source for genetic resistance to early leafspot in our efforts to develop resistant progeny that are high in Oleic acid and have yield and grade potential of current varieties available today.

Identification of Domestication-Associated QTLs Introgressed into Cultivated Peanut *Arachis hypogaea* L. M.D. BUROW*, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409, and Plant Genome Mapping Laboratory, University of Georgia, Athens, GA 30602; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; J.L. STARR, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843; C.-H. PARK, National Institute of Crop Science, Seodun-Dong, Suwon Republic

of Korea; and A.H. PATERSON, Plant Genome Mapping Laboratory, University of Georgia, Athens, GA 30602.

Wild species of peanut contain many useful alleles, especially for resistance to diseases and pests. However, there are significant differences between wild species and the domesticated peanut, among which are main axis height, lateral branch length and number, and seed size. As part of our efforts to move useful alleles from wild species to the cultigen, we have generated an advanced backcross population from a cross between Florunner and TxAG-6, where TxAG-6 is [*A. batizocoi* x (*A. diogoi* x *A. cardenasii*)]^{4x}. BC_3F_2 plants were screened two years at two locations for agronomic traits. DNA was screened with 114 RFLP markers at an average spacing of approx 18cM. A total of 36 QTLs were identified by composite interval mapping. Of these, 7 were for number of lateral branches, 6 for lateral branch length, 2 for main stem length, 9 for seed length, and 12 for seed width. Co-mapping of QTLs suggested that several QTLs may have been for closely-linked QTLs or for genes with pleiotropic effects. For example, QTLs for seed length and seed width overlapped in six cases. Identification of markers for domestication is expected to be useful in marker-assisted breeding efforts.

Utilization of Wild *Arachis* species for Peanut Improvement. H.D. UPADHYAYA*, S. SHARMA, N. MALLIKARJUNA, and S. SINGH, Grain Legumes Program, International Crops Research Institute for the Semi Arid Tropics (ICRISAT), Patancheru 502 324, Andhra Pradesh, India.

Wild *Arachis* species are known to carry many useful genes, especially for resistances to important biotic and abiotic stresses and provide opportunity for genetic improvement of cultivated peanut. In the genus *Arachis*, 80 species have been classified into nine taxonomic sections including section *Arachis* which contains the cultivated *A. hypogaea*, and its putative wild progenitors. Most of the *Arachis* species are diploid except cultivated peanut and a few wild species, which are tetraploids. Many of these diploid and tetraploid wild *Arachis* species are cross-incompatible with cultivated peanut. The differences in the ploidy levels and post-zygotic failure of embryo development are the major bottlenecks in introgression of useful genes from wild *Arachis* species to cultivated peanut. Of the three introgression pathways, the triploid-hexaploid and the amphiploid (also known as synthetics) pathways have been the most successful introgression methods and several improved germplasm have been developed following these methods. At ICRISAT, several synthetic amphiploids have been generated using various A- and B- genome species for use in peanut improvement. At present, backcrossing to access noble alleles into the cultivated background is in progress. Using an amphiploid and a popular cultivar, we have identified superior breeding lines that perform better than the cultivated parent for early flowering, 100-seed weight, pod yield, haulm yield, and shelling

percentage. Thus, the wild *Arachis* species can be used to access novel alleles for economically important agronomic traits, besides resistance/tolerance to various biotic and abiotic stresses.

MINUTES OF THE BOARD OF DIRECTORS MEETING
43rd Annual Meeting, Historic Menger Hotel,
San Antonio, Texas
July 13, 2011

President Maria Gallo called the meeting to order at 5:00 PM and welcomed everyone. Present were T. Baughman, C. Butts, J. Chapin, R. Sutter, H. Valentine, J. Woodward, R. White, C. Holbrook, P. Donahue, D. Rowland, B. Shew, E. Cantonwine, S. Tubbs, T. Isleib, J. Davis, and J. Marshall.

Pres. Gallo called on J. Starr, Executive Officer, to present the minutes of the last Board of Directors meeting, conducted at the 2010 Annual Meeting held in Clearwater Beach, FL. The minutes as reported in the 2010 Proceedings, vol. 42, were approved.

The following reports were presented to and approved by the Board.

Executive Officer Report –
Starr reported that the Society remains in good financial condition and added additional funds to its reserve during the past year. However, low interest rates on certificates of deposits have resulted in a reduced rate of growth of these funds. Further, he reminded the Board that the Administrative Assistant Irene Nickels will be retiring at the end of 2011. Starr recommended that to reduce operating costs of the Society that this position not be refilled and that all financial aspects currently handled by the Administrative Assistant be assigned to a commercial book keeping service at an estimated cost of approximately $600/mo, plus some start up costs. The clerical duties would be assumed by the Executive Officer. Because of the extra duties under this proposed system Starr requested an increase of his stipend of $400/mo. It is estimated that this proposed system will reduce operating costs by $10,000/year. Starr further recommended that the Board approve the expenditure of funds to honor Irene Nickels for her dedicated service to the Society. The Board approved the expenditure funds for Irene Nickels, including paid expenses for herself and a companion to travel to the meetings in Raleigh in 2012. However, the Board tabled action on recommended changes in the operations of the society until they have time to review the current and proposed duties of the Executive Officer and will convene a conference call later in the year to act on the proposal.

In another matter, Starr reviewed the proposed revisions to the Societies By-Laws that will be presented to the membership at the Business Meeting with a recommendation for approval.

Program Committee - There were 103 scheduled presentations for the 43rd annual meeting held in San Antonio, TX. Of these there were 30 poster presentations. There was also a special session on the utilization of wild species germplasm for improvement of cultivated peanut. There were 166 persons registered for the annual meeting plus an additional 87 spouses and children registered for a total of 253 attendees. In addition to the traditional Ice Cream Social on Tuesday evening, there was a dinner co-sponsored by Bayer Crop Science and BASF on Wednesday evening and an awards reception sponsored by Dow AgroSciences on Thursday evening. The spouses program included a

luncheon and riverboat tour of the San Antonio Riverwalk.

Finance Committee – The Society ended the year with total assets of $222,171 (rounded to the nearest dollar) and no liabilities, this represents a net increase of $1,031. Our total receipts for the year were $116,519 against expenditures of $115,488. Our estimated expenditures for 2012 are $111, 250. The committee recommended that we drop our CAST membership and that the registration fee for our annual meeting not be increased at this time. Additional budget details are listed in the committee report. The report was approved by the Board but approval of the budget was tabled pending further discussions.

Site Selection Committee – Our 2012 meeting will be in Raleigh, NC at the Sheraton Hotel. The committee evaluated several options for 2013 and selected two finalists. The Hyatt in Savannah with a standard room price of $139/night and the BrassTown Valley Resort in the mountains northeast of Atlanta, also at $139/night. The committee recommends the BrassTown Valley resort. The Board approved the committee's report and will vote on the location at a later date.

The Site Selection Committee also considered guidelines for future site selection based on a regional model. Based on three regions (SE, SW, & VC) this could include returning to a single hotel/site in each region to simplify local arrangements and securing hotel contracts. The site selection committee will consider this idea in future meetings, but noted that a single hotel/site would mean a return every three years. The recommendation is that a minimum of two sites be chosen per region so that we would return to the same hotel/site once every six years. Further, we recommend that the Site Selection Committee be composed of 9 individuals, 3 from each region, with the regional sub-committee of 3 persons charged with selecting the site for their region every three years. (These recommended changes will require amending the current ByLaws and will be presented to the membership in 2012).

The committee also discussed the possibility of surveying the membership and their families after each meeting to help understand the pros and cons of each site and hotel.

Nominating Committee – The Nominating Committee consisted of Corley Holbrook, Albert Culbreath, Howard Valentine and Barbara Shew, Chair. The committee corresponded by email to identify candidates for President-Elect and Board of Director positions to be filled at the close of the 2011 annual meeting. The committee quickly reached consensus on potential candidates. The candidates indicated a willingness to serve, were approved by the committee, and their names were forwarded to President Maria Gallo. The candidates are as follows:

President-Elect - Ames Herbert - Virginia Tech
Board of Directors:
State Employee Representative - Southwest - Chad Godsey
Manufactured Products - Pat Donahue - Kraft
American Peanut Council - Howard Valentine
National Peanut Board - Jeffrey Pope - Virginia

Public Relations Committee - The Public Relations Committee of the American Peanut Research and Education Society met via e-mail prior to the 2011 annual

meeting. Members of the Public Relations committee for 2011 are: John Erickson, Ryan Lepicier (Chair), Sandy Newell, Shelly Nutt, Betsy Owens, Richard Rudolph and Barry Tillman.

News releases were sent to several states from the Executive Officer of APRES to publicize this meeting. In addition to those releases, information was disseminated to research and extension offices and county agents.

The committee recommends that all members encourage scientists and county agents working in peanuts to join the society. Photographic records of recognized significant achievements of members are to be made at the meeting.

Another role of the committee is to recognize members or prominent individuals in the peanut industry who have deceased with resolutions that honor their contributions. There were several such individuals this year. Resolutions for Norman Davis, Don Smith, Jimmy Spain. The committee was also notified of the passing of Ruth Taber to be included at a later date.

Publications and Editorial Committee – The committee met on Tuesday, July 12 in San Antonio at the annual meeting. Dr. Chris Butts announced his desire to step down as editor of Peanut Science by July 2012. The committee and Board of Directors expressed the society's extreme thanks for Dr. Butts' service. The committee will send out an open call to the membership for nominations and will start developing a list of possible candidates. Dr. Butts will send Dr. Rowland a brief description of the Editor's responsibilities to be distributed to interested candidates. The committee decided to upload all prior APRES Proceedings on the APRES website with a link on the Peanut Science website. Dr. Jason Woodward offered the use of clerical staff to convert past proceedings to the pdf format and submit for uploading with the help of Milbra Schweikert at the National Peanut Research Lab.

Editor of Peanut Science – The publication of Peanut Science operated at a financially breakeven during FY11. Peanut Science income was from page charges ($12,325) and royalties paid by Allen Press ($53). Peanut Science expenses included charges by Allen Press for PeerTrack manuscript management, publishing Volumes 37(2) and 38(1), cross-referencing ($11,929) and the Editor's travel expenses to the 2010 annual meeting ($693). It was also reported that the legacy project was complete and had been completely funded by outside sources. Those organizations providing funding are listed on the Peanut Science website includes: the Florida Peanut Producers, Peanut Foundation, National Peanut Board, Georgia Peanut Commission, South Carolina Peanut Board, American Peanut Shellers Association, and the National Peanut Buying Points Association.

Since July 1, 2010, twenty-four manuscripts have been submitted for possible publication in Peanut Science. Performance statistics regarding the times for review and decisions are summarized in the table below. The PeerTrack website for submission and manuscript tracking has worked relatively well. The development of a template containing instructions to authors and a flowchart describing the flow of a manuscript from submission to publication is under development and will be accessible on the PeerTrack, the Peanut Science, and the APRES websites.

The associate editors completing a 3-year term expiring 2011 are Peter

Dotray, Paxton Payton, Chad Godsey, Jack Davis, and Graeme Wright. All are eligible and have agreed to serve a second 3-year term to expire 2014.

Peanut Quality –It was noted that there are several factors that determine the effectiveness of the competitive biocontrol, these included type of strain used number of years applied and method of application. Jim Elder asked for clarification on what constitutes an early maturing variety. A discussion ensued with clarification that early maturing varieties must mature 2-4 weeks earlier based on variety, and measured using the hull scrape method. Bill Branch raised concerns regarding the 55% oil content measure and how this can cause issues for food manufacturers. Victor Nwosu and Howard Valentine emphasized that this is a strategy for the international community and includes goals for the non edible market. For the U.S. edible crop, fat content would be maintained at 48-50%. Isleib mentioned that weed resistant peanut varieties are definitely doable. Nwosu saw the need to add a measure for water use efficiency but raised the question as to how this would best be measured. An action was given to Corley to reach out to Vincent to define an appropriate measure for water usage efficiency. Mark Kline was given the task to update the OGSM with feedback.

Uniform Peanut Performance Test (UPPT) Discussion: Tom Isleib shared the UPPT data showing main quality attributes since 2001. Howard Valentine noted that the Florunner has declined in roast peanut attributes along with other varieties. Isleib mentioned that he did not see any correlation with chemical treatments but this may be attributed to the SE planting later and overall peanut maturity. Tim Sanders mentioned that due to the environmental differences, we need to encourage farmers to harvest at maturity and emphasize appropriate post harvest practices.

Bailey Award Committee – The committee's business related to the 2011 Bailey Award winner was conducted by email, prior to the annual meeting. Nominations were received from all fifteen eligible sessions of the 2010 annual meeting, and nominees were notified shortly after the meeting. Eight manuscripts were received and accepted for final evaluation by the committee. The winning paper is from a presentation by T. G. Isleib titled "Identification of QTL Associated with Reduced Post-Harvest Aflatoxin Accumulation in Peanut (*Arachis hypogeae* L.)" and co-authored by C. E. Rowe, V. J. Vontimitta, and S. R. Milla-Lewis. The committee reviewed a proposed standardized form for use to evaluate presentations within each session, and discussed potential new members to the committee.

Coyt T. Wilson Distinguished Services Award Committee – The Coyt T. Wilson Distinguished Service Award Committee met at 2:30 PM July 12, 2011 in San Antonio. Committee members for 2011 were Ames Herbert, Jack Davis, Kim Moore, Naveen Puppala, Mark Black, and Elizabeth Grabau, Chair.

The Coyt T. Wilson award is awarded annually to a person who has contributed two or more years of distinguished service to the American Peanut Research and Education Society. The award was established in honor of Coyt T. Wilson who provided leadership in the formative years of the Society. His contributions helped make possible the early and current success of the Society.

The award committee reviewed the qualifications of one nominee for the 2011 award. The nominee has provided outstanding service to the American Peanut Research and Education Society and the peanut industry. The committee recommended that the 2011 Coyt T. Wilson Distinguished Service Award be presented to Mr. James Grichar, Texas A&M University System. Mr. Grichar has 37 years of dedicated service to the peanut industry focused on weed management, and over 32 years of contributions to APRES. Within the Society, Mr. Grichar has been a leader in service to the journal Peanut Science, numerous committees, annual meeting activities, and the presidential succession.

Dow AgroSciences Awards Committee – The Dow AgroSciences Award Committee did not meet at the APRES meetings in 2011 because committee business was taken care of prior to the APRES annual meeting. In 2011 the committee received nominations for the Dow AgroSciences Award for Excellence in Research and the Award for Excellence in Education. Nomination packets were distributed to committee members electronically, and the vote on the nominations was conducted electronically. Dr. Austin K. Hagan is this year's recipient of the Dow AgroSciences Award for Excellence in Education, and Dr. Timothy L. Grey is this year's recipient of the Dow AgroSciences Award for Excellence in Research.

Fellows Award Committee – The committee reviewed a small number of nominations and recommended to the Board of Directors that the following persons be named Fellows of the Society: Dr. Mark Black, Texas AgriLife Extension, Dr. John Damicone, Oklahoma State University, and Dr. David Jordan, North Carolina State University. The Board approved each of these persons for the Fellow award.

Joe Sugg Graduate Student Award Committee – Seven students participated in the graduate student competition. First place in the Joe Sugg Student Award went to Steven Thornton of the University of Florida for the paper entitled "Determining the relationship between field emergence and late leaf spot resistance in peanut," co-authored by M. Gallo and B. Tillman. Second place went to Justin Moss, University of Georgia for the paper entitled "Agronomic and economic evaluation of double-crop and relay-intercropping systems of peanut with wheat," coauthored by R. S. Tubbs, T. L. Grey, N. B. Smith and J. W. Johnson.

Ad Hoc Committee on Revision of the Bylaws - The committee members were J. Starr, B. Shew, M. Gallo, and T. Baughman. They reviewed the existing ByLaws and recommended changes in wording relating to classes of membership, definition of a quorum for an official meeting, and the structure of several committees with the intent on ensuring that our actions were in compliance with the ByLaws and streamlining our committee structure. The proposed revisions to the ByLaws were approved by the Board of Directions by email vote in May 2011 and then sent to the membership by email as required. The membership will be asked to approve these revisions to the ByLaws at the regular business meeting of the Society.

OPENING REMARKS BY THE PRESIDENT
AT THE 2011 BUSINESS MEETING AND AWARDS CEREMONY
President Maria Gallo
July 14, 2011

Good afternoon, and welcome to the APRES Business Meeting and Awards Ceremony. First, I would like to express my heartfelt thanks to President Elect and Program Chair, Todd Baughman, Technical Program Chair, Michael Franke, Local Arrangements Chair, Peter Dotray, Spouses' Program Chair, Peggy Dotray, our Executive Officer, Jim Starr and our Administrative Assistant, Irene Nickels for their hard work which resulted in a very successful meeting here in San Antonio. I would also like to thank our sponsors for their generous financial support and product contributions.

Why do scientists join professional scientific societies like APRES? There are a number of reasons. We want to belong to a scientific community that has shared interests and goals. We want mechanisms to communicate the results of our research, obtain feedback and reviews from our peers, and be able to recognize the success of our colleagues through awards and service. We want to learn more. We want to be able to interact with our peers to establish collaborations. We want to educate others about the value of our science. We want to be able to advance our science and help our producers and industry become more successful. Schwartz et al**.,** 2008 from their paper entitled **"**Scientific societies in the 21st century: a membership crisis" (Conservation Biology 22:1087**–**1089) state that **"**For scientific societies to thrive in the 21st century, they must mean more to members than simply the source of a journal or a meeting." They go on to say that "Society membership is like a coin. One side is opportunity and the other is responsibility. By judging membership solely on the basis of goods received, we forget that responsibility can be more important than monetized value." They argue that it is our responsibility to be members of a society because it is what it means to be a true professional and the article challenges us to do all that we can to mentor students and postdocs on the benefits as well as responsibilities of belonging to our societies. So, I make the same argument to you. Every one of us needs to aggressively and purposefully promote APRES to the young professionals in our home institutions and in our programs. We need to make it a clear expectation that they join the society and actively participate. So, I would like to see an increase in student and postdoc memberships in APRES next year compared with this year and have more of these young professionals attending and contributing to our annual meeting.

These young professionals are our future. And we need to care a great deal about the future of APRES because to quote Yogi Berra "The future ain't what it used to be." And isn't that the truth. Last year, Barbara Shew so eloquently told us in her President's remarks that there was a time when membership in APRES was rising and funding was adequate. Now, the economic realities of federal and state budgets have resulted in fewer positions for scientists and that has resulted in reduced memberships in scientific societies, including ours. We have stabilized over the last couple of years, but we are far smaller than years past. We recognize this major problem. So the question is, "How do we survive, and better yet, thrive as a smaller organization?" I have recently read the book, "Race for Relevance: 5 Radical Changes for Associations" by Harrison Coerver and Mary

Byers. And they propose that organizations should: 1) overhaul their governance model and committee operations, 2) empower their CEO and enhance their staff expertise, 3) rigorously define the member market, 4) rationalize their programs and services, and 5) build a robust technology framework. Now, not all of these "radical" changes may fit precisely with a professional scientific society like APRES, but we have addressed some of these areas and are planning to address more in the near future. For example, we have been seriously examining the feasibility of changing our governance model and the way APRES is managed. In the next six months, Todd Baughmann, I, and others will be exploring our options. Our goal will be to optimize our resources so that we can operate more efficiently and consistently. Good news is that currently we are financially sound being slightly in the black. But we can improve our financials and we must actively seek creative ways to increase our funds. Additionally, this year we have made changes to our Bylaws and part of those changes deal directly with the structure and operation of our committees. You will be voting on the new Bylaws later during this meeting. Although we are making progress, from an organizational standpoint, we can do more to keep APRES robust and resilient, and I welcome your suggestions and contributions.

One thing for certain is that our research and education efforts are extremely relevant and critical for the future. Reading the 2009 NRC Report, "A New Biology for the 21st Century" one of the societal grand challenges that they discuss is sustainable food production. The report states the need for facilitation of multi-disciplinary approaches to "…breed crop plants with greater productivity, increased pest resistance, lower fertilizer and water requirements, and the ability to thrive under a variety of conditions." Reading the articles in *Peanut Science*, attending the technical sessions at the annual meeting, participating in the Peanut Genomics Initiative, Seed Summit, and Crop Germplasm Committee, to name a few, make it evident that APRES scientists are working together to meet this challenge head-on for peanut. We must continue to provide solutions to the societal challenges that we face and APRES is here to serve you and you are here to serve APRES.

BUSINESS MEETING AND AWARDS CEREMONY
AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY
The Historic Menger Hotel
San Antonio, Texas
July 14, 2011

1. **President's Report** ..... Maria Gallo

2. **Awards Committee Reports and Presentations**

   a. Coyt T. Wilson Distinguished Service Award ..... Mark Black
   b. Fellows Award ..... Tom Isleib
   c. Bailey Award ..... Emily Cantonwine
   d. Joe Sugg Graduate Student Competition ..... Robert Kemerait
   e. Dow AgroSciences Awards for Research & Education ..... Corley Holbrook
   f. Past President's Award ..... Maria Gallo
   g. Peanut Science Associate Editors ..... Chris Butts

3. **Reading of Minutes of Previous Meeting**

4. **New Business**

   a. Nominating Committee ..... Barbara Shew
   b. Finance Committee ..... Kelly Chamberlin
   c. Public Relations Committee ..... Ryan Lepicier
   d. Peanut Quality Committee ..... Victor Nwosu
   e. Site Selection Committee ..... Barry Tillman
   f. Publications and Editorial Committee ..... Diane Rowland
   g. Program Committee ..... Todd Baughman
   h. Other Business

5. **Adjourn**

FINANCE COMMITTEE REPORT

Overall APRES is in sound financial condition. We ended the 2010/2011 fiscal year with a net gain of ca $1,000. The society's reserves continue to grow despite the current low interest rates. The society currently has reserves of ca $125,000 in certificates of deposit and ca $16,000 in a money market account. Nonetheless, there are some trends that need to be considered as we move forward. The membership numbers are down considerably over the past 10 years, but I hope we have now reached a relatively stable number. This trend is reflected in lower attendance at our annual meeting. Additionally, sponsorship and corporate donations in support of our annual meeting have declined and based on my conversations with some of our corporate friends, we can expect this trend to continue. As membership numbers and sponsorship have declined, the costs of the meetings have risen. Our annual meeting is no longer a source of surplus revenue for the society, rather it is now a major deficit item. The committee considered the option of increasing meeting registration fees but vote not to do so at this time.

A second major expense and source of revenue is our journal Peanut Science. The journal still continues to meet its goals and is operating with a small profit. Overall our expenditures and receipts related to the journal were much higher than normal this past year, due primarily to the Legacy Project (digitizing back issues). This project is completed and the bills paid. Fortunately, we had a major donation from Florida Peanut Producers Association that covered most of the costs. Overall the expenses for this project were covered primarily through special onetime donations.

The final major expense of the society is staff salaries and benefits (Executive Officer and Administrative Assistant). Irene Nickels has indicated her intention to retire December 31, 2011. It is recommended to the committee not to refill her position but to instead contract with a bookkeeping service for assistance in managing the financial affairs of the society. J Starr, the Executive Officer has suggested that he will assume responsibility for the clerical duties that were formerly part of the Admin. Assistant's duties and requested an increase of $400/mo in his stipend. The estimated cost for the bookkeeping service is $600/mo plus some extra initial transition expenses. This new arrangement is projected to result in net savings of ca $4,500 in 2011/2012 and a net savings of nearly $10,000 in 2012/2013.

Respectfully submitted by:
Kelly Chamberlin, chair

Balance Sheet Year End - June 30, 2010

Assets

Petty Cash Fund	$ 501.46
Checking Account	68,194.86
Certificate of Deposit #3	13,102.20
Certificate of Deposit #4	17,110.38
Certificate of Deposit #6	19,230.69
Certificate of Deposit #7	16,422.87
Certificate of Deposit #8	12,529.31
Certificate of Deposit #9	16,307.69
Certificate of Deposit #10	30,000.00
Money Market Account	16,094.97
Bayer Account	12,023.52
Computer/Printer/Equipment	653.09
TOTAL ASSETS	**$222,171.04**

Liabilities

None 0.00

Fund Balance $222,171.04

Draft APRES budget for 2011-2012. All values rounded to the nearest dollar amount

Receipts	Budget 2010-11	Actual 2010-11	Proposed 2011-12
Meeting Reg	$35,000	$33,930	$31,000
Annual Dues	30,000	26,494	27,000
Contributions – Ice Cream Social	8,000	5,150	4,000
Contribution- Dow	7,000	5,000	5,000
Contribution – Bayer	14,000	13,662	12,000
Contribution – Syngenta	5,000	5,000	5,000
Contribution- other	1,800	1,450	1,500
Sterling Payments – credit cards		1,520	
Interest	3,300	1,961	2,000
Peanut Science	20,300	12,378	12,500
Miscellaneous Income	250	9,974*	250
TOTAL	**$124,650**	**116,519**	**100,250**

*Includes donations for the Peanut Science Legacy Project and sales of Advances in Peanut Science.

*Includes donations for the Peanut Science Legacy Project and sales of Advances in Peanut Science.

**The figure is based on 150 persons paying an average registration fee of $200.

2011-12 BUDGET

Expenditures	**Budget 2010 - 2011**	**Actual 2010 - 2011**	**Proposed 2011 - 2012**
Annual Meeting	$33,500	$36,995	$32,550
Awards	4,000	3,978	4,000
CAST	750	750	0
Corp. Registration Fees	300	50	100
Legal Fees	900	672	700
Executive Officer	18,021	18,021	18,921
Administrative Assistant	21,864	21,864	10,932
APRES portion of FWT, FICA, Medicare, SWT	3,100	3051	2,497
Peanut Sci – Publishing	29,700	25,460	12,500
Bookkeeping	0	0	3,500
Postage	550	27	50
Travel – Exe Officer	2,500	2,754	1,800
Travel – Irene Nickels			2,250
Office Expenses	3,000	2,694	2,800
Travel - Bayer Program for Extension agents	5,000	3,161	5,000
2010 meeting exp	0	0	0
Bank Charges	40	44	50
Miscellaneous (refund/overpayment)	75	0	300
American express	100	186	200
Sterling Credit Cards	2,000	1,480	1,500
Depreciation		332	600
Total	**$125,400**	**121,519**	**100,250**

2010-11 BALANCE SHEET

ASSETS	June 30, 2010	June 30, 2011
Petty Cash Fund	$ 582.16	$ 501.46
Checking Account	58,687.12	68,194.86
Certificate of Deposit #3	12,821.90	13,102.20
Certificate of Deposit #4	16,747.95	17,110.38
Certificate of Deposit #6	18,804.80	19,230.69
Certificate of Deposit #7	16,074.13	16,422.87
Certificate of Deposit #8	12,529.31	12,529.31
Certificate of Deposit #9	15,940.66	16,307.69
Certificate of Deposit #10	30,000.00	30,000.00
Money Market Account	25,954.88	16,094.97
Bayer Account	12,012.30	12,023.52
Inventory of Peanut Science and Technology Books	0.00	0.00
Inventory of Advances in Peanut Science Books	0.00	0.00
Computer/Printer/Equipment	984.74	653.09
TOTAL ASSETS	**$221,139.95**	**$222,171.04**
Liabilities		
No Liabilities	0.00	0.00
Fund Balance	$221,139.95	$222,171.04
TOTAL LIABILITIES & FUND BALANCE	**$221,139.95**	**$222,171.04**

STATEMENT OF ACTIVITIY FOR YEAR ENDING 06/30/10

Receipts		
Advances Book		$ 47.00
Ann Mtg Reg		45,547.05
Contributions:		25,537.00
Dow - $7,000/Syngenta - $5,000/Bayer - $2,960/ IC Social - $8,000/Joe Sugg - $750/General - $800/ 2009 - $1,000		
Dues:		33,348.00
Interest		3,278.94
Peanut Science Page Charges		17,865.00
Peanut Science Income		80.95
PS Income – Legacy Project		3,000.00
TOTAL RECEIPTS		**$128,703.94**
Expenditures		
Annual Meeting (program-1,037.17/reg-355.94/awards-3,796.07/breaks & meals-18,986.82/entertainment-700.00/supplies-equip-365.00)		$25,241.00
Ann Mtg Advance Hotel pymt (2nd) – Florida		5,000.00
Bank Charges		33.00
CAST Membership		750.00
Corp Registration		30.00
Credit Card Usage Fees		1,934.45
American Express - $73.16/Sterling – 1,861.29		
Legal Fees		861.00
Misc (gift-J. Dove Long)		75.00
Office Expenses		2,431.28
PS Expenses		10,040.49
Postage (General-453.76/ (General-453.76/(Ann mtg pkt-30.99/publications-40.19)		524.94
Salary – Exec Off (FWT-3,400.00/FICA-1,117.32/Med-261.36)		18,021.00
Salary – Admin Assist (FWT-900.00/FICA-1,295.16/Med-302.88/SWT-540.00)		20,889.00
FICA – APRES portion (Exec Off & Admin Assist)		2,412.48
Medicare – APRES portion (Exec Off & Admin Assist)		564.24
State Withholding Tax		120.00
Sales Tax Permit (OK)		20.00
Travel – Bayer Program		3,010.90
Travel – Exec Off, Admin Assist		2,842.88
TOTAL EXPENDITURES		**$94,801.66**
EXCESS RECEIPTS OVER EXPENDITURES		**$33,902.28**
Write off of Books	$1,608.00	
Depreciation of Assets	331.65	1,939.65
TOTAL NET INCREASE FY 09/10		**$31,962.63**

STATEMENT OF ACTIVITIY FOR YEAR ENDING 06/30/11

Receipts	
Advances Book	$ 78.48
Ann Mtg Reg	33,930.00
Contributions:	23,661.96
Dow - $5,000/Bayer - $3,161.96/Other - $15,500	
Contributions Ice Cream Social	5,150.00
Contributions Spouse Program	1,450.00
Dues	26,494.00
Interest	1,961.13
Peanut Science Page Charges	12,325.00
Peanut Science Income	53.32
PS Income – Legacy Project	9,817.00
PS&T Income	78.48
Sterling Payments	1,520.00
Dues - $805.00/Ann Mtg Reg - $715.00	
TOTAL RECEIPTS	**$116,519.37**
Expenditures	
Annual Meeting	$40,208.51
(program-519.07/reg-718.02/AV-1,425.24/awards-3,978.50/breaks & meals-32,742.94/supplies-equip-818.60/postage-6.14)	
Ann Mtg Advance Hotel pymt (2nd) – Florida	- 6,000.00
Bank Charges	43.75
CAST Membership	750.00
Corp Registration	50.00
Credit Card Usage Fees	1,666.67
American Express - $186.16/Sterling - $1,480.51	
Legal Fees	672.00
Office Expenses	2,694.32
PS Expenses	12,622.37
PS Legacy	12,838.15
Postage – Publications	26.96
Salary – Exec Off	18,021.00
(FWT-4,200.00/FICA-937.03/Med-261.36)	
Salary – Admin Assist	21,864.00
(FWT-960.00/FICA-1,136.88/Med-317.04/SWT-600.00)	
FICA – APRES portion	2,472.83
(Exec Off-1,117.31 & Admn Asst-1,355.52)	
Medicare – APRES portion	578.40
(Exec Off-261.36 & Admn Asst-317.04)	
OK State Withholding Tax	600.00
Admin Assist	- 600.00
Spouse Program Expense	731.45
Travel – Bayer Program	3,161.96
Travel – Exec Off, Admin Assist	2,754.26
Depreciation	331.65
TOTAL EXPENDITURES	**$115,488.28**
EXCESS RECEIPTS OVER EXPENDITURES	**$1,031.09**

ADVANCES IN PEANUT SCIENCE SALES REPORT 2009-10

Fiscal Year	Books Sold
1995-96	140
1996-97	99
1997-98	66
1998-99	34
1999-00	45
2000-01	33
2001-02	27
2002-03	35
2003-04	37
2004-05	69
2005-06	8
2006-07	0
2007-08	3
2008-09	166
2009-10	3

PEANUT SCIENCE AND TECHNOLOGY SALES REPORT 2009-10

Fiscal Year	Books Sold
1985-86	102
1986-87	77
1987-88	204
1988-89	136
1989-90	112
1990-91	70
1991-92	119
1992-93	187
1993-94	85
1994-95	91
1995-96	50
1996-97	33
1997-98	49
1998-99	37
1999-00	30
2000-01	22
2001-02	7
2002-03	26
2003-04	33
2004-05	53
2005-06	31
2006-07	0
2007-08	0
2008-09	142

PUBLIC RELATIONS COMMITTEE REPORT

The Public Relations Committee of the American Peanut Research and Education Society met via e-mail prior to the 2011 annual meeting. Members of the Public Relations committee for 2011 are: John Erickson, Ryan Lepicier (Chair), Sandy Newell, Shelly Nutt, Betsy Owens, Richard Rudolph and Barry Tillman.

News releases were sent to several states from the Executive Officer of APRES to publicize this meeting. In addition to those releases, information was disseminated to research and extension offices and county agents.

The committee recommends that all members encourage scientists and county agents working in peanut to join the society. Photographic records of recognized significant achievements of members are to be made at the meeting.

Another role of the committee is to recognize members or prominent individuals in the peanut industry who have deceased with resolutions that honor their contributions. There were several such individuals this year. Resolutions for Norman Davis, Don Smith, Jimmy Spain and are included below.

Ruth Taber to be included at a later date.

Resolution Honoring Life on APRES Member: Norman Duane Davis, Ph.D.

Dr. Norman Duane Davis
Whereas, Dr. Norman Duane Davis, of Auburn, Alabama, was born in San Diego, California in 1928, he served in the U.S. Marine Corps and in the U.S. Air Force, received his Bachelor of Science degree in Biological Science from the University of Georgia in 1953, and M.S. and Ph.D. degrees in Botany from Ohio State University in 1955 and 1957, and

Whereas, he began his career as an instructor at the University of Georgia, and joined the faculty of the Department of Botany and Plant Pathology, Alabama Polytechnic Institute, in 1958, and

Whereas, since 1961 he held joint appointments in the School of Agriculture and the Alabama Agricultural Experiment Station, was an Alumni Professor of Botany, 1985 to1987, and Director of the Auburn University Cell Science Center, 1987 to 1990, and

Whereas, he published extensively in scientific journals and agricultural experiment station bulletins, coauthored five editions of Guide and Key to Alabama Trees, and contributed chapters to monographs including Microbial Technology and Food and Beverage Mycology, and

Whereas, he retired from Auburn University in 1990 as Professor Emeritus of Botany, and

Whereas, He was a past president of the American Peanut Research and Education Society, and a co-recipient of the Golden Peanut Research award for

1972, and

Whereas, he was a past president of the Auburn Lions Club, a member and past Deacon of the First Presbyterian Church in Auburn, and

Whereas, he died Wednesday, July 3, 2011, be it resolved that the American Peanut Research and Education Society remembers and honors Norman Duane Davis' life and contributions to the peanut industry.

Resolution Honoring Life on APRES Member: Don H. Smith, Ph.D.

Dr. Don H. Smith
Whereas, Dr. Don H. Smith, 73 a long-time resident of Yoakum, TX and at the time of his death a resident of Dallas, was born in Nuremberg, Pennsylvania on June 20, 1937 to William and Mable Pearl Smith. Don attended Nuremberg High School where he enjoyed playing basketball. He married Elsie Roberta Oliver (Bobbie) on June 7, 1958, and

Whereas, he graduated from East Stroudsburg State College in 1959 and then attended Pennsylvania State University where he earned both a Masters (1962) and a PhD in Plant Pathology in 1966, and

Whereas, he began his career with a teaching fellowship at Albion College in Michigan, and

Whereas, he accepted a position in Griffin Georgia with the University of Georgia working primarily on peanut foliar diseases, and

Whereas, he was hired by the Texas Agricultural Experiment Station in 1973 to work on peanut diseases, primarily in the south Texas peanut production area and was one of the leading authorities in the world on foliar diseases of peanut, and was Executive Secretary-Treasurer for APRES for a number of years, and

Whereas, he began work on peanut diseases with ICRASAT in Hyderabad, India from 1990 to 1992, and

Whereas, he returned to the US and settled in Dallas where he was an active member of Our Savior Lutheran Church, and

Whereas, he died Friday, February 18, 2011 in Dallas be it resolved that the American Peanut Research and Education Society remembers and honors Don Smith's life and contributions to the peanut industry.

Resolution Honoring Life on APRES Member: William James Spain, Jr.

William James Spain, Jr.
Whereas, William James Spain, Jr. of Suffolk, Virginia, known to family and friend as Jimmy, was born in February 1927, in Drewryville, Virginia, graduated from Drewryville School, served in the U.S. Navy during World War II and earned a Bachelor's Degree from the University of Virginia in 1950, and

Whereas, he was employed by Birdsong Peanuts for 57 years where he served as President and Chairman of the Board for 25 years, and

Whereas, his contributions to the peanut industry are many, including his role in leading one of the first trade missions to Asia that included a visit to the then-closed society of China, his role in the founding of the American Peanut Council, formerly the National Peanut Council, and the Peanut Administrative Committee to assure quality and safety of peanut products, and his role presiding over the Virginia Peanut Shellers Association for several terms, and

Whereas, in addition to countless other honors, he was named to the American Peanut Council's Hall of Fame in 1996, and was awarded the Pioneer of the Year Award in 2007 by the National Peanut Buying Point Association, and

Whereas, he held leadership positions in many local community organizations in Suffolk, and he performed many duties for his church, Oxford United Methodist, where he taught Sunday school, led the youth program, and served as Chairman of the Board of Trustees, and

Whereas, he died Wednesday, March 9, 2011 in Suffok, Virginia, be it resolved that the American Peanut Research and Education Society remembers and honors Jimmy Spain's life and contributions to the peanut industry.

Respectively submitted by:
Ryan Lepicier, chair

PUBLICATIONS AND EDITORIAL COMMITTEE REPORT

The committee met on Tuesday, July 12 in San Antonio at the annual meeting. Dr. Chris Butts announced his desire to step down as editor of Peanut Science by July 2012. The committee and Board of Directors expressed the society's extreme thanks for Dr. Butts' service. The committee will send out an open call to the membership for nominations and will start developing a list of possible candidates. Dr. Butts will send Dr. Rowland a brief description of the Editor's responsibilities to be distributed to interested candidates.

The committee decided to change the policy for citing literature within a Peanut Science manuscript – currently it is possible to cite using author, year or numbered format. The new policy will be the use of the author, year format only and Dr. Butts will make that change in the information for submitted manuscripts accordingly.

The policy regarding publishing notes in Peanut Science was discussed and it was decided that no written policy was necessary. The discretion for publication of notes will be up to the appropriate Associate Editor and Editor, and the only segregation will be in the Table of Contents – no "Note" annotation is needed in the title.

The need to update the monograph was discussed but it was decided that it is

not necessary at this time.

The committee decided to upload all prior APRES Proceedings on the APRES website with a link on the Peanut Science website. Dr. Jason Woodward offered the use of clerical staff to convert past proceedings to the pdf format and submit for uploading with the help of Milbra Schweikert at the National Peanut Research Lab.

Respectfully submitted by:
Diane Rowland, chair

PEANUT SCIENCE EDITOR'S REPORT

The publication of Peanut Science operated at a financially breakeven during FY11. Peanut Science income was from page charges ($12,325) and royalties paid by Allen Press ($53). Peanut Science expenses included charges by Allen Press for PeerTrack manuscript management, publishing Volumes 37(2) and 38(1), cross-referencing ($11,929) and the Editor's travel expenses to the 2010 annual meeting ($693). It was also reported that the legacy project was complete and had been completely funded by outside sources. Those organizations providing funding are listed on the Peanut Science website includes: the Florida Peanut Producers, Peanut Foundation, National Peanut Board, Georgia Peanut Commission, South Carolina Peanut Board, American Peanut Shellers Association, and the National Peanut Buying Points Association. Since July 1, 2010, twenty-four manuscripts have been submitted for possible publication in Peanut Science. Performance statistics regarding the times for review and decisions are summarized in the table below. The PeerTrack website for submission and manuscript tracking has worked relatively well. The development of a template containing instructions to authors and a flowchart describing the flow of a manuscript from submission to publication is under development and will be accessible on the PeerTrack, the Peanut Science, and the APRES websites.

The associate editors completing a 3-year term expiring 2011 are Peter Dotray, Paxton Payton, Chad Godsey, Jack Davis, and Graeme Wright. All are eligible and have agreed to serve a second 3-year term to expire 2014.

Chris Butts announced his desire to step down as editor by the close of the 2012 Annual APRES meeting in Raleigh, NC. He will work with the Publication and Editorial committee in recruiting, selecting, and transitioning to a new editor.

Table 1. Average number of days to make decision for manuscripts submitted for publication in Peanut Science from July 1, 2010 to June 30, 2011

Decision	Average Number of Days to Decision		
	Initial Submission	1st Revision	2nd Revision
Accept	120	37	14
Accept with Revision	139	74	
Reject, Revise, & Resubmit	156		
Reject	7		
Overall	136	62	14

Respectfully submitted by:
Chris Butts, Editor

NOMINATING COMMITTEE REPORT

The Nominating Committee consisted of Corley Holbrook, Albert Culbreath, Howard Valentine and Barbara Shew, Chair. The committee corresponded by email to identify candidates for President-Elect and Board of Director positions to be filled at the close of the 2011 annual meeting. The committee quickly reached consensus on potential candidates. The candidates indicated a willingness to serve, were approved by the committee, and their names were forwarded to President Maria Gallo. The candidates are as follows:

President-Elect - Ames Herbert - Virginia Tech
Board of Directors:
State Employee Representative - Southwest - Chad Godsey
Manufactured Products - Pat Donahue - Kraft
American Peanut Council - Howard Valentine
National Peanut Board - Jeffrey Pope - Virginia

Respectfully submitted by:
Barbara Shew, chair

FELLOWS COMMITTEE REPORT

The committee reviewed a small number of nominations and recommended to the Board of Directors that the following persons be named Fellows of the Society: Dr. Mark Black, Texas AgriLife Extension, Dr. John Damicone, Oklahoma State University, and Dr. David Jordan, North Carolina State University. The Board approved each of these persons for the Fellow award.

Respectfully submitted by:
Todd Baughman, chair

BIOGRAPHICAL SUMMARIES OF FELLOWS RECIPIENTS

Mark Black began his profession association with peanut while working as a graduate student at North Carolina State University, where he researched the disease Cylindrocladium Black Rot under the direction of Dr. Marvin Beute. Mark was awarded the Ph D degree in 1983 for this research. Prior to his studies at NS State, Mark was awarded his BS (1975) and MS (1978) degrees from the University of Arkansas in Fayetteville.

Following the completion of his graduate studies, Mark joined the faculty of the Department of Plant Pathology and Microbiology in Texas AgriLife Extension as an Extension Specialist located at the Research and Extension Center in Uvalde Texas, raising through the ranks to Professor in 1997. As the Extension Specialist with responsibility for diseases of crops in Southwest Texas, Mark has work on a large number of row, vegetable and ornamental crops. Peanut, however, has remained a crop of major emphasis during Mark's career. In addition to providing educational leadership to the growers, Mark has played a significant role in the development of seven disease resistant peanut cultivars. Mark has had primary responsibility for screening peanut germplasm for resistance to Tomato Spotted Wilt Virus for the peanut breeding program. In addition to TSWV, Mark has assisted in the field screening of germplasm for resistance to Sclerotinia Blight and root-knot nematodes.

That Mark has provided outstanding service in his role as an Extension Specialist is confirmed by the fact that he has been recognized twice by his clientele groups and colleagues as a member of the Texas Extension Team Service Award team in 1997 and for the AgProgram's Vice Chancellor's Award for Excellence, also in 1997. Mark's colleagues in the department of plant pathology and in the overall Ag Program were unanimous in their strong support of Mark for his efforts as a Plant Pathologist, the excellence of his extension educational programs, and his mentoring of younger faculty.

In addition to achievements in extension and research, Mark has been an extremely active member of APRES. Since he joined the Society as a graduate student in 1979, Mark has served on 12 different APRES committees and has served as an Associated Editor of Peanut Science. Four of these committees were the Local Arrangements committees for previous meetings held here in San Antonio, including Chair of the committees for both 1997 and 2004.

In Summary, for his significant achievements and exemplary service, we are proud to name Dr. Mark Black a Fellow of the American Peanut Research and Education Society.

John Damicone began his academic career with a BS degree (1977) from the University of Rhode Island. John earned his MS (1980) and Ph D degrees (1985) in Plant Pathology from the University of Massachusetts. Following completion of his graduate education John moved south to Louisiana State University for a post-doctoral position, followed by a short stay at the Delta Branch Station of Mississippi State University. In 1990 John accepted an

Extension/Research position at Oklahoma State University, where he rose through the ranks to his present position of Professor. It was at Oklahoma State University that John began his professional association with peanut and with APRES.

As an Extension Plant Pathologist, most of John's efforts on peanut have focused on Sclerotinia Blight and leaf spots. He was able to greatly improve management of these diseases by showing the growers the benefits of use of modern peanut cultivars with partial resistance to Sclerotina Blight, thus allowing them to reduce their reliance on fungicides. This integrated approach to disease management resulted in reduced yield losses, reduced production costs, and greater profits for the Oklahoma growers. In work on the leaf spot diseases, John validated and refined weather-based advisory models for Oklahoma. Working with meteorologists and others he lead the effort to develop the web-based, county-specific advisory program used by growers today. The benefits of this program are evident by the fact that agribusiness that sells the fungicides are among the programs biggest supporters.

In addition to his plant disease efforts, John has been an important member of the Oklahoma Peanut Team, cooperating with colleagues in long term studies on rotation, tillage, harvest dates, and cultivar performance. In 2003 John served as the interim team leader for the coordination of extension programs for peanut in Oklahoma.

John has been an active member of APRES since 1990, serving on numerous committees and in the offices of Associate Editor of Peanut Science (twice), as a member of the Board of Directors, and as President (2002).

John has been recognized several times for his many contributions to our Society, the peanut industry, and agriculture. These include the Outstanding Field Staff Award from the Oklahoma Cooperative Extension Service (1992), the Achievement Award from the Oklahoma Vegetable Association (1993) and the Dow AgroSciences Education award from APRES (2007). For his outstanding accomplishments and service, today we are pleased to name John Damicone a Fellow of the American Peanut Research and Education Society.

David Jordan earned his BS (1985) and MS (1988) degrees Agronomy from North Carolina State University before moving to the University of Arkansas for his Ph D (1992). Following completion of his graduate studies, David accepted a post-doctoral position in Crop and Soil Science at Tifton, Georgia, he then spent a few years with the Louisiana State University at the Northeast Research Station. In 1996 David accepted his position as an Extension Specialist in Crop Science at NC State University.

David has had an extraordinarily productive career in extension and research

with more than 150 journal publications and extension activities so numerous that they are difficult to count. In addition to these activities he has a strong commitment to teaching and graduate student training.

David's extension and research efforts have been used to improve peanut production in North Carolina through modern production systems that include weed management, overall pest management, fertilizer applications, and more efficient harvest techniques. His extension educational programs include weed management systems, weed identification, and herbicide symptomology. The total breath of his many activities are beyond the scope of this brief presentation.

In addition to his work in North Carolina, David is also active internationally, providing much needed expertise to research and extension efforts in Africa.

David gives freely of his time to several professional societies, including APRES, as an active participant and in various leadership roles. Noteworthy here is his service, 14 committees, including as an Associate Editor for Peanut Science and as a past member of the Board of Directors.

David has received numerous awards for his several achievements and service activities, including the Outstanding Young Weed Scientists from the Weed Science Society (2004), the Outstanding Extension Service Award from NC State University (2007), and the Dow AgroSciences Excellence in Education award from APRES in 2010. This year we are pleased to name David Jordan a Fellow of the American Peanut Research and Education Society for superior service and outstanding achievements.

GUIDELINES for AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY FELLOW ELECTIONS

Fellows

Fellows are active members of the Society who have been nominated to receive the honor of fellowship by other active members, recommended by the Fellows Committee, and elected by the APRES Board of Directors. Up to three active members may be elected to fellowship each year.

Eligibility of Nominators

Nominations may be made by an active member of the Society except members of the Fellows Committee and the APRES Board of Directors. A member may nominate only one person for election to fellowship in any one year.

Eligibility of Nominees

Nominees must be active members of the Society at the time of their nomination and must have been active members for a total of at least five (5) years.

The nominee should have made outstanding contributions in an area of specialization whether in research, extension or administration and whether in public, commercial or private service activities. Members of the Fellows Committee and voting members of the APRES Board of Directors are ineligible for nomination.

Nomination Procedures

Preparation. Careful preparation of the nomination for a distinguished colleague based principally on the candidate's record of service will assure a fair evaluation by a responsible panel. The assistance of the nominee in supplying accurate information is permissible. The documentation should be brief and devoid of repetition. The identification of the nominee's contributions is the most important part of the nomination. The relative weight of the categories of achievement and performance are given in the attached "Format."

Format. Organize the nomination in the order shown in the "Format for Fellow Nominations." The body of the nomination, excluding publications lists and supporting letters, should be no more than eight (8) pages.

Supporting letters. The nomination shall include a minimum of three supporting letters (maximum of five). Two of the three required letters must be from active members of the Society. The letters are solicited by, and are addressed to, the nominator, and should not be dated. Those writing supporting letters need not repeat factual information that will obviously be given by the nominator, but rather should evaluate the significance of the nominee's achievements. Members of the Fellows Committee, the APRES Board of Directors, and the nominator are not eligible to write supporting letters.

Deadline. Six (6) copies of the nomination are to be received by the chairman of the Fellows Committee by March 1 each year.

Basis of Evaluation

A maximum of 10 points is allotted to the nominee's personal achievements and recognition. A maximum of 50 points is allotted to the nominee's achievements in his or her primary area of activity, i.e. research, extension, service to industry, or administration. A maximum of 10 points is also allotted to the nominee's achievements in secondary areas of activity. A maximum of 30 points is allotted to the nominee's service to APRES and to the profession.

Processing of Nominations

The Fellows Committee shall evaluate the nominations, assign each nominee a score, and make recommendations regarding approval by April 1. The President of APRES shall mail the committee recommendations to the Board of Directors for election of Fellows, maximum of three (3), for that year. A simple majority of the Board of Directors must vote in favor of a nominee for election to fellowship. Persons elected to fellowship, and their nominators, are to be informed promptly. Unsuccessful nominations will be reconsidered the following year and nominators will be contacted and given the opportunity to provide a letter that updates the nomination. After the second year unsuccessful nominations will be reconsidered only following submission of a new, complete nomination package.

Recognition

Fellows shall receive a plaque at the annual business meeting of APRES. The Fellows Committee Chairman shall announce the elected Fellows and the President shall present each a certificate. The members elected to fellowship shall be recognized by publishing a brief biographical sketch of each, including a photograph and summary of accomplishments, in the APRES PROCEEDINGS. The brief biographical sketch is to be prepared by the Fellows Committee.

Distribution of Guidelines

These guidelines and the format are to be published in the APRES PROCEEDINGS and again whenever changes are made. Nominations should be solicited by an announcement published in "APRES Peanut Research."

FORMAT for AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY FELLOW NOMINATIONS

TITLE: "Nomination of _____ for Election to Fellowship by the American Peanut Research and Education Society."

DATE SUBMITTED:

NOMINEE: Name, date and place of birth, mailing address, and Telephone number.

NOMINATOR: Name, signature, mailing address, and telephone number.

BASIS OF NOMINATION: Primary area: designate Research, Extension, Service to Industry, or Administration.

Secondary areas: designate contributions in areas other than the nominee's primary area of activity.

QUALIFICATIONS OF NOMINEE: Complete parts I and III for all Candidates and as many of II -A, -B, -C and D as are applicable.

I. Personal Achievements And Recognition (10 points)

A. Degrees received: give field, date, and institution for each degree.
B. Membership in professional and honorary academic societies.
C. Honors and awards received since the baccalaureate degree.
D. Employment: years, organizations and locations.

II. Achievement in Primary (50 Points) And Secondary (10 Points) Fields of Activity

A. Research
Significance and originality of basic and applied research contributions; scientific contribution to the peanut industry; evidence of excellence and creative reasoning and skill; number and quality of publications; quality and magnitude of editorial contributions. Attach a chronological list of publications.

B. Extension
Ability to (a) communicate ideas clearly, (b) influence client attitudes, and (c) motivate change in client action. Evaluate the quality, number and effectiveness of publications for the audience intended. Attach a chronological list of publications.

C. Service to Industry
Development or improvement of programs, practices, and products. Evaluate the significance, originality and acceptance by the public.

D. Administration or Business

Evidence of creativeness, relevance, and effectiveness of administration of activities or business within or outside the USA.

III. Service to The Profession (30 Points)

A. Service to APRES including length, quality, and significance of service.
   1. List appointed positions.
   2. List elected positions.
   3. Briefly describe other service to the Society.

B. Service to the profession outside the Society including various administrative skills and public relations actions reflecting favorably upon the profession.

   1. Describe advancement in the science, practice and status of peanut research, education or extension, resulting from administrative skill and effort.
   2. Describe initiation and execution of public relations activities promoting understanding and use of peanuts, peanut science and technology by various individuals and organized groups within and outside the USA.

EVALUATION: Identify in this section, by brief reference to the appropriate materials in sections II and III, the combination of the contributions on which the nomination is based. Briefly note the relevance of key items explaining why the nominee is especially well qualified for fellowship.

BAILEY AWARD COMMITTEE REPORT

The committee's business related to the 2011 Bailey Award winner was conducted by email, prior to the annual meeting. Nominations were received from all fifteen eligible sessions of the 2010 annual meeting, and nominees were notified shortly after the meeting. Eight manuscripts were received and accepted for final evaluation by the committee. The winning paper is to be presented the Bailey Award at the Thursday afternoon awards ceremony.

The winning paper is from a presentation titled "Identification of QTL Associated with Reduced Post-Harvest Aflatoxin Accumulation in Peanut (Arachis hypogeae L.)" by Christina E. Rowe, Vijay J. Vontimitta, Thomas G. Isleib**, Susana R. Milla-Lewis*. The winning paper had two authors indicated as presenters, Thomas G. Isleib** & Susana R. Milla-Lewis*. Susana Milla-Lewis was the planned presenter, but Tom Isleib actually presented the paper at the meeting. Tom Isleib was notified of the nomination, and Susan Milla-Lewis submitted the manuscript to the Awards Committee. Based on the published Guidelines for the APRES Bailey Award, the committee agreed that Tom Isleib is the recipient of the award.

The committee met on July 12, 2011 at the Menger Hotel in San Antonio, TX. The chair and two members were in attendance. The committee reviewed a proposed standardized form for use to evaluate presentations within each session, and discussed potential new members to the committee. The committee agreed that Dr. Jao Augusto be invited to join the committee, as he served as an adjunct member during the manuscript review process after one of the committee members was unable to participate.

The chair would like to thank the committee for serving as reviewers and for their timely responses.

2010-11 Bailey Award Committee:
Emily Cantonwine, Chair (2011)
Tom Stalker (2012)
David Jordan (2012)
Naveen Puppala (2013)
Mehboob Sheikh (2013)
Austin Hagan (2013)
Joa Augusto, adjunct

Respectfully Submitted by:
Emily Cantonwine, chair

GUIDELINES for AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY BAILEY AWARD

The Bailey Award was established in honor of Wallace K. Bailey, an eminent peanut scientist. The award is based on a two-tier system whereby nominations are selected based on the oral paper presentation in sessions at the annual APRES meeting, and final awards are made after critiquing manuscripts based on the information presented during the respective meeting.

For initial selection, the session chairman shall appoint three persons, including him/herself if desired, to select the best paper in the session. None of the judges can be an author or co-author of papers presented during the respective session. No more than one paper from each session can be nominated for the award but, at the discretion of the session chairman in consultation with the Bailey Award chairman, the three-member committee may forego submission of a nomination. Symposia and poster presentations are not eligible for the Bailey Award. The following should be considered for eligibility:

1. The presenter of a nominated paper, whether the first or a secondary author, must be a member of APRES.
2. Graduate students being judged for the Joe Sugg Award are also eligible for the Bailey Award if they meet all other criteria for eligibility.

Oral presentations will be judged for the Award based on the following criteria:

1. Well organized.
2. Clearly stated.
3. Scientifically sound.
4. Original research or new concepts in extension or education.
5. Presented within the time allowed.

A copy of these criteria will be distributed to each session chair and judge prior to the paper session.

Final evaluation for the Award will be made from manuscripts submitted to the Awards Committee, after having been selected previously from presentations at the APRES meetings. These manuscripts should be based on the oral presentation and abstract as published in the PROCEEDINGS.

Authorship of the manuscript should be the same (both in name and order) as the original abstract. Papers with added author(s) will be ruled ineligible. Manuscripts are judged using the following criteria:

1. Appropriateness of the introduction, materials and methods, results and discussion, interpretation and conclusions, illustrations and tables.
2. Originality of concept and methodology.
3. Clarity of text, tables and figures; economy of style; building on known literature.
4. Contribution to peanut scientific knowledge.

The Bailey Award chair for the current year's meeting will complete the following:

a) notify session moderators for the upcoming meeting of their

responsibilities in relation to judging oral presentations as set in the guidelines in APRES PROCEEDINGS,

b) meet with committee at APRES meeting,
c) collect names of nominees from session moderators by Friday a.m. of Annual Meeting,
d) provide Executive Officer and Bailey Award committee members the name of Bailey Award nominees,
e) notify nominees within two months of meeting,
f) set deadline in late Fall or early winter for receipt of manuscripts by Bailey Award chair,
g) distribute manuscripts to committee members,
h) provide Executive Officer with Bailey Award winner and paper title no later than May 15, and
i) Bailey Award chair's responsibilities are completed when the Executive Officer receives Bailey Award recipient's name and paper title.

The presentation of bookends will be made to the speaker and other authors appropriately recognized.

JOE SUGG GRADUATE STUDENT AWARD REPORT

Joe Sugg Graduate Student Award Committee – . Seven students participated in the graduate student competition. First place in the Joe Sugg Student Award went to Steven Thornton of the University of Florida for the paper entitled "Determining the relationship between field emergence and late leaf spot resistance in peanut," co-authored by M. Gallo and B. Tillman. Second place went to Justin Moss, University of Georgia for the paper entitled "Agronomic and economic evaluation of double-crop and relay-intercropping systems of peanut with wheat," coauthored by R. S. Tubbs, T. L. Grey, N. B. Smith and J. W. Johnson.

Respectfully submitted by:
Robert Kemerait, chair

COYT T. WILSON DISTINGUISHED SERVICE AWARD REPORT

The Coyt T. Wilson Distinguished Service Award Committee met at 2:30 p.m. July 12, 2011 in San Antonio, TX. Committee members for 2011 were Ames Herbert, Jack Davis, Kim Moore, Naveen Puppala, Mark Black, and Elizabeth Grabau, chair.

The Coyt T. Wilson award is awarded annually to a person who has contributed two or more years of distinguished service to the American Peanut Research and Education Society. The award was established in honor of Dr. Coyt T. Wilson who provided leadership in the formative years of the Society. His contributions helped make possible the early and current success of the Society.

The award committee reviewed the qualifications of one nominee for the 2011 award. The nominee has provided outstanding service to the American Peanut Research and Education Society and the peanut industry. The award committee recommended that the 2011 Coyt T. Wilson Distinguished Service Award be presented to Mr. W. James Grichar, Texas A&M University System. Mr. Grichar has 37 years of dedicated service to the peanut industry focused on weed management, and over 32 years of contributions to APRES. Within the Society, Mr. Grichar has been a leader in service to the journal PEANUT SCIENCE, numerous committees, annual meetings activities, and the presidential succession.

Respectfully submitted,
Elizabeth Grabau, chair

BIOGRAPHICAL SUMMARY OF COYT T. WILSON DISTINGUISHED SERVICE AWARD RECIPIENT

The Coyt T. Wilson Distinguished Service Award recognizes individuals who have contributed distinguished service to the American Peanut Research and Education Society (APRES) over the years. **Mr. W. James Grichar** has made significant service contributions to APRES for over 30 years and I cannot think of anyone more deserving of this award. I have been extremely fortunate to be a part of a research team under the leadership of Mr. W. James Grichar for the past 15 years. Mr. Grichar is a very gifted researcher, outstanding writer and communicator, and an unselfish team player. It is rare that one individual obtain all of these qualities. Mr. Grichar has given his time to service the peanut industry, an industry he is very passionate about.

Mr. W. James Grichar is a gifted researcher. Although he is recognized for his work in numerous crops, to me and several of his colleagues he is simply known as "Mr. Peanut". We frequently consult with James for weed management recommendations, research guidance, and other work related problem solving issues. Mr. Grichar has a wealth of peanut weed management information and freely shares what he has learned to help others address their weed control needs. Across the peanut belt, when someone needs weed management information in peanut, James comes to the top of the list. He is always willing to take the leadership role in developing protocols for field and greenhouse experiments, and help assemble information for presentations at local, regional, and professional society meetings. My office and cell phone are set up to call James using speed dial because of the number of times we visit by phone. Thankfully, James seems never to busy to offer advice because he truly enjoys helping colleagues, growers, consultants, and the general peanut industry with their weed control decisions. Keep in mind that James works in several crop protection disciplines and likely these areas consider him their expert as well.

Mr. Grichar is an exceptional writer. He is eager to set up field studies at multiple locations for pooling of data for publication purposes. James has over 130 referred publications, 4 book chapters, 54 Texas AgriLife Research publications, 48 popular articles, 242 proceedings, and over 270 other publications. Many of these publications are in the peanut area, not only weed science, but plant pathology and agronomy as well. He has been invited to share research results and ideas at 20 to 25 meetings per year. It is no wonder that with this publication record that he is so well known across the state and peanut belt.

Mr. W. James Grichar has received numerous awards and honors. He received the Vice Chancellor's Award in Excellence for Research Support (Off Campus, 1998), the Dow AgroSciences Award for Excellence in Research – APRES (1997), Texas A&M Support Achievement Award for Research Support, and was a Bailey Award Nominee on two occasions. James has served APRES as President Elect, President, Past President, Associate Editor of Peanut Science, and has served on the following committees: Peanut Quality, National Peanut Council Awards, Joe Sugg Graduate Student Awards, Publications and Editorial, Dow AgroSciences Award, Site Selection, Technical Program, Local Arrangements, and Program. He was named Fellow of the American Peanut

Research and Education Society in 2007. It seems obvious that Mr. Grichar cares a great deal for the American Peanut Research and Education Society and has given a significant amount of time and energy to help ensure the viability and success of our organization.

Lastly, but perhaps of greatest significance to many of his colleagues, James has served as a mentor to many of us that have recently started working in peanut research. He could have easily taken the attitude that he has already conducted the research and collected the necessary data to answer the question being addressed. Rather, James has taken the opposite approach and guides our team to proper and useful field plot research. I have the utmost respect for Mr. Grichar, as a researcher, teacher, and friend. It is because of all these qualities that I feel strongly he is most deserving of the prestigious Coyt T. Wilson Distinguished Service Award.

Below are some of the comments made by those who wrote letters of support for this nomination:

> As a student and during early career, it became obvious that James was an established leader in weed management issues for peanut and other crops in Texas and throughout the southeastern US.
>
> I continue to think of James as a mentor in the area of weed science and production of peanut.
>
> …a person being honored through the Coyt T. Wilson Distinguished Service Award needs to have demonstrated excellence in their discipline of study. Not only has James done this in the area of weed science and management of weeds in peanut, he also completed a great deal of work in areas of reduced tillage peanut production, cropping systems, and disease management. His efforts in these and other areas of research are manifested in his 130 peer-reviewed journal articles and four book chapters. James' work is well respected in the peanut industry, and his findings have been readily incorporated into Cooperative Extension recommendations that are practical and have been extended to growers and other clientele in Texas and throughout the region. James' nomination packet clearly demonstrates his service to the clientele the American Peanut Research and Education Society is designed to serve.
>
> James exemplifies the verb "service" from a personal standpoint. James is personable, willing to work with others in leadership or contributor roles, and his integrity is not surpassed by anyone I know. He has been a true servant of this organization and the peanut industry as a whole.
>
> I have never heard anything but positive comments about James as an Associate Editor from the membership exhibiting his devotion to accomplishing this task properly. James has also been a prodigious author of many manuscripts throughout the years covering a wide scope of topics on peanut. He is especially recognized for his knowledge and expertise in weed science. In fact in the weed science arena James is affectionately known as Mr. Peanut. Because of his dedication to the society and his incessant devotion to assist in promoting peanut

production through research and education, I whole-heartily endorse Mr. W. James Grichar for the APRES Coyt T. Wilson Distinguished Service Award.

James has established himself as one of the leading peanut weed scientists in the nation and the world. I cannot remember a time when I have searched for weed control information about peanuts and not come across his name. For most of his career, James has dedicated his life to the improvement of peanut production. I have no doubt that the success of the peanut industry in Texas and the rest of the nation is partly due to the research and extension programs that he and his team have conducted over the years.

The CDWDSA is an award that recognizes individuals who have contributed outstanding service to APRES. Currently, I cannot think of another person in our organization that is more deserving than James. His commitment to the success of APRES is a true example of distinguished service!!!

From a personal standpoint, James has been a mentor and friend to me and many other young weed scientists with peanut weed control responsibilities. James has always been eager to share his knowledge and expertise. Even to this day, James is the first person I call when I have a question about weed control in peanuts.

In looking over the current list of CDWDSA winners, it is easy to recognize many of the names of the people who have contributed so much to the development of APRES. In my opinion, this list is incomplete without the name of W. James Grichar.

GUIDELINES for AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY COYT T. WILSON DISTINGUISHED SERVICE AWARD

The Coyt T. Wilson Distinguished Service Award will recognize an individual who has contributed two or more years of distinguished service to the American Peanut Research and Education Society. It will be given annually in honor of Dr. Coyt T. Wilson who contributed freely of his time and service to this organization in its formative years. He was a leader and advisor until his retirement in 1976.

Eligibility of Nominators

Nominations may be made by an active member of the Society except members of the Award Committee and the Board of Directors. However, the nomination must be endorsed by a member of the Board of Directors. A nominator may make only one nomination each year and a member of the Board of Directors may endorse only one nomination each year.

Eligibility of Nominees

Nominees must be active members of the Society and must have been active for at least five years. The nominee must have given of their time freely and contributed distinguished service for two or more years to the Society in the area of committee appointments, officer duties, editorial boards, or special assignments. Members of the Award Committee are ineligible for nomination.

Nomination Procedures

Deadline. The deadline date for receipt of the nominations by the chairman shall be March 1 of each year.

Preparation. Careful preparation of the nomination based on the candidate's service to the Society is critical. The nominee may assist in order to assure the accuracy of the information needed. The documentation should be brief and devoid of repetition. Six copies of the nomination packet should be sent to the committee chair.

Format. TITLE: Entitle the document "Nomination of _____ for the Coyt T. Wilson Distinguished Service Award presented by the American Peanut Research and Education Society". (Insert the name of the nominee in the blank).

NOMINEE: Include the name, date and place of birth, mail address (with zip code) and telephone number (with area code).

NOMINATOR AND ENDORSER: Include the typewritten names, signatures, mail addresses (with zip codes) and telephone numbers (with area codes).

SERVICE AREA: Designate area as Committee Appointments, Officer Duties, Editorial Boards, or Special Assignments. (List in chronological order by year of appointment.)

Qualifications of Nominee

I. Personal Achievements and Recognition:
   A. Education and degrees received: Give field, date and institution.
   B. Membership in professional organizations
   C. Honors and awards
   D. Employment: Give years, locations and organizations

II. Service to the Society:
   A. Number of years membership in APRES
   B. Number of APRES annual meetings attended
   C. List all appointed or elected positions held
   D. Basis for nomination
   E. Significance of service including changes which took place in the Society as a result of this work and date it occurred.

III. Supporting letters:
   Two supporting letters should be included with the nomination. These letters should be from Society members who worked with the nominee in the service rendered to the Society or is familiar with this service. The letters are solicited by and are addressed to the nominator. Members of the Award Committee and the nominator are not eligible to write supporting letters.

IV. Re-consideration of nominations. Unsuccessful nominations will be reconsidered the following year and nominators will be contacted and given the opportunity to provide a letter that updates the nomination. After the second year unsuccessful nominations will be reconsidered only following submission of a new, complete nomination package.

Award and Presentation

The award shall consist of a $1,000 cash award and a bronze and wood plaque both provided by the Society and presented at the annual meeting.

DOW AGROSCIENCES AWARDS COMMITTEE REPORT

Dow Agrosciences Awards Committee – The Dow AgroSciences Award Committee did not meet at the APRES meetings in 2011 because committee business was taken care of prior to the APRES annual meeting. In 2011 the committee received nominations for the Dow AgroSciences Award for Excellence in Research and the Award for Excellence in Education. Nomination packets were distributed to committee members electronically, and the vote on the nominations was conducted electronically. Dr. Austin K. Hagan is this year's recipient of the Dow AgroSciences Award for Excellence in Education, and Dr. Timothy L. Grey is this year's recipient of the Dow AgroSciences Award for Excellence in Research.

Respectfully submitted by:
C. Corley Holbrook, chair

BIOGRAPHICAL SUMMARY OF DOW AGROSCIENCES AWARD FOR EXCELLENCE IN EDUCATION RECIPIENT

Dr. Austin K. Hagan is an Extension Specialist in plant pathology responsible for numerous crops including peanut. He has over 30 years experience and has been extremely helpful not only to growers, but to other research and extension colleagues.

Dr. Hagan has conducted numerous research trials to help educate peanut producers and other research scientists across the peanut belt. One of his accomplishments was helping to develop the AU Peanut Leaf Spot Advisory and educating producers on how to best utilize it. The AU Peanut Leaf Spot Advisory has had a tremendous economic impact with peanut producers across the south. The leaf spot advisory has saved the producers' time by not having to apply as many fungicide sprays. This increased the producers' profitability by not only limiting the total number of sprays but saving the producer in labor, application, and chemical costs.

Dr. Hagan has also cooperated with other researchers in developing the Peanut Risk Index. He has invested countless hours into research and education to make this index a tool that farmers can feel comfortable with so they can utilize it to increase profitability.

In addition to 15 book chapters, 50 journal articles, and numerous abstracts, technical reports and extension bulletins, Dr. Hagan still finds the time to make grower visits to help solve problems directly. He also goes the extra mile helping to educate the clientele by doing many presentations each year at various meetings.

Dr. Hagan has not only been a huge asset to peanut producers in Alabama but all across the Southeastern peanut region and is most deserving of this prestigious award.

BIOGRAPHICAL SUMMARY OF DOW AGROSCIENCES AWARD FOR EXCELLENCE IN RESEARCH RECIPIENT

Dr. Timothy L. Grey is an extraordinarily talented researcher with emphasis on herbicide physiology and behavior of herbicides in soils. Dr. Grey's talents as an herbicide chemist and soil scientist allow him to answer many relevant questions for peanut growers in the region. An example is Dr. Grey's research on the behavior of flumioxazin in coastal plain soils and factors related to the sporadic peanut injury caused by flumioxazin. This provided critical knowledge for peanut growers to correctly use this valuable herbicide to control Palmer amaranth and avoid significant injury.

Dr. Grey is an efficient and prolific writer. During his short career he has published 71 journal articles, with topics covering the gamut from applied to very basic research topics. Another measure of Dr. Grey's impact and stature among weed scientists are the seven invited international presentations from 2003 to present. Dr. Grey tirelessly serves his professional societies as Associate Editor for PEANUT SCIENCE, Associate Editor for WEED SCIENCE, and as regular reviewer for WEED TECHNOLOGY and AGRONOMY JOURNAL. Dr. Grey teaches undergraduate/graduate level classes, in addition to being a featured speaker at many county agent training sessions and county production meetings. Dr. Grey is widely respected for his research accomplishments and service to agriculture.

Dr. Grey was recognized for his research accomplishments by receiving the Tifton Campus Outstanding Junior Scientist Award in 2006 and the Early Career Award from the Southern Branch of the American Society of Agronomy in 2009. Dr. Grey's alma mater, the College of Agriculture at the University of Kentucky, recognized him as the Outstanding Young Alumnus in 1999. Dr. Grey has built an impressive research program and is most deserving of this prestigious award.

GUIDELINES for DOW AGROSCIENCES AWARDS FOR EXCELLENCE IN RESEARCH AND EDUCATION

I. Dow AgroSciences Award for Excellence in Research

The award will recognize an individual or team for excellence in research. The award may recognize an individual (team) for career performance or for an outstanding current research achievement of significant benefit to the peanut industry. One award will be given each year provided worthy nominees are nominated. The recipient will receive an appropriately engraved plaque and a $1,000 cash award. In the event of team winners, one plaque will be presented to the team leader and other team members will receive framed certificates. The cash award will be divided equally among team members.

Eligibility of Nominees

Nominees must be active members of the American Peanut Research and Education Society and must have been active members for the past five years. The nominee or team must have made outstanding contributions to the peanut industry through research projects. An individual may receive either award only once as an individual or as a team member. Members of the Dow AgroSciences Awards Committee are ineligible for the award while serving on the committee.

II. Dow AgroSciences Award for Excellence in Education

The award will recognize an individual or team for excellence in educational programs. The award may recognize an individual (team) for career performance or for an outstanding current educational achievement of significant benefit to the peanut industry. One award will be given each year provided worthy nominees are nominated. The recipient will receive an appropriately engraved plaque and a $1,000 cash award. In the event of team winners, one plaque will be presented to the team leader and other team members will receive framed certificates. The cash award will be divided equally among team members.

Eligibility of Nominees

Nominees must be active members of the American Peanut Research and Education Society and must have been active members for the past five years. The nominee or team must have made outstanding contributions to the peanut industry through education programs. Members of the Dow AgroSciences Awards Committee are not eligible for the award while serving on the committee.

Eligibility of nominators, nomination procedures, and the Dow AgroSciences Awards Committee are identical for the two awards and are described below:

Eligibility of Nominators

Nominators must be active members of the American Peanut Research and Education Society. Members of the Dow AgroSciences Awards Committee are not eligible to make nominations while serving on the committee. A nominator

may make only one nomination each year.

Nomination Procedures

Nominations will be made on the Nomination Form for Dow AgroSciences Awards. Forms are available from the Executive Officer of APRES. A nominator's submittal letter summarizing the significant professional achievements and their impact on the peanut industry must be submitted with the nomination. Three supporting letters must be submitted with the nomination. Supporting letters may be no more than one page in length. Nominations must be postmarked no later than March 1 and mailed to the committee chair. Unsuccessful nominations will be reconsidered the following year and nominators will be contacted and given the opportunity to provide a letter that updates the nomination. After the second year unsuccessful nominations will be reconsidered only following submission of a new, complete nomination package.

Dow AgroSciences Awards Committee

The APRES President is responsible for appointing the committee. The committee will consist of seven members with one member representing the sponsor. After the initial appointments, the President will appoint two new members each year to serve a term of three years. If a sponsor representative serves on the awards committee, the sponsor representative will not be eligible to serve as chair of the committee.

NOMINATION FORM FOR DOW AGROSCIENCES AWARDS

General Instructions: Listed below is the information to be included in the nomination for individuals or teams for the Dow AgroSciences Award. Ensure that all information is included. Complete Section VI, Professional Achievements, on the back of this form. Attach additional sheets as required.

****

Indicate the award for which this nomination is being submitted. Date nomination submitted:

___ Dow AgroSciences Award for Excellence in Education

___ Dow AgroSciences Award for Excellence in Research

****

I. Nominee(s): For a team nomination, list the requested information on all team members on a separate sheet.

DATE:

Nominee(s): _____

Address _____

Title _____ Tel No. _____

II. Nominator:

Name _____ Signature_____

Address _____

Title _____Tel No._____

III. Education: (include schools, college, universities, dates attended and degrees granted).

IV. Career: (state the positions held by listing present position first, titles, places of employment and dates of employment).

V. Honors and Awards: (received during professional career).

VI. Professional Achievements: (Describe achievement in which the nominee has made significant contributions to the peanut industry).

VII. Significance: (A "tight" summary and evaluation of the nominee's most significant contributions and their impact on the peanut industry.) This material should be suitable for a news release.

PEANUT QUALITY COMMITTEE REPORT

1. The meeting was called to order by Chairman Victor Nwosu at 3:30 pm. Those in attendance were the following: V. Nwosu, M. Kline, R. Wilson, Y. Hung, L. Dean, C. Holbrook, T. Isleib, D. Smyth, J. Davis, J. Elder, F. Mills, L. Moore, G. Wright, P. Donahue, D. Cowart, B. Branch, H. Valentine, K. Calhoun, R. Valenzuela, H. Hinojosa Garcia, M. Burow, T. Sanders.

2. Review of 2010 minutes: The membership was asked to approve the 2010 meeting minutes. The meeting minutes were approved.

3. Appointment of Secretary: M. Kline was appointed as secretary.

4. Strategy Plan Discussion: Victor shared the International Peanut Genome Initiative strategy plan for 2012 through 2016. Feedback was solicited and given. It was noted that there are several factors that determine the effectiveness of the competitive biocontrol, these included type of strain used (Howard mentioned an *A. flavus* strain used for cotton that doesn't appear to have an issue with hot and dry climate), number of years applied and method of application. Jim asked for clarification on what constitutes an early maturing variety. A discussion ensued with clarification that early maturing varieties must mature 2-4 weeks earlier based on variety, and measured using the hull scrape method. Bill Branch raised concerns regarding the 55% oil content measure and how this can cause issues for food manufacturers. Victor and Howard emphasized that this is a strategy for the international community and includes goals for the non edible market. For the U.S. edible crop, fat content would be maintained at 48-50%. Tom Isleib mentioned that weed resistant peanut varieties are definitely doable. Victor saw the need to add a measure for water use efficiency but raised the question as to how this would best be measured. An action was given to Corley to reach out to Vincent to define an appropriate measure for water usage efficiency. Mark was given the task to update the OGSM with feedback and send to Victor with the meeting minutes.

5. Uniform Peanut Performance Test (UPPT) Discussion: Tom shared the UPPT data showing main quality attributes since 2001. Howard noted that the Florunner has declined in roast peanut attributes along with other varieties. Tom mentioned that he did not see any correlation with chemical treatments but this may be attributed to the SE planting later and overall peanut maturity. Tim mentioned that due to the environmental differences, we need to encourage farmers to harvest at maturity and emphasize appropriate post harvest practices.

6. Appointment of Chair: Jim Elder was recommended as chair.

7. Meeting was adjourned at 4:30 pm.

Respectfully submitted by:
Victor Nwosu, chair

PROGRAM COMMITTEE REPORT

There were 103 scheduled presentations for the 43rd annual meeting held in San Antonio, TX. Of these there were 30 poster presentations. There was also a special session on the utilization of wild species germplasm for improvement of cultivated peanut. There were 166 persons registered for the annual meeting plus an additional 87 spouses and children registered for a total of 253 attendees. In addition to the traditional Ice Cream Social on Tuesday evening, there was a dinner co-sponsored by Bayer CropScience and BASF on Wednesday evening and an awards reception sponsored by Dow AgroSciences on Thursday evening. The spouses program included a luncheon and riverboat tour of the San Antonio Riverwalk.

Respectfully submitted by:
Todd Baughman, chair

Contributors to 2011 APRES Meeting

On behalf of APRES members and guests, the Program Committee says **"THANK YOU"** to the following organizations for their generous financial and product contributions:

Special Activities

Bayer CropScience/BASF – Wednesday Dinner
Dow AgroSciences – Thursday Awards Reception

Ice Cream Social

Albaugh, Inc.
Birdsong Peanuts
DuPont
Helena Chemical Company
Olam Edible Nuts
Valent USA
Agrisel
Cheminova
Golden Peanut Company, LLC
Novozymes (formerly EMD Crop BioScience)
Southeast Farm Press

Product Contributors

Kraft
Lance
Kroger Foods
Texas Peanut Producers

General Contributors

Severn Peanut Company

Spouse/Children's Program

Bayer CropScience
DuPont
Syngenta
Dow AgroSciences
Monsanto
Valent

43rd ANNUAL MEETING of the AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY
San Antonio, Texas
July 11-14, 2011

BOARD OF DIRECTORS

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PROGRAM COMMITTEE

Todd Baughman, Chair

Local Arrangements

Peter Dotray, Chair
James Grichar
Gary Schwarzlose
Jason Woodward

Technical Program

Michael Franke, Chair
Mike Baring
Brent Besler
Kyle Hord
Naveen Puppala
Scott Russell
Charles Simpson
Jason Woodward

Spouses' Program

Peggy Dotray, Chair
Linda Baughman
Dimple Grichar
Lynann Simpson
MaryLou Starr
Jennifer Woodward

Monday, July 11

5:00-7:00 pm Peanut Genomics Initiative ..... **Cavalier Room**

Tuesday, July 12

Committee and Other Meetings

8:00-10:00	Seed Summit	**Cavalier Room**
10:00-Noon	Crop Germplasm Committee	**Cavalier Room**
Noon-6:00	APRES Registration	**Ballroom Foyer**
1:30-2:30	Associate Editors, Peanut Science	**Ballroom BC**
1:30-2:30	Fellows Committee	**Ballroom BC**
1:30-2:30	Joe Sugg Graduate Student Award Committee.....	**Ballroom BC**
1:30-2:30	Membership *Ad hoc* Committee	**Ballroom BC**
1:30-2:30	Nominating Committee	**Ballroom BC**
1:30-2:30	Site Selection Committee.....	**Ballroom BC**
2:30-3:30	Bailey Award Committee	**Ballroom BC**
2:30-3:30	Coyt T. Wilson Distinguished Service Award Committee	**Ballroom BC**
2:30-3:30	Dow AgroSciences Awards Committee	**Ballroom BC**
2:30-3:30	Grower Advisory Committee.....	**Ballroom BC**
2:30-3:30	Publications and Editorials Committee	**Ballroom BC**
2:30-3:30	Public Relations Committee	**Ballroom BC**
3:30-4:30	Finance Committee	**Ballroom BC**
3:30-4:30	Program Committee (Local Arr. & Technical).....	**Ballroom BC**
3:30-4:30	Peanut Quality Committee.....	**Ballroom BC**
3:30-4:30	By-Laws *Ad hoc* Committee.....	**Ballroom BC**
3:00-6:00	Presentation Loading	**Ballroom Foyer**
7:00-9:00	**"Welcome to San Antonio" Ice Cream Social**	**Minuet Room**

Wednesday, July 13

Morning

8:00-4:00	APRES Registration	**Ballroom Foyer**
8:00-9:30	Spouses' Hospitality Room (Staffed)	**Patio Room**
9:30-4:00	Spouses' Hospitality Room (Open)	**Patio Room**
7:00-8:00	Poster setup	**Pre-function area (by Ballroom Foyer)**
8:00-9:15	General Session	**Ballroom AB**
9:15-9:30	**BREAK**	**Pre-function area**
9:30-Noon	Harvesting/Processing and Utilization	**Ballroom A**
9:30-Noon	Economics/Physiology/Production Technology	**Ballroom C**
10:00-Noon	Weed Science	**Minuet Room**

Afternoon and Evening

1:30-3:15	Joe Sugg Graduate Student Competition	**Ballroom AB**
3:30-3:45	**BREAK**	**Pre-function area**
3:00-6:00	Presentation Loading	**Ballroom Foyer**
3:45-5:00	Poster Session (with authors)	**Pre-function area**
3:45-4:45	Physiology and Seed Technology	**Salon E**
5:00-6:30	Board of Directors	**Renaissance**
5:00-6:00	Peanut CRSP	**Cavalier**
7:00-9:00	Bayer CropScience/BASF- Evening Meal	**Ballroom ABC**

Thursday, July 14

Morning

8:00-Noon	APRES Registration	**Ballroom Foyer**
8:00-Noon	Poster Session (no authors)	**Pre-function area**
8:00-9:30	Spouses' Hospitality Room (Staffed)	**Patio Room**
9:30-4:00	Spouses' Hospitality Room (Open)	**Patio Room**
8:00-11:00	Plant Pathology, Nematology and Entomology	**Ballroom A**
8:00-10:45	Extension Techniques	**Ballroom C**
8:00-10:30	Breeding and Genetics	**Minuet Room**
9:45-10:00	**BREAK**	**Pre-function area**

Afternoon and Evening

1:00-2:30	Wild Species Symposium	**Ballroom AB**
2:30-2:45	**BREAK**	**Pre-function area**
2:45-4:00	Wild Species Symposium Continued	**Ballroom AB**
4:30-5:30	APRES Business Meeting	**Minuet Room**
5:30-6:30	Dow AgroSciences Awards Reception	**Minuet and Patio Rooms**
		Dinner On Your Own

Wednesday, July 13 – Morning

GENERAL SESSION

Moderator: ***Todd Baughman, APRES President Elect***
Meeting Room: ***Ballroom AB***

8:00 Call to Order..... **Maria Gallo**
APRES President

8:05 Welcome to San Antonio!..... **Shelly Nutt**
Texas Peanut Producers Board

8:20 National Peanut Board Update..... **Bob White**
National Peanut Board

8:35 NPB George Washington Carver Award Presentation ..... **Bob White**
National Peanut Board

8:40 Fifty Years of Change in Southern Agriculture and
What's Over the Horizon – An Editor's Reflections ..... **Ron Smith**
Southwest Farm Press

9:10 Announcements..... **Michael Franke**
Chair, Technical Program

9:15 **BREAK**

Morning

HARVESTING, CURING, SHELLING, STORING, AND HANDLING
PROCESSING AND UTILIZATION

Moderator: ***Michael Franke***

Meeting Room: ***Ballroom A***

9:30 **(1)** The Effect of Cultivar, Maturity, and Curing Conditions on Seed and Milling Quality. C.L. BUTTS*, W.H. FAIRCLOTH, and M.C. LAMB, USDA, ARS, National Peanut Research Laboratory, P.O. Box 509, Dawson, GA 39842.

9:45 **(2)** Estimating the Kernel Mass Ratio in Peanuts Nondestructively Using a Low-Cost Impedance Meter. C.V. KANDALA* and J. SUNDARAM, National Peanut Research Laboratory, USDA Dawson, GA 39842.

10:00 **(3)** Digital Analysis System to Evaluate Peanut Maturity: Predicting Yield and Grade. D.L. ROWLAND*, B. COLVIN Agronomy Department, The University of Florida, Gainesville, FL 32611; W.H. FAIRCLOTH, USDA-ARS, National Peanut Research Lab, 1011 Forrester Dr. SE, Dawson, GA, 39842; and J.A. FERRELL, Agronomy Department, The University of Florida, Gainesville, FL 32611.

10:15 **(4)** Measurements of Oil Density to Rapidly Segregate High Oleic Peanuts. J.P. DAVIS*, K.M. PRICE, L.L. DEAN, and T.H. SANDERS, USDA ARS Market Quality and Handling Research, Raleigh, NC, 27695.

10:30 **(5)** Peanut Maturity Determination: Past, Present, and Future. J.P. BEASLEY, JR.*, Crop and Soil Sciences Department, University of Georgia, Tifton, GA 31793-5737, G. VELLIDIS, Biological and Agricultural Engineering Department, University of Georgia, Tifton, GA 31793-5737, and W.H. FAIRCLOTH, USDA-ARS, National Peanut Research Lab, Dawson, GA 39842-0509.

10:45 **(6)** Evaluation of an adjusted growing degree day model for improved prediction of peanut maturity. W.H. FAIRCLOTH*, C.L. BUTTS, USDA-ARS, National Peanut Research Laboratory, Dawson, GA 39842; J.P. BEASLEY, Univ. of Georgia, Tifton, GA 31793; D.L. ROWLAND, and J.A. FERRELL, Univ. of Florida, Gainesville, FL 32611.

11:00 **(7)** Fructose as Probe for Studying Flavor Generation and Color Development in Roasting Peanut Seed. D.A. SMYTH*, E.M. ROSSWURM, C.I. BENSLEY, Kraft Foods EHTC-103, Research & Development, 200 DeForest Ave., East Hanover, NJ 07936.

11:15 **(8)** Bioactivity of Solvent Extracts from Peanut Skins. L. DEAN*, J. DAVIS, T. SANDERS, Market Quality and Handling Research Unit, USDA, ARS, Raleigh, NC 27695-7624 and W. LEWIS, K. CONSTANZA, Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University, Raleigh, NC 27695-7624.

11:30 **(9)** Antioxidant and Anti-glycation Properties of Peanut Plants Grown by Aquatic Floating Cultivation System. R. POKKAEW*, R.Y.-Y. CHIOU, Department of Food Science, National Chiayi University, Chiayi 60051, Taiwan, ROC.

11:45 **(10)** Antioxidant and Anti-cancer Activities of Peanut Arahypin-5 and Other Stilbenoids. F. LI, J.-C. CHANG, D.F. DIBWE, S. AWALE, S. KADOTA, R.Y.-Y. CHIOU*, Division of Natural Products Chemistry, Institute of Natural Medicine, University of Toyama, Toyama 9301394, Japan; and Department of Food Science, National Chiayi University, Chiayi 60051, Taiwan, ROC.

Morning

ECONOMICS, PHYSIOLOGY, AND PRODUCTION TECHNOLOGY

Moderator: ***Naveen Puppala***

Meeting Room: ***Ballroom C***

9:30 **(11)** Economic Analysis of Inoculants and Starter Fertilizer for Peanut Under Conservation Tillage. A.R. SMITH*, N.B. SMITH, Department of Agricultural and Applied Economics, The University of Georgia, Tifton, GA 31793-1209; and R.S. TUBBS, Department of Crop and Soil Sciences, The University of Georgia, Tifton, GA 31793-0748.

9:45 **(12)** Peanut (*Arachis hypogaea*) seed vigor evaluation compared to field performance. T.L. GREY*[1], J.P. BEASLEY, JR. [1], J.E. PAULK[1], and J.W. DAVIS[2] . [1]Crop and Soil Science Department, University of Georgia, P.O. Box 748, 115 Coastal Way, Tifton, GA 31794 and [2]Experimental Statistics, University of Georgia, 1109 Experiment Street, Griffin, GA 30223.

10:00 **(13)** Field Variety Assessment of Spanish Peanuts, West Texas. CALVIN L. TROSTLE*, SEAN WALLACE, Extension Agronomy, Texas AgriLife Extension Service, Lubbock, TX 79403-6603.

10:15 **(14)** Rapid Single Kernel Refractive Index Test that Differentiates Regular from High Oleic Peanuts. D.S. SWEIGART*, C.A. HOMICH, D.A. STUART, Natural Product Sciences, The Hershey Company, 1025 Reese Avenue, Hershey, PA 17033.

10:30 **(15)** Evaluating the Potential of Variable Rate Fungicide Application to control Sclerotinia blight. C.B. GODSEY*, Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078; J.P. DAMICONE, Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK 74078; R.K. TAYLOR, Biosystems and Ag Engineering, Oklahoma State University, Stillwater, OK 74078.

10:45 **(16)** Conservation Tillage Systems for Peanut Cultivars in Rotation with Pasture in Brazil. D. BOLONHEZI*, O. GENTILIN Jr., L-A FERREIRA NETO, Experimental Station of Agronomic Institute - APTA, Ribeirao Preto; I-J GODOY, Center of Grains and Fiber, Agronomic Institute-APTA, Campinas, Brazil; A-L-M. MARTINS, C-L. JUSTO, R. MOLINARI, R., Experimental Station, of Agronomic Institute – APTA, Pindorama, Brazil; A-C BOLONHEZI, Sao Paulo State University, Ilha Solteira, Brazil

11:00 **(17)** Peanut Response to Interactions of Tillage, Planting Date, and Cultivar. D.L. JORDAN*, W.L. DRAKE, and P.D. JOHNSON, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

11:15 **(18)** Cultivar and Digging Date effects on Peanut Peg Strength and Digging Loss. R.C. NUTI*, USDA-ARS National Peanut Research Laboratory, Dawson, GA 39842; C. HOLBROOK, USDA-ARS Crop Genetics and Breeding Research, Tifton, GA 31793; and A. CULBREATH, Department of Plant Pathology, University of Georgia, Tifton, GA 31794.

11:30 **(19)** Peanut Response to Starter Fertilizer, Tillage, and Planting Date Interactions. R.S. TUBBS*, University of Georgia, Tifton, GA 31793; K.S. BALKCOM, USDA-ARS NSDL, Auburn, AL 36832; G.H. HARRIS, J.P. BEASLEY, JR., University of Georgia, Tifton, GA 31793.

11:45 **(20)** Utilization of Two Planting Dates to Evaluate the Agronomic Performance of High-Oleic Peanut Cultivars in Georgia. W.D. BRANCH*, Dept. of Crop and Soil Sciences, University of Georgia, Coastal Plain Expt. Stn., Tifton, GA 31793-0748.

Morning

WEED SCIENCE

Moderator: ***Peter Dotray***

Meeting Room: ***Minuet Room***

10:00 **(21)** General Summary of Interaction Trials with Multiple Components in the Mixture. G.B. CHAHAL, D.L. JORDAN*, B.B. SHEW, and R.L. BRANDENBURG. North Carolina Cooperative Extension Service, Raleigh, NC 27695.

10:15 **(22)** Peanut Response to Ignite (Glufosinate) in Georgia – 2010. E.P. PROSTKO* and T.L. GREY, Department of Crop & Soil Sciences, The University of Georgia, Tifton, GA 31793; and T.M. WEBSTER, Crop Protection and Management Research Unit, USDA/ARS, Tifton, GA 31793.

10:30 **(23)** Peanut Response to Ignite (glufosinate) in Texas - 2010. P.A. DOTRAY*, Texas Tech University, Texas *Agri*Life Research, and Texas *Agri*Life Extension Service, Lubbock, TX 79409-2122; W.J. GRICHAR, Texas *Agri*Life Research, Beeville, TX 78102; and L.V. GILBERT, Texas *Agri*Life Research, Lubbock, TX 79403.

10:45 **(24)** New Peanut Variety Response to Chlorimuron. R.M. MERCHANT* and E.P. PROSTKO, Department of Crop & Soil Sciences, The University of Georgia, Tifton, GA 31793; R.C. KEMERAIT, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793; and T.M. WEBSTER, Crop Protection and Management Research Unit, USDA/ARS, Tifton, GA 31793.

Afternoon

GRADUATE STUDENT COMPETITION

Moderator: ***Todd Baughman***

Meeting Room: ***Ballroom AB***

1:30 **(25)** Cover Crop Decomposition and Nutrient Cycling in Conventional and Strip-Tillage Peanut. D.Q. WANN*, R.S. TUBBS, G.H. HARRIS, and J.P. BEASLEY, JR., Department of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793.

1:45 **(26)** Resistance of new Peanut genotypes to Rust (*Puccinia arachidis)*. I.L. POWER*, A.K. CULBREATH, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793 and B.L. TILLMAN, North Florida REC, Agronomy Department, The University of Florida, Marianna, FL 32446..

2:15 **(27)** Agronomic and Economic Evaluation of Double-Crop and Relay-Intercropping Systems of Peanut with Wheat. J.W. MOSS*, R.S. TUBBS, and T.L. GREY, Department of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793; N.B. SMITH, Department of Agricultural and Applied Economics, University of Georgia, Tifton, GA 31793; J.W. JOHNSON, Department of Crop and Soil Sciences, University of Georgia, Griffin, GA 30223.

2:30 **(28)** Screening of the U. S. Peanut Minicore Collection for Tolerance to Verticillium Wilt and Pod Rot. M. GREGORY*, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409; K. MOORE, AgResearch Consultants Inc., Ashburn, Georgia 31714; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; M.D. BUROW, and J. WOODWARD, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

2:45 **(29)** Relationships Between Defoliation by Late Leaf Spot and Yield in New Runner-Type Peanut Cultivars. P.A. NAVIA GINE*, A.K. CULBREATH, Dept. of Plant Pathology, Univ. of Georgia, Tifton, GA 31793-0748; B.L. TILLMAN, North Florida REC, Agronomy Dept., Univ. of Florida, Marianna, FL 32446; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; and W.D. BRANCH, Dept. of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793; N.B. SMITH, Dept. of Agricultural and Applied Economics, Univ. of Georgia, Tifton, GA 31793.

3:00 **(30)** Determining the Relationship between Field Emergence and Late Leaf Spot Resistance in Peanut. S. THORNTON*, M. GALLO, Agronomy Department, The University of Florida, Gainesville, FL 32611-0300; B. TILLMAN, Agronomy Department, North Florida Research and Education Center, University of Florida, Marianna FL, 32446-8091

3:15 **(31)** Developing an Economic Threshold for Peanut Pod Rot in the Texas South Plains. S.A. RUSSELL*, Texas Tech University, Lubbock, TX 79416, T.A. WHEELER, Texas AgriLife Research, Lubbock, TX 79403, , M.G. ANDERSON, Texas AgriLife Extension Service, Seminole, TX, 79360 and J.E. WOODWARD, Texas Tech University, Lubbock, TX 79416

Afternoon

POSTER SESSIONS

Facilitator: ***James Grichar***

Meeting Room: ***Pre-function area***

Wednesday 3:45-5:00, Thursday 8:00-3:00.
Authors Present Wednesday from 3:45-5:00.

(32) WITHDRAWN

(33) A Spanish Bunch Groundnut Variety Resistant to Drought, Leaf Spots and Sucking Pests Released for AP, India. A. PRASANNA RAJESH*, K.S.S. NAIK, D. SAMPATH KUMAR, K. VEMANA, N.C. VENKATESWARLU, AND D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515 591, A.P, India.

(34) Integrated Management of Major Diseases in Groundnut (*Arachis hypogaea*). K. VEMANA*, N.C. VENKATESWARLU, A.P. RAJESH, K.S.S. NAIK, D. SAMPATH KUMAR, S.M. BASHA, D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515 591, A.P, India.

(35) Peanut Response to Interactions of Soil pH and Gypsum Rate. D.L. JORDAN* and P.D. JOHNSON, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

(36) Root System of Brazilian Peanut Cultivars Grown in Different Tillage Under Sugarcane Straw. D. BOLONHEZI*, O. GENTILIN Jr., L.A. FERREIRA NETO, Experimental Station of Agronomic Institute - APTA, Ribeirao Preto; I-J GODOY, Center of Grains and Fiber, Agronomic Institute-APTA, Campinas, Brazil; A.L.M. MARTINS, C.L. JUSTO, R. MOLINARI, R., Experimental Station, of Agronomic Institute – APTA, Pindorama, Brazil; A.C. BOLONHEZI, Sao Paulo State University, Ilha Solteira, Brazil.

(37) Influence of Sub-lethal Rates of Dicamba, Glufosinate, and 2,4-D on Peanut Yield, Quality, and Pod Maturation. J. JOHNSON*, D.L. JORDAN, and L.R. FISHER, North Carolina State University, Raleigh, NC 27695.

(38) Segregation of an F_2 Derived Population for Leafspot Resistance. M.R. BARING* and J.N. WILSON, Soil and Crop Sciences Department, Texas AgriLife Research, College Station, TX 77843-2474; C.E. SIMPSON and J.M. CASON, Soil and Crop Sciences Department, Texas AgriLife Research Center, Stephenville, TX 76401.

(39) Interactions of Proline with Optimize Lift and Orthene Applied in the Seed Furrow at Planting. P.D. JOHNSON*, D.L. JORDAN, B.B. SHEW, and R.L. BRANDENBURG, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

(40) Influence of Water Source on In-furrow Inoculant Performance Under Greenhouse Conditions. P.M. EURE*, D.L. JORDAN, G.B. CHAHAL, and V.A. JOHNSON. North Carolina State University, Raleigh, NC 27695.

(41) Response of Rainfed Groundnut to application of Consortia of Beneficial Micro-organisms. D. SAMPATH KUMAR*, N.C. VENKATESWARLU, K. VEMANA, K.S.S. NAIK, A.P. RAJESH and D.L. REDDY. Acharya N.G.Ranga Agricultural University, Agricultural Research Station, Kadiri-515 591, Andhra Pradesh, India.

(42) Evaluation of LEM17 Fungicide on Foliar and Soilborne Disease of Peanut in Texas. A.J. JAKS*[1], W.J. GRICHAR[1], and J.E. WOODWARD[2], [1]Texas Agrilife Research, Beeville, TX 78102 and [2]Texas Agrilife Extension, Lubbock, TX 79401.

(43) Alternatives to Temik 15G for Thrips Control in Peanut. D.A. HERBERT, JR.*, S. MALONE, J. SAMLER, Department of Entomology, Virginia Tech Tidewater Agricultural Research and Extension Center, Suffolk, VA 23437; T.P. KUHAR, Department of Entomology, Virginia Tech, Blacksburg, VA 24060; V. MASCARENHAS, Syngenta Crop Protection, Inc., Nashville, NC 27856; and R. WILLIAMS, E.I. DuPont de Nemours and Company, Raleigh, NC 27613.

(44) Evaluation of Peanut R_x Programs for Controlling Foliar and Soil-borne Diseases in an Irrigated Production System in Southeast Alabama. H.L. CAMPBELL*, A.K. HAGAN, and K.L. BOWEN, Dept of Entomology and Plant Pathology, Auburn University, AL 36849; L. WELLS, Wiregrass Research and Extension Center, Headland, AL 36345

(45) Screening of the ICRISAT Mini-Core Collection for Possible Sclerotinia Blight Resistance and Oleic Acid Composition. K.D. CHAMBERLIN* and H.A. MELOUK, USDA-ARS, Stillwater, OK 74075.

(46) A High Yielding Groundnut Variety With Multiple Resistances to Biotic and Abiotic Stresses Suitable for Semi-Arid Regions of India**.** K.S.S. NAIK*, A. PRASANNA RAJESH, D. SAMPATH KUMAR, K. VEMANA, N.C. VENKATESWARLU, D. LOKANADHA REDDY. Acharya N.G. Ranga Agricultural University, Agricultural Research Station, Kadiri 515591, A.P, India; and SHEIKH M. BASHA, RAMESH KATAM, Plant Biotechnology Laboratory, Center for Viticulture and Small Fruit Research, Florida A&M University, 6505 Mahan Drive, Tallahassee, FL 32317, USA

(47) Peanut Tolerance and Weed Control with Valor SX and Gramoxone Inteon Tank Mix Combinations. L.V. GILBERT*, Texas AgriLife Research, Lubbock, TX 79403; P.A. DOTRAY, Texas Tech University, Texas AgriLife Research, and Texas AgriLife Extension Service, Lubbock, TX 79403; and W.J. GRICHAR, Texas AgriLife Research, Beeville, TX 78102

(48) Valencia Peanut Yield to Digging Dates and Irrigation Rates. N. PUPPALA*, New Mexico State University Agricultural Science Center, Clovis, NM 88101, and R. NUTI, USDA-ARS Russell Nuti, P.O. Box 509, USDA-ARS, Dawson, GA.

(49) Can High Quality DNA be Extracted and Utilized from *Arachis* seeds in Long Term Storage with Zero Percent Germination? N.A. BARKLEY*, M.L. WANG, R.N. PITTMAN, USDA-ARS Plant Genetic Resources Conservation Unit, Griffin, GA 30223.

(50) Induction of Tetraploidy in Diploid Wild Peanut (*Arachis paraguariensis)*. O-O. AINA*, M. GALLO, K-H. QUESENBERRY, Agronomy Department, University of Florida, Gainesville, FL 32611-0300.

(51) Next Generation Transcriptome Sequencing of the High Oleic Peanut Cultivar OLin and Identification of SNPs Between Cultivars. R. CHOPRA*, S. SWAROOP, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409; G. BUROW, Z. XIN, USDA-ARS, Plant Germplasm Development Unit, Lubbock, TX 79415; S.M. GOMEZ, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; A. FARMER, G. MAY, National Center for Genome Resources, Santa Fe, NM 87505; C. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; N. PUPPALA, New Mexico State University, Agricultural Science Center, Clovis, NM 88001; K. CHAMBERLIN, USDA-ARS, Stillwater, OK 74075; T.A. WILKINS, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409.

(52) Characterization of Duplicate Genes Involved in Oil Pathways of Polyploid Peanut. Y. BRAND, F. SHILMAN, R. HOVAV*, Department of Field Crops, Plant Science Institute, ARO, Bet-Dagan, Israel.

(53) Genetic linkage map and QTL analysis of resistance to TSWV and leaf spots in peanut (*Arachis hypogaea* L.). S. FENG*, B. ZHOU, T. JIANG, A. CULBREATH, Department of Plant Pathology, the University of Georgia, Tifton, GA; H. QIN, Hubei Academy of Agricultural Sciences, Cash Crop Research Institute, Wuhan; C. CHEN, USDA-ARS, National Peanut Research Laboratory, Dawson, GA ; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA; and B.Z. GUO, USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA.

(54) WITHDRAWN

(55) Effects of Drought Stress and Supplemental Soil Calcium on Pre-Harvest Aflatoxin Contamination of Peanut. S. UPPALA*, K.L. BOWEN, Department of Entomology and Plant Pathology, Auburn University, AL, 36849.

(56) Effect of Ribose on Mature/ Immature Raw Peanut Proteins and Their Allergenic Properties. S.-Y. CHUNG*. Southern Regional Research Center, USDA-ARS, New Orleans, LA 70124.

(57) Planting Seed Quality among Peanut Market Types, West Texas. SEAN WALLACE*, CALVIN L. TROSTLE, Extension Agronomy, Texas AgriLife Extension Service, Lubbock, TX 79403-6603.

(58) Peanut Cultivar Response to *S*-metolachlor and Paraquat Alone and in Combination. W. JAMES GRICHAR*, Texas AgriLife Research, 3507 Hwy 59E, Beeville, TX 78102; and PETER A. DOTRAY, Texas AgriLife Research, Texas AgriLife Extension, and Texas Tech Univ., 1102 E FM 1294, Lubbock, TX 79403.

(59) The Peanut Information Network System: An Online Tool for Peanut Research. Y-C. HUNG*, B. WATERS Department of Food Science and Technology, The University of Georgia, Griffin, GA 30223 1791.

(60) An Economic Feasibility Study on Small Scale Processing of Organic Peanuts. N.B. SMITH*, W. BLACK, J. MCKISSICK, Department of Agricultural and Applied Economics, The University of Georgia, Athens, GA 30602-7509; R.S. TUBBS, Department of Crop and Soil Science, The University of Georgia, Tifton, GA 31793-0748; and J. TESCHER, Georgia Organics, Atlanta, Georgia 30324.

(61) An Economic Analysis of On-Farm Peanut Drying. K. KIGHTLINGER, N.B. SMITH* Department of Agricultural and Applied Economics, The University of Georgia, Tifton, GA 31793; C.L. BUTTS, USDA/ARS, National Peanut Research Laboratory, Dawson, GA 39842; and D.S. CARLSON, Cooperative Extension, The University of Georgia, Fitzgerald, GA 31750.

(62) Generation Means Analysis of Oil Content in Peanut. J.N. WILSON*, M.R. BARING, Texas AgriLife Research, College Station, TX 77843; M.D. BUROW, Texas AgriLife Research, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Stephenville, TX 76401; W.L. ROONEY, Texas AgriLife Research, College Station, TX 77843; J.L. STARR, Department of Plant Pathology, Texas A&M University, College Station, TX 77843.

Morning

PLANT PATHOLOGY, NEMATOLOGY, AND ENTOMOLOGY

Moderator: Brent Besler

Meeting Room: Ballroom A

8:00 **(63)** Response of New Medium-Maturity Runner-Type Cultivars to Fungicides for Management of Leaf Spot Diseases. A.K. CULBREATH*, T.B. BRENNEMAN, R.C. KEMERAIT. Dept. of Plant Pathology, Univ. of Georgia, Tifton, GA 31793-0748; B.L. TILLMAN, Agronomy Dept., Univ. of Florida, Marianna, FL 32446-8091; C.C. HOLBROOK, USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA 31793; and W.D. BRANCH, Dept. of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793-0748.

8:15 **(64)** Peanut Yield and Disease Intensity as Influenced by Cultivar Selection, Seeding Rate, and Planting Date. A.K. HAGAN*, H.C. CAMPBELL, K.L. BOWEN. Auburn University, AL 36849; and L. WELLS. Wiregrass Research and Extension Center, Headland, AL 36849.

8:30 **(65)** Comparison of Full-Season, Weather-Based, and Prescription Fungicide Programs Using Peanut Rx for Management of Peanut Diseases in Georgia. A.M. FULMER*[1], F.H. SANDERS[1], R. OLATINWO[2], M. BOUDREAU[2] , N. SMITH[3], and R.C. KEMERAIT, JR.[1]. [1]Department of Plant Pathology, the University of Georgia, Tifton, GA 31793, [2]Department of Biological and Agricultural Engineering, the University of Georgia, Athens, GA 30605, and [3]Department of Agricultural and Applied Economics, the University of Georgia, Tifton, GA 31793.

8:45 **(66)** Can the Multiple-Disease Resistant Cultivar Bailey be Grown with Reduced Inputs? B.B. SHEW*, Department of Plant Pathology, T.G. ISLEIB and D.L. JORDAN, Department of Crop Science, NC State University, Raleigh, NC.

9:00 **(67)** Effect of Post-Inoculation Relative Humidity (RH) on Peanut Infection by *Sclerotinia sclerotiorum*. M.J. BROWN, H.A. MELOUK*, R.M. HUNGER. Dept. Entomology and Plant Pathology, Oklahoma State University, Stillwater, USDA-ARS, Dept. Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK, U. S. A.

9:15 **(68)** The Interactive Effects of Fungicide, Application Timing and Spray Nozzle on Peanut Diseases and Yield. J. AUGUSTO*, and T.B. BRENNEMAN, Department of Plant Pathology, University of Georgia, Tifton, GA 31793-0748.

9:30 **(69)** Improved Disease Resistance in Virginia-Type Peanuts - Developing Appropriate Management Programs for S. C. Production Conditions. J.W. CHAPIN* and J.S. THOMAS, School of Agriculture, Forestry, and Environment, Clemson University, Edisto REC, 64 Research Road, Blackville, SC 29817.

9:45 Break

10:00 **(70)** Evaluation of Fungicide Programs, Calcium Fertility, and Peanut Genotypes for Control of Pythium Pod Rot. J.P. DAMICONE*, Department of Entomology and Plant Pathology, and C.B. GODSEY, Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK, 74078.

10:15 **(71)** Comparison of ELISA and Visual Rating of Disease Symptoms of Tomato spotted wilt virus in Peanut. P. DANG*, C.Y. CHEN, R. NUTI, and M. LAMB, USDA-ARS National Peanut Research Laboratory, Dawson, GA 39842.

10:30 **(72)** Characterization of Early and Leaf Spot Epidemics in Prescription Fungicide Programs. R.C. KEMERAIT, JR.*[1], H. SANDERS[1], R. OLATINWO[2], M. BOUDREAU[2], J. PAZ[2], and G. HOOGENBOOM[2]. [1]Department of Plant Pathology, the University of Georgia, Tifton, GA 31693 and [2]Department of Biological and Agricultural Engineering, the University of Georgia, Athens, GA 30605.

10:45 **(73)** Greenhouse Evaluation of section *Arachis* wild species for Sclerotinia blight and CBR resistance. S.P. TALLURY*, J. HOLLOWELL and T.G. ISLEIB, Department of Crop Science, N.C. State University, Raleigh, NC 27695-7629.

11:00 **(74)** Early emergence applications of Proline and Propulse for peanut stem rot management. T.B. BRENNEMAN[1]*, J. AUGUSTO[1], and K. RUCKER[2], Department of Plant Pathology[1] University of Georgia, and Bayer CropScience[2], Tifton, GA 31794.

Morning

BAYER EXCELLENCE IN EXTENSION

Moderator: ***Scott Russell***

Meeting Room: ***Ballroom C***

8:00 **(75)** Evaluation of Day Versus Night and Early Morning Peanut Fungicide Applications to Reduce Disease Incidence and Increase Yield. D.E. MCGRIFF*, The University of Georgia Extension, Douglas, GA 31533; M. VON WALDNER, The University of Georgia Extension, Pearson, GA 31642; and T. BRENNEMAN, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793.

8:15 **(76)** Effect of Digger Timing on Pod Yield and Grade Factors of Virginia and Valencia Peanuts. J.E. WOODWARD*, Texas AgriLife Extension, Lubbock, TX 79403.

8:30 **(77)** Issues that Affect Peanut Production in West Texas: A Bailey/Parmer County Perspective. M.R. VANDIVER*, Texas AgriLife Extension, Muleshoe, TX 79347.

8:45 **(78)** Development of Peanut Learning Centers In Mississippi. M.S. HOWELL*, Mississippi State University Extension Service, Poplarville, MS 39470.

9:00 **(79)** An Overview and Summary of the Calhoun County Fungicide Evaluation Program 1999-2010. P.D. WIGLEY,* Calhoun County Extension, University of Georgia, Morgan, GA 39866; and R.C. KEMERAIT, Department of Plant Pathology, University of Georgia, Tifton, GA 31793-0748.

9:15 **(80)** The Role of Cooperative Extension in Peanut Educational Efforts in Irwin County, Georgia. P. EDWARDS*, Cooperative Extension, University of Georgia, Ocilla, GA 31774

9:30 **(81)** Assement of Varying Spray Volumes for Management of Soilborne Disease in Peanuts. P.M. CROSBY*, Emanuel County Extension, University of Georgia, Swainsboro, Ga. 30401; and R.C. KEMERAIT, Department of Plant Pathology, University of Georgia. Tifton, Ga. 31793-0748

9:45 Break

10:00 **(82)** The Adoption of Cultural Practices in Pitt County, North Carolina Contributing to the Increase of Peanut Yields from 2000-2009. R. MITCHELL SMITH*, D.L. JORDAN, B.B. SHEW, and R.L. BRANDENBURG, North Carolina Cooperative Extension Service, Raleigh, NC 27695.

10:15 **(83)** Randolph County Nighttime Peanut Fungicide Study: Year Three. V.S. HADDOCK*, Randolph County Extension, The University of Georgia, Cuthbert, GA 39840; T. BRENNEMAN, Department of Plant Pathology, The University of Georgia, Tifton, GA 31793; and J.L. RIGSBY, Randolph County Peanut Producer, Cuthbert, GA 39840.

10:30 **(84)** Impact of In-furrow Prothioconazole with Provost or Artisan/Initiate Fungicides Combined with Day/Night Applications on Severity of Soilborne Diseases of Peanut. W.G. TYSON*, University of Georgia Cooperative Extension, Effingham County, Springfield, GA 31329 and R.C. KEMERAIT, University of Georgia, Department of Plant Pathology, 4604 Research Way, Tifton, GA 31794.

10:45 **(85)** Electronic Ag News for Farmers, Agribusiness and Community Leaders. W.J. ETHREDGE, JR.*, Seminole County Extension Agent, The University of Georgia, Donalsonville, GA 39845.

Morning

BREEDING, BIOTECHNOLOGY, AND GENETICS

Moderator: ***Mike Baring***

Meeting Room: ***Minuet Room***

8:00 **(86)** Gene Expression Profiling and Identification of Resistance Genes to *Aspergillus flavus* Infection in Peanut Through EST and Microarray Strategies. B. GUO*, USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA; N. FEDOROVA, C. WAN, W. WANG, W. NIERMAN, The J Craig Venter Institute, Rockville, MD; X. CHEN, Guangdong Academy of Agricultural Sciences, Crops Research Institute, Guangzhou, China; D. BHATNAGER, J. YU, USDA-ARS, Southern Regional Research Center, New Orleans, LA.

8:15 **(87)** Phenotypic Variation in Total Sound Mature Kernel Percentage within the University of Florida Breeding Program. B.L. TILLMAN* and G. PERSON, North Florida REC, Agronomy Department, University of Florida, Marianna, FL 32446.

8:30 **(88)** Variability in Seed Dormancy within the U.S. Peanut Mini-core Collection. C.Y. CHEN*, P. DANG, and M. LAMB, USDA-ARS National Peanut Research Laboratory, Dawson, GA 39842; M.L. WANG, D.L. PINNOW, N.A. BARKLEY, R.N. PITTMAN, and G.A. PEDERSON, USDA-ARS Plant Genetic Resources Conservation Unit, Griffin, GA 30223.

8:45 **(89)** "Tingoora" – A High Oleic Ultra Early Maturing Variety Bred for Drought and Aflatoxin Avoidance. G.C. WRIGHT*, G.A. BAKER, Peanut Company of Australia, Kingaroy, Queensland, Australia, 4610; and D. FLEISCHFRESSER, A. CRUICKSHANK, AgriSciences Queensland, Department of Employment, Economic Development and Innovation, Kingaroy, Queensland, Australia, 4610.

9:00 **(90)** Germination and Emergence Effects on Peanut Seed Planted Directly from Cold Storage. J.M. CASON*, B.D. BENNETT, C.E. SIMPSON. Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401.

9:15 **(91)** Development of High-Yielding, High-Oleic, Early-Maturing Spanish Peanuts. M.D. BUROW* and J.L. AYERS, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Texas Tech University, Department of Plant and Soil Science, Lubbock, TX, 79409; A. MUITIA, Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409; A.M. SCHUBERT, Y. LÓPEZ, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 79403; N. PUPPALA, Agricultural Sciences Center, New Mexico State University, Clovis, NM 88001; and M.R. BARING, Texas AgriLife Research, Texas A&M System, College Station, TX 77843.

9:30 **(92)** Evaluation of Interspecific Lines and Breeding Populations of *Arachis hypogaea* L. for Yield and Resistance to Leaf spot Diseases in Ghana and Texas. N.N. DENWAR*, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409, and Savanna Agricultural Research Institute, Tamale, Ghana; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; J.L. STARR, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843; T.A. WHEELER, J.L. AYERS, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; M.R. BARING, Texas AgriLife Research, Texas A&M University, College Station, TX 77843; S.K. NUTSUGAH, Savanna Agricultural Research Institute, Tamale, Ghana; P. SANKARA, Département de Phytopathologie, Université de Ouagadougou, Ouagadougou, Burkina Faso; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, and Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

9:45 Break

10:00 **(93)** Genetic Sources for Tolerance of Pod Wart Disease and Other Pod Quality Limiting Factors in Virginia-Type Peanuts. Y. SHEM-TOV, I. CHEDVAT, Y. BRAND, I. GINZBERG, R. HOVAV*, Department of Field Crops, Plant Science Institute, ARO, Bet-Dagan, Israel.

10:15 **(94)** Integrated SSR/RFLP map of tetraploid peanut. S.M. GOMEZ***,** Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; C.E. SIMPSON, Texas AgriLife Research, Texas A&M University, Stephenville, TX 76401; P.B. VIKAS, H. PATEL, Masters in Biotechnology program, Center for Biotechnology and Genomics, Texas Tech University, Lubbock, TX 79409; A.H. PATERSON, Plant Genome Mapping Laboratory, University of Georgia, Athens GA 30602; and M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403; Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409.

10:30 **(95)** Segregation for Branching Pattern in Two Crosses Between Var. *Hypogaea* and Var. *Vulgaris* Parents. L.E. HASSELL, F. VILLEGAS CHIRINOS, S.R. MILLA-LEWIS, S.C. COPELAND, and T.G. ISLEIB*, Dept. of Crop Science, N.C. State Univ., Raleigh, NC 27695-7629.

Afternoon
WILD SPECIES SYMPOSIUM

Moderator: ***Charles Simpson***

Meeting Room: ***Ballroom AB***

1:30 **(96)** Utilizing the *Arachis* Wild Species Collection for Improving the Cultivated Peanut: Introduction and History. C.E. SIMPSON*, M.D. BUROW, M.R. BARING, and J.L. STARR. Texas AgriLife Research, Stephenville, TX 76401; Texas AgriLife Research and Texas Tech Univ. Lubbock, TX 77403; Texas AgriLife Research and Soil and Crop Sci Dept. and Plant Pathology and Microbiology Dept. Texas A&M Univ. College Station, TX 77843.

1:45 **(97)** The *Arachis* Species Program North Carolina. H.T. STALKER* and S.P. TALLURY, Department of Crop Science, North Carolina State University, Raleigh, NC 27695.

2:15 **(98)** Evaluation and Use of *Arachis* species for Peanut Improvement. S.P. TALLURY*, J. HOLLOWELL, S.C. COPELAND, T.G. ISLEIB and H.T. STALKER, Dept. of Crop Science, N.C. State University, Raleigh, NC 27695-7629.

2:30 **(99)** Marker-Assisted Breeding for Wild Species-Derived Traits in *Arachis*. Y. CHU, C. WU, P. OZIAS-AKINS*, Department of Horticulture, The University of Georgia Tifton Campus, Tifton, GA 31793-0748; and C.C. HOLBROOK, USDA-ARS, Coastal Plain Experiment Station, Tifton, GA 31793.

2:45 **(100)** Nematode Resistance in *Arachis* Illustrates the Value of Wild Species. C.C. HOLBROOK*, USDA-ARS, Coastal Plain Experiment Station, Tifton, GA 31793; Y. CHU, and P. OZIAS-AKINS, Department of Horticulture, The University of Georgia, Tifton, GA 31793.

3:00 (101) Introgression of Early Leafspot Resistance from Wild Species into the Cultivated Peanut *Arachis hypogaea*. M.R. BARING*, Soil and Crop Sciences Department, Texas AgriLife Research, College Station, TX 77843-2474; C.E. SIMPSON, Soil and Crop Sciences Department, Texas AgriLife REC, Stephenville, TX 76401; M.D. BUROW, Soil and Crop Sciences Department, Texas AgriLife REC, Lubbock, TX 79403.

3:15 (102) Identification of Domestication-Associated QTLs Introgressed into Cultivated Peanut, (*Arachis hypogaea* L.) M.D. BUROW, Texas AgriLife Research, Texas A&M System, Lubbock, TX 79403, Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409, and Plant Genome Mapping Laboratory, University of Georgia, Athens, GA 30602; C.E. SIMPSON, Texas AgriLife Research, Texas A&M System, Stephenville, TX 76401; J.L. STARR, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX 77843; C.-H. PARK, National Institute of Crop Science, Seodun-Dong, Suwon Republic of Korea; and A.H. PATERSON, Plant Genome Mapping Laboratory, University of Georgia, Athens, GA 30602.

3:30 (103) Utilization of Wild *Arachis* species for Peanut Improvement. H.D. UPADHYAYA*, S. SHARMA, N. MALLIKARJUNA, and S. SINGH, Grain Legumes Program, International Crops Research Institute for the Semi Arid Tropics (ICRISAT), Patancheru 502 324, Andhra Pradesh, India.

SITE SELECTION COMMITTEE REPORT

The Georgia representatives on the APRES Site Selection Committee are John Beasley and Peggy Ozias-Akins. We discussed numerous options for hosting the 2013 APRES meeting in Georgia. The following locations were discussed and considered for pros and cons:

- Brasstown Valley Resort in the north Georgia mountains between Young Harris and Hiawassee
- Evergreen Conference Center at Stone Mountain
- Callaway Gardens at Pine Mountain, GA between Columbus and Atlanta
- Columbus Marriott in downtown Columbus
- Jekyll Island on the Georgia Atlantic Coast between Savannah and Jacksonville, FL
- Hyatt Regency (hosts of the 1999 and 2006 APRES meetings) in Savannah
- Hilton Savannah Desoto
- The Westin Savannah Harbor

After weighing pros and cons of these options, we eliminated the Evergreen Conference Center, Callaway Gardens, Columbus Marriott, and Jekyll Island.
Proposals were requested from the following: Hyatt Regency, Hilton Savannah Desoto, and The Westin Savannah Harbor in Savannah and the Brasstown Valley Resort.
As of the Site Selection Committee's meeting in San Antonio on July 12, 2011, we had proposals in hand from the three hotels in Savannah and Brasstown Valley Resort. The major negative, or con, for the Brasstown Valley Resort would be its distance from a major airport. It is approximately 2 hours from the following airports: Atlanta, Asheville, NC, Chattanooga, TN, and Greenville, SC.
At the Site Selection Committee meeting on Tuesday, July 12 in San Antonio the overall committee discussed the options for the 2013 meeting in Georgia. The proposed dates are July 9 – 11, 2013. After evaluating and discussing the proposals from Georgia, the committee recommended that the following two proposals be forwarded to the Board of Directors:
Hyatt Regency in Savannah
Brasstown Valley Resort near Young Harris, GA

The following are summaries of the proposals from both properties:
Hyatt Regency - $142/night single/double occupancy (dates and rates available until September 15, 2011). Room nights for Monday – Thursday nights are 50, 175, 175, 150. Meeting room rental is waived. Hotel requests $20,625 in food and beverage as based on current program. Complimentary internet in guest rooms. Room upgrades based on meeting 80% of block.

Brasstown Valley Resort - $129/night lodge and cottage. Room nights for each night Monday – Thursday is 134. Four upgrades to one bedroom suites at lodge rate. $10 resort fee per night which includes: Unlimited local phone calls and Unlimited toll free calling, access to Fitness Center and steam/sauna features, access and equipment usage for onsite bass fishing pond, unlimited hours of

lighted tennis court time with complimentary equipment usage, daily newspaper and In-room coffee, Wireless Internet access, and business center access. Although this property is 2 hours from major airports the property will coordinate shuttles. It is also expected that this location will be within driving distance of a high percentage of the membership.

Other Business

Dr. Starr asked the Site Selection Committee to consider future site selection guidelines based on a regional model. Based on three regions (SE, SW, & VC) this could include returning to a single hotel/site in each region to simplify local arrangements and securing hotel contracts. The site selection committee will consider this idea in future meetings, but noted that a single hotel/site would mean a return every three years. The recommendation is that a minimum of two sites be chosen per region so that we would return to the same hotel/site once every six years. Further, we recommend that the Site Selection Committee be composed of 9 individuals, 3 from each region, with the regional sub-committee of 3 persons charged with selecting the site for their region every three years.
We also discussed the possibility of surveying the membership and their families after each meeting to help understand the pros and cons of each site and hotel.

Respectfully submitted by:
Barry Tillman, chair

BY-LAWS
of the
AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY, INC.

ARTICLE I. NAME

Section 1. The name of this organization shall be "AMERICAN PEANUT RESEARCH AND EDUCATION SOCIETY, INC."

ARTICLE II. PURPOSE

Section 1. The purpose of this Society shall be to instruct and educate the public on the properties, production, and use of the peanut through the organization and promotion of public discussion groups, forums, lectures, and other programs or presentation to the interested public and to promote scientific research on the properties, production, and use of the peanut by providing forums, treatises, magazines, and other forms of educational material for the publication of scientific information and research papers on the peanut and the dissemination of such information to the interested public.

ARTICLE III. MEMBERSHIP

Section 1. The several classes of membership which shall be recognized are as follows:

a. Individual memberships:
   1. Regular, any person who by virtue of professional or academic interests wishes to participate in the affairs of the society.
   2. Retired, persons who were regular members for at least five consecutive and immediately preceding years may request this status because of retirement from active employment within the peanut or academic community. Because of their past status as individual members and service to the society, retired member would retain all the right and privileges of regular individual membership.
   3. Student, persons who are actively enrolled as a student in an academic institution and who wish to participate in the affairs of the society. Student members have the all rights and privileges of regular members except that they may not serve on the Board of Directors. Student members must be proposed by a faculty member from the student's academic institution and that faculty member must be regular or retired member of the society.

b. Sustaining memberships: Industrial organizations and others that pay dues as fixed by the Board of Directors. Sustaining members are those who wish to support this Society financially to an extent beyond minimum requirements as set forth in Section 1c, Article III.

Sustaining members may designate one representative who shall have individual member rights. Also, any organization may hold sustaining memberships for any or all of its divisions or sections with individual member rights accorded each sustaining membership.

1. Silver Level, this maintains the current level and is revenue neutral. Discounted meeting registration fees would result in revenue loss with no increase in membership fee. Registration discounts can be used as an incentive for higher levels of membership.
2. Gold Level, the person designated by the sustaining member would be entitled to a 50% discount on annual meeting registration. This benefit cannot be transferred to anyone else.
3. Platinum Level, the person designated by the sustaining member would be entitled to a 100% discount on annual meeting registration. This benefit cannot be transferred to anyone else.

Section 2. Any member, participant, or representative duly serving on the Board of Directors or a committee of this Society and who is unable to attend any meeting of the Board or such committee may be temporarily replaced by an alternate selected by such member, participant, or representative upon appropriate written notice filed with the president or committee chairperson evidencing such designation or selection.

Section 3. All classes of membership may attend all meetings and participate in discussions. Only individual members or those with individual membership rights may vote and hold office. Members of all classes shall receive notification and purposes of meetings, and shall receive minutes of all Proceedings of the American Peanut Research and Education Society, Inc.

ARTICLE IV. DUES AND FEES

Section 1. The annual dues shall be determined by the Board of Directors with the advice of the Finance Committee subject to approval by the members at the annual business meeting.

Section 2. Dues are receivable on or before July 1 of the year for

which the membership is held. Members in arrears on July 31 for the current year's dues shall be dropped from the rolls of this Society provided prior notification of such delinquency was given. Membership shall be reinstated for the current year upon payment of dues.

Section 3. A registration fee approved by the Board of Directors will be assessed at all regular meetings of the Society.

ARTICLE V. MEETINGS

Section 1. Annual meetings of the Society shall be held for the presentation of papers and/or discussion, and for the transaction of business. At least one general business session will be held during regular annual meetings at which reports from the executive officer and all standing committees will be given, and at which attention will be given to such other matters as the Board of Directors may designate. Opportunity shall be provided for discussion of these and other matters that members wish to have brought before the Board of Directors and/or general membership.

Section 2. Additional meetings may be called by the Board of Directors by two-thirds vote, or upon request of one-fourth of the members. The time and place shall be fixed by the Board of Directors.

Section 3. Any member may submit only one paper as senior author for consideration by the program chairperson of each annual meeting of the Society. Except for certain papers specifically invited by the Society president or program chairperson with the approval of the president, at least one author of any paper presented shall be a member of this Society.

Section 4. Special meetings in conjunction with the annual meeting by Society members, either alone or jointly with other groups, must be approved by the Board of Directors. Any request for the Society to underwrite obligations in connection with a proposed special meeting or project shall be submitted to the Board of Directors, who may obligate the Society as they deem advisable.

Section 5. The executive officer shall give all members written notice of all meetings not less than 60 days in advance of annual meetings and 30 days in advance of all other special meetings.

ARTICLE VI. QUORUM

Section 1. Those members present and entitled to vote at a meeting of the Society, after proper notice of the meeting, shall constitute

a quorum.

Section 2. For meetings of the Board of Directors and all committees, a majority of the members duly assigned to such board or committee shall constitute a quorum for the transaction of business. The Board of Directors and all committees may conduct meetings and votes by conference call or by electronic means of communication as needed to carry out the affairs of the Society.

ARTICLE VII. OFFICERS

Section 1. The officers of this Society shall consist of the president, the president-elect, the most recent available past-president and the executive officer of the Society, who may be appointed secretary and treasurer and given such other title as may be determined by the Board of Directors.

Section 2. The president and president-elect shall serve from the close of the annual meeting of this Society to the close of the next annual meeting. The president-elect shall automatically succeed to the presidency at the close of the annual meeting. If the president-elect should succeed to the presidency to complete an unexpired term, he/she shall then also serve as president for the following full term. In the event the president or president-elect, or both, should resign or become unable or unavailable to serve during their terms of office, the Board of Directors shall appoint a president, or both president-elect and president, to complete the unexpired terms until the next annual meeting when one or both offices, if necessary, will be filled by normal elective procedure. The most recent available past president shall serve as president until the Board of Directors can make such appointment.

Section 3. The officers and directors, with the exception of the executive officer, shall be elected by the members in attendance at the annual business meeting from nominees selected by the Nominating Committee or members nominated from the floor. The president, president-elect, and most recent available past-president shall serve without monetary compensation. The executive officer shall be appointed by a two-thirds majority vote of the Board of Directors.

Section 4. The executive officer may serve consecutive annual terms subject to appointment by the Board of Directors. The tenure of the executive officer may be discontinued by a two-thirds vote of the Board of Directors who then shall appoint a temporary executive officer to fill the unexpired term.

Section 5. The president shall arrange and preside at all meetings of the Board of Directors and with the advice, counsel, and assistance of the president-elect, and executive officer, and subject to consultation with the Board of Directors, shall carry on, transact, and supervise the interim affairs of the Society and provide leadership in the promotion of the objectives of this Society.

Section 6. The president-elect shall be program chairperson, responsible for development and coordination of the overall program of the education phase of the annual meeting.

Section 7. (a) The executive officer shall countersign all deeds, leases, and conveyances executed by the Society and affix the seal of the Society thereto and to such other papers as shall be required or directed to be sealed. (b) The executive officer shall keep a record of the deliberations of the Board of Directors, and keep safely and systematically all books, papers, records, and documents belonging to the Society, or in any wise pertaining to the business thereof. (c) The executive officer shall keep account of all monies, credits, debts, and property of any and every nature accrued and/or disbursed by this Society, and shall render such accounts, statements, and inventories of monies, debts, and property, as shall be required by the Board of Directors. (d) The executive officer shall prepare and distribute all notices and reports as directed in these By-Laws, and other information deemed necessary by the Board of Directors, to keep the membership well informed of the Society activities.

Section 8. The editor is responsible for timely publication and distribution of the Society's peer reviewed scientific journal, Peanut Science, in collaboration with the Publications and Editorial Committee.

Editorial responsibilities include:

1. Review performance of associate editors and reviewers. Recommend associate editors to the Publications and Editorial Committee as terms expire.
2. Conduct Associate Editors' meeting at least once per year. Associate Editors' meetings may be conducted in person at the Annual Meeting or via electronic means such as conference calls, web conferences, etc.
3. Establish standard electronic formats for manuscripts, tables, figures, and graphics in conjunction with Publications and Editorial Committee and publisher.
4. Supervise Administrative/Editorial assistant in:
    a. Preparing routine correspondence with authors to provide progress report of manuscripts.

b. Preparing invoices and collecting page charges for accepted manuscripts.

5. Screen manuscript for content to determine the appropriate associate editor, and forward manuscript to appropriate associate editor.
6. Contact associate editors periodically to determine progress of manuscripts under review.
7. Receive reviewed and revised manuscripts from associate editor; review manuscript for grammar and formatting; resolve discrepancies in reviewers' and associate editor's acceptance decisions.
8. Correspond with author regarding decision to publish with instructions for final revisions or resubmission, as appropriate. Follow-up with authors of accepted manuscripts if final revisions have not been received within 30 days of notice of acceptance above.
9. Review final manuscripts for adherence to format requirements. If necessary, return the manuscript to the author for final format revisions.
10. Review final formatting and forward compiled articles to publisher for preparation of first run galley proofs.
11. Ensure timely progression of journal publication process including:
    a. Development and review of galley proofs of individual articles.
    b. Development and review of the journal proof (proof of all revised articles compiled in final publication format with tables of contents, page numbers, etc.)
    c. Final publication and distribution to members and subscribers via electronic format.
12. Evaluate journal publisher periodically; negotiate publication contract and resolve problems; set page charges and subscription rates for electronic formats with approval of the Board of Directors.
13. Provide widest distribution of *Peanut Science* possible by listing in various on-line catalogues and databases.

ARTICLE VIII. BOARD OF DIRECTORS

Section 1. The Board of Directors shall consist of the following:

a. The president
b. The most recent available past-president
c. The president-elect
d. Three University representatives - these directors are to be chosen based on their involvement in APRES activities, and knowledge in peanut research, and/or education, and/or regulatory programs. One director will be elected from each of the three main U.S. peanut producing areas (Virginia-Carolinas, Southeast, Southwest).
e. United States Department of Agriculture representative - this director is one whose employment is directly sponsored by the USDA or one of its agencies, and whose relation to peanuts principally concerns research, and/or education, and/or regulatory pursuits.
f. Three Industry representatives - these directors are (1) the production of peanuts; (2) crop protection; (3) grower association or commission; (4) the shelling, marketing, and storage of raw peanuts;(5) the production or preparation of consumer food-stuffs or manufactured products containing whole or parts of peanuts.
g. The President of the American Peanut Council or a representative of the President as designated by the American Peanut Council.
h. The Executive Officer - non-voting member of the Board of Directors who may be compensated for his services on a part-time or full-time salary stipulated by the Board of Directors in consultation with the Finance Committee.
i. National Peanut Board representative, will serve a three year term.

Section 2. Terms of office for the directors' positions set forth in Section 1, paragraphs d, e, and f, shall be three years with elections to alternate from reference years as follows: d(VC area), e and f(2), 1992; d(SE area) and f(3), 1993; and d(SW area) and f(1), 1994.

Section 3. The Board of Directors shall determine the time and place of regular and special board meetings and may authorize or direct the president by majority vote to call special meetings whenever the functions, programs, and operations of the Society shall require special attention. All members of the Board of Directors shall be given at least 10 days advance notice of all meetings; except that in emergency cases, three days advance notice shall be sufficient.

Section 4. The Board of Directors will act as the legal representative of the Society when necessary and, as such, shall administer Society property and affairs. The Board of Directors shall be the final authority on these affairs in conformity with the By-Laws.

Section 5. The Board of Directors shall make and submit to this Society such recommendations, suggestions, functions, operation, and programs as may appear necessary, advisable, or worthwhile.

Section 6. Contingencies not provided for elsewhere in these By-Laws shall be handled by the Board of Directors in a manner they deem advisable.

Section 7. An Executive Committee comprised of the president, president-elect, most recent available past-president, and executive officer shall act for the Board of Directors between meetings of the Board, and on matters delegated to it by the Board. Its action shall be subject to ratification by the Board.

Section 8. Should a member of the Board of Directors resign from the board before the end of their term, the president shall request that the Nominating Committee nominate a qualified member of APRES to fill the remainder of the term of that individual and submit their name for approval by the Board of Directors.

ARTICLE IX. COMMITTEES

Section 1. Members of the committees of the Society shall be appointed by the president and shall serve three-year terms unless otherwise stipulated. The president shall appoint a chairperson of each committee from among the incumbent committee members. The Board of Directors may, by a two-thirds vote, reject committee appointees. Appointments made to fill unexpected vacancies by incapacity of any committee member shall be only for the unexpired term of the incapacitated committee member. Unless otherwise specified in these By-Laws, any committee member may be re-appointed to succeed him/herself, and may serve on two or more committees concurrently but shall not chair more than one committee. Initially, one-third of the members of each committee will serve one-year terms, as designated by the president. The president shall announce the committees immediately upon assuming the office at the annual business meeting. The new appointments take effect immediately upon announcement.

Section 2. Any or all members of any committee may be removed for cause by a two-thirds approval by the Board of Directors.

a. Finance Committee: This committee shall consist of four members that represent the diverse membership of the Society, each appointed to a three-year term. This committee shall be responsible for preparation of the financial budget of the Society and for promoting sound fiscal policies within the Society. They shall direct the audit of all financial records of the Society annually, and make such recommendations as they deem necessary or as requested or directed by the Board of Directors. The term of the chairperson shall close with preparation of the budget for the following year, or with the close of the annual meeting at which a report is given on the work of the Finance Committee under his/her leadership, whichever is later.

a. Nominating Committee: This committee shall consist of four members appointed to one-year terms, one each representing State, USDA, and Private Business segments of the peanut industry with the most recent available past-president serving as chair. This committee shall nominate individual members to fill the positions as described and in the manner set forth in Articles VII and VIII of these By-Laws and shall convey their nominations to the president of this Society by June 15 prior to that year's annual meeting. The president will then distribute those nominations to the Board of Directors for their review. The committee shall, insofar as possible, make nominations for the president-elect that will provide a balance among the various segments of the industry and a rotation among federal, state, and industry members. The willingness of any nominee to accept the responsibility of the position shall be ascertained by the committee (or members making nominations at the annual business meeting) prior to the election. No person may succeed him/herself as a member of this committee.

   Nominees to the APRES Board of Directors shall have been a member of APRES for a minimum of five (5) years, served on at least three (3) different committees, and be familiar with a significant number of APRES members and the various institutions and organizations that work with peanut.

c. Publications and Editorial Committee: This committee shall consist of four members that represent the diverse membership of the Society and who are appointed to three-year terms. The members may be appointed to two consecutive three-year terms. This committee shall be responsible for the publication of Society-sponsored publications as authorized by the Board of Directors in consultation with the Finance Committee. This

committee shall formulate and enforce the editorial policies for all publications of the Society subject to the directives from the Board of Directors.

d. Peanut Quality Committee: This committee shall consist of seven members, one each actively involved in research in peanuts--(1) varietal development, (2) production and marketing practices related to quality, and (3) physical and chemical properties related to quality--and one each representing the Grower, Sheller, Manufacturer, and Services (pesticides and harvesting machinery in particular) segments of the peanut industry. This committee shall actively seek improvement in the quality of raw and processed peanuts and peanut products through promotion of mechanisms for the elucidation and solution of major problems and deficiencies.

e. Public Relations Committee: This committee shall consist of four members that represent the diverse membership of the Society and are appointed for a three-year term. The primary purpose of this committee will be to publicize the meeting and make photographic records of important events at the meeting. This committee shall provide leadership and direction for the Society in the following areas:

(1) Membership: Development and implementation of mechanisms to create interest in the Society and increase its membership. These shall include, but not be limited to, preparing news releases for the home-town media of persons recognized at the meeting for significant achievements.
(2) Cooperation: Advise the Board of Directors relative to the extent and type of cooperation and/or affiliation this Society should pursue and/or support with other organizations.
(3) Necrology: Proper recognition of deceased members.
(4) Resolutions: Proper recognition of special services provided by members and friends of the Society.

f. Bailey Award Committee: This committee shall consist of six members, with two new appointments each year, serving three-year terms. This committee shall be responsible for judging papers which are selected from each subject matter area. Initial screening for the award will be made by judges, selected in advance and having expertise in that particular area, who will listen to all papers in that subject matter area. This initial selection will be made on the basis of quality of presentation and content. Manuscripts of selected papers will be submitted to the

committee by the author(s) and final selection will be made by the committee, based on the technical quality of the paper. The president, president-elect and executive officer shall be notified of the Award recipient at least sixty days prior to the annual meeting following the one at which the paper was presented. The president shall make the award at the annual meeting.

g. Fellows Committee: This committee shall consist of four members that represent the diverse membership of the Society and who are themselves Fellows of the Society. Terms of office shall be for three years. Nominations shall be in accordance with procedures adopted by the Society and published in the previous year's PROCEEDINGS of APRES. From nominations received, the committee shall select qualified nominees for approval by majority vote of the Board of Directors.

h. Site Selection Committee: This committee shall consist of four members that represent the diverse membership of the Society and with each serving three-year terms. The Chairperson of the committee shall be from the region in which the future meeting site is to be selected as outlined in subsections (1) – (3) and the Vice-Chairperson shall be from the region that will host the meeting the following year. The vice-chairperson will automatically move up to chairperson. *All of the following actions take place two years prior to the annual meeting for which the host city and hotel decisions are being made.*

Site Selection Committee shall:

- Identify a host city for the annual meeting in the designated region
- Solicit and evaluate hotel contract proposals in the selected host city
- Recommend a host city and hotel for consideration and decision by the Board of Directors

Board of Directors shall:

- Consider proposal(s) submitted by the Site Selection Committee
- Make a final decision on host city and hotel
- Direct the Executive Officer to sign the contract with the approved hotel

i. Coyt T. Wilson Distinguished Service Award Committee: This committee shall consist of four members that represent the diverse membership of the Society, each serving three-year

terms. Nominations shall be in accordance with procedures adopted by the Society and published in the previous year's PROCEEDINGS of APRES. This committee shall review and rank nominations and submit these rankings to the committee chairperson. The nominee with the highest ranking shall be the recipient of the award. In the event of a tie, the committee will vote again, considering only the two tied individuals. Guidelines for nomination procedures and nominee qualifications shall be published in the Proceedings of the annual meeting. The president, president-elect, and executive officer shall be notified of the award recipient at least sixty days prior to the annual meeting. The president shall make the award at the annual meeting.

j. Joe Sugg Graduate Student Award Committee: This committee shall consist of five members. For the first appointment, three members are to serve a three-year term, and two members to serve a two-year term. Thereafter, all members shall serve a three-year term. Annually, the President shall appoint a Chair from among incumbent committee members. The primary function of this committee is to foster increased graduate student participation in presenting papers, to serve as a judging committee in the graduate students' session, and to identify the top two recipients (1st and 2nd place) of the Award. The Chair of the committee shall make the award presentation at the annual meeting.

ARTICLE X. AMENDMENTS

Section 1. These By-Laws may be amended consistent with the provision of the Articles of Incorporation by a two-thirds vote of all the eligible voting members present at any regular business meeting, provided such amendments shall be submitted in writing to each member of the Board of Directors at least thirty days before the meeting at which the action is to be taken.

The By-Laws may also be amended by votes conducted by mail or electronic communication, or a combination thereof, provided that the membership has 30 days to review the proposed amendments and then votes cast within a subsequent 30 day period. For such a vote to be valid at least 15% of the regular members of the society must cast a vote. In the absence of a sufficient number of members voting, the proposed amendment will be considered to have failed.

Section 2. A By-Law or amendment to a By-Law shall take effect immediately upon its adoption, except that the Board of Directors may

establish a transition schedule when it considers that the change may best be effected over a period of time. The amendment and transition schedule, if any, shall be published in the "Proceedings of APRES".

Amended at the Annual Meeting of the
American Peanut Research and Education Society
14 July 2011, San Antonio, Texas

MEMBERSHIP (1975-2006)

	Individuals	Institutional	Organizational	Student	Sustaining	Total
1975	419	--	40	--	21	480
1976	363	45	45	--	30	483
1977	386	45	48	14	29	522
1978	383	54	50	21	32	540
1979	406	72	53	27	32	590
1980	386	63	58	27	33	567
1981	478	73	66	31	39	687
1982	470	81	65	24	36	676
1983	419	66	53	30	30	598
1984	421	58	52	33	31	595
1985	513	95	65	40	29	742
1986	455	102	66	27	27	677
1987	475	110	62	34	26	707
1988	455	93	59	35	27	669
1989	415	92	54	28	24	613
1990	416	85	47	29	21	598
1991	398	67	50	26	20	561
1992	399	71	40	28	17	555
1993	400	74	38	31	18	561
1994	377	76	43	25	14	535
1995	363	72	26	35	18	514
1996	336	69	24	25	18	472
1997	364	74	24	28	18	508
1998	367	62	27	26	14	496
1999	380	59	33	23	12	507
2000	334	52	28	23	11	448
2001	314	51	34	24	11	434
2002	294	47	29	34	11	415
2003	270	36	30	23	10	369
2004	295	43	22	19	11	390
2005	267	38	28	15	8	356
2006	250	33	27	25	7	342

MEMBERSHIP (2007-2010)

	2007	2008	2009	2010	2011
Individual, Regular	228	185	184	172	162
Individual, Retired	13	13	14	13	10
Individual, Post Doc/Tech Support	6	9	7	11	4
Individual, Student	20	16	28	22	14
Sustaining, Silver	7	8	6	9	6
Sustaining, Gold	1	2	3	5	3
Sustaining, Platinum	1		1	1	2
Institutional	6	21	21	19	21
TOTAL	280	254	264	252	215

NAME INDEX