



AMERICAN PEANUT RESEARCH & EDUCATION SOCIETY, INC.



58th APRES

ANNUAL MEETING

SAN JUAN, PUERTO RICO

JULY 14-16, 2026

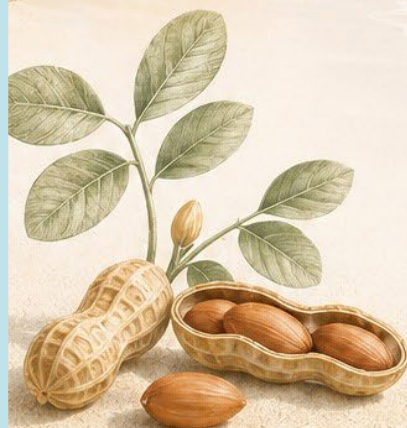




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BOARD OF DIRECTORS

2025 - 2026

President Maria Balota (2027)
Past PresidentRebecca Bennett (2026)
President-Elect..... Gregory MacDonald (2028)
Executive OfficerLuke Blaustein (2026)
University Representatives:
 Virginia-Carolina..... Dan Anco (2028)
 SoutheastSoraya Leal-Bertioli (2027)
 SouthwestEmi Kimura (2026)
USDA Representative.....Kelly Chamberlin (2026)
Graduate Student Organization.....Ranadheer Vennam (2026)
Industry Representatives:
 Grower Association.....Shelly Nutt, Texas Peanut Producers Board (2026)
 Shelling, Marketing, Storage.....Clay Garnto, Premium Peanut (2027)
 Manufactured Products..... Peggy Tsatsos, Mars, Incorporated (2026)
American Peanut Council..... Keith Rucker, The Peanut Research Foundation (2026)
National Peanut Board Neal Baxley (2027)

PROGRAM COMMITTEE

Gregory MacDonald, Chair

Local Arrangements

Gregory MacDonald, Chair

Technical Program

Cristiane Pilon, Chair

2026 APRES COMMITTEES

Bailey Award Committee

Josh Clevenger, Chair (2027)
Ondulla Toomer (2026)
Jack Davis (2026)
Dylan Wann (2027)
Charles Chen (2028)
Emi Kimura (2028)

Bylaws Committee

Gary Schwarzlose, Chair (2026)
David Jordan (2027)
Emily Cantonwine (2028)

Coyt T. Wilson Service Award Committee

Lisa Dean, Chair (2026)
Abilash Chandel (2027)
David Bertoli (2027)
Kelly Chamberlin (2028)

Corteva Agrisciences Awards Committee

John Cason, Chair (2026)
John Richburg (2026)
Scott Tubbs (2026)
Ethan Carter (2027)
Michael Marshall (2027)
David Langston (2028)
Shelly Nutt (2028)

Fellows Committee

Pete Dotray, Chair (2027)
David Jordan (2026)
Peggy Ozias-Akins (2026)
Barry Tillman (2027)

Nominating Committee

Rebecca Bennett, Chair (2026)
Alicia Massa (2026)
David Deshazo (2026)
Jeff Dunne (2026)

Finance Committee

Foy Mills, Chair (2027)
Travis Faske (2026)
Cristiane Pilon (2027)
Chris Liebold (2028)

Joe Sugg Grad. Student Awards Committee

Bob Kemerait, Chair (2028)
Maira Duffeck (2026)
Zachary Treadway (2026)
LeAnn Lux (2026)
Isaac Esquivel (2026)
Fetien Abera (2027)
Jessica Bell (2027)
Alvaro Sanz-Saez (2027)
Chad Abbott (2027)
Sruthi Narayanan Kutty (2028)
Tim Bryant (2028)
Mychele Batista da Silva (2028)
Clemen Oliveira (2028)

Peanut Quality Committee

Chris Liebold, Chair (2026)
Peggy Tsatsos (2026)
Donald Chase (2027)
Raegan Wiggins (2027)
Wilson Faircloth (2027)
John Cason (2028)
Darlene Cowart (2028)

Publications and Editorial Committee

Albert Culbreath, Chair (2026)
LeAnn Lux (2027)
Hardeep Singh (2027)
Dan Anco (2028)

Public Relations Committee

David West, Chair (2026)
Keith Rucker (2027)
Brendan Zurweller (2028)
David Nowlin (2028)

Site Selection Committee

David Langston, Chair (2026)
Jake Fountain, Vice-Chair (2028)
Todd Baughman (2026)
Kris Balkcom (2027)
Travis Faske (2027)
Jacob Forehand (2028)

PROGRAM

Monday – July 13, 2026

12:00 PM– 5:00 PM	APRES Registration	San Cristobal Foyer
12:00 PM – 5:00 PM	Poster Setup and Refreshments	San Cristobal Foyer
12:00 PM – 5:00 PM	Presentation Practice Room	Conference 7
12:00 PM	Lunch.....	On your own

Tuesday – July 14, 2026

7:30 AM – 5:00 PM	APRES Registration and Poster Setup.....	San Cristobal Foyer
8:00 AM – 5:00 PM	Poster Viewing and Refreshments Area.....	San Cristobal Foyer
8:00 AM – 5:00 PM	Presentation Practice Room	Conference 7
8:00 AM – 5:00 PM	Spouse Hospitality Room	Salon Del Mar
12:00 PM – 1:15 PM	Lunch.....	On your own

Committee Meetings

8:00 AM – 10:00 AM	Seed Summit.....	San Cristobal B, C, D
10:00 AM – 11:00 AM	Peanut Quality Committee	San Cristobal B, C, D
11:00 AM – 12:30 PM	Crop Germplasm Committee	San Cristobal B, C, D
11:00 AM – 12:00 PM	Joe Sugg Committee.....	Conference 8, 9, 10/Salon San Juan
1:15 PM – 2:15 PM	Associate Editors, <i>Peanut Science</i>	Conference 6
1:15 PM – 2:15 PM	Public Relations Committee.....	Conference 3, 4, & 5
2:15 PM – 3:15 PM	Publications and Editorials, <i>Peanut Science</i>	Conference 6
3:15 PM – 4:15 PM	Bailey Award Committee	Executive Boardroom
3:15 PM – 4:15 PM	Site Selection Committee.....	Conference 3, 4, & 5
4:00 PM – 5:00 PM	Finance Committee	Conference 6
5:00 PM – 6:00 PM	Board of Directors Meeting	Conference 3, 4, & 5

Sessions

10:15 – 10:30 PM	Break (<i>Sponsored by Texas Peanut Producers Board</i>)	San Cristobal Foyer
1:15 PM – 5:15 PM	Joe Sugg MS Competition I (<i>Sponsored by NC Peanut Growers</i>).....	Conference 8, 9, 10 / Salon San Juan
3:15 PM – 3:30 PM	Break (<i>Sponsored by Birdsong Peanuts</i>).....	San Cristobal Foyer

6:00 PM – 7:15 PM “Welcome to San Juan” Ice Cream Social Las Olas & Terrace

Wednesday – July 15, 2026

7:30 AM – 5:00 PM	APRES Registration and Poster Setup.....	San Cristobal Foyer
8:00 AM – 5:00 PM	Poster Viewing and Refreshments Area	San Cristobal Foyer
8:00 AM – 5:00 PM	Spouse Hospitality Room	Salon Del Mar
8:00 AM – 5:00 PM	Presentation Practice Room	Conference 7

Sessions

8:00 AM – 9:45 AM	General Session: <i>Peanuts – All Year Round</i>	San Cristobal Ballroom
9:45 AM – 10:00 AM	Break (<i>Sponsored by Premium Peanut</i>)	San Cristobal Foyer
10:00 AM – 10:45 AM	Joe Sugg MS Competition II (<i>Sponsored by NC Peanut Producers</i>)	Conference 8, 9, 10 / Salon San Juan
10:00 AM – 12:00 PM	Breeding/Biotechnology/Genetics I	San Cristobal E, F, G
10:00 AM – 11:45 AM	Production Technology & Harvesting/Curing/Shelling/Storing/Handling	San Cristobal B, C, D
10:45 AM – 12:00 PM	Joe Sugg PhD Competition I (<i>Sponsored by National Peanut Board</i>)	Conference 8, 9, 10 / Salon San Juan
12:00 PM – 1:30 PM	Signature Lunch (<i>Sponsored by Bayer</i>)	Las Olas & Terrace
1:30 PM – 5:30 PM	Joe Sugg PhD Competition II (<i>Sponsored by National Peanut Board</i>)	Conference 8, 9, 10 / Salon San Juan
1:30 PM – 4:15 PM	Breeding/Biotechnology/Genetics II	San Cristobal E, F, G
1:30 PM – 4:45 PM	Extension Techniques and Technology & Economics	San Cristobal B, C, D
3:00 PM – 3:15 PM	Break (<i>Sponsored by Fine Americas</i>)	San Cristobal Foyer
6:00 PM	Dinner	On your own

*Poster presentations open all day

Thursday – July 16, 2026

6:00 AM – 7:15 AM	Fun Run and Walk	Meet in hotel lobby
7:30 AM – 5:00 PM	APRES Registration and Poster Viewing	San Cristobal Foyer
8:00 AM – 5:00 PM	Presentation Practice Room	Conference 7
8:00 AM – 5:00 PM	Spouse Hospitality Room	Salon Del Mar

Sessions

8:00 AM – 10:45 AM	Plant Pathology and Nematology & Mycotoxins	San Cristobal E, F, G
9:30 AM – 9:45 AM	Break (<i>Sponsored by FMC</i>)	San Cristobal Foyer
9:45 AM – 12:00 PM	Charles Simpson Wild Species Session	San Cristobal B, C, D
10:45 AM – 11:30 AM	Entomology & Weed Science.....	San Cristobal E, F, G
12:00 PM – 1:30 PM	Graduate Student Luncheon (<i>Sponsored by Syngenta</i>)	Las Olas Terrace
12:00 PM – 1:30 PM	Lunch.....	On your own
1:30 PM – 3:15 PM	Physiology and Seed Technology & Food Science	San Cristobal E, F, G
2:00 PM – 3:15 PM	Grower-Focused Session.....	San Cristobal B, C, D
3:15 PM – 3:30 PM	Break (<i>Sponsored by FMC</i>)	San Cristobal Foyer
3:30 PM – 5:00 PM	Poster Session (Authors Present)	San Cristobal Foyer
3:30 PM – 5:00 PM	The Peanut Research Foundation BOD Meeting	Conference 8, 9, 10 / Salon San Juan
5:00 PM – 6:00 PM	APRES 58th Business Meeting and Awards Ceremony.....	San Cristobal Ballroom

6:00 PM – 7:30 PM Awards Reception (Sponsored by Corteva Agriscience).. Las Olas & Terrace

*Poster presentations open all day

1:15 PM – 5:15 PM	Joe Sugg MS Competition I Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemerait, University of Georgia</i>
1:15 PM	Assessing Root and Hypocotyl Length as Indicators of Field Emergence in Peanut (<i>Arachis hypogaea</i> L.) CASTRO, S.C.¹ , Tillman, B.L. ¹ , Goyzueta, M.D. ¹ , Gomillion, M.W. ¹ , Toruno, C.E. ¹ , Oduor, J.O. ¹ ¹ University of Florida, North Florida Research and Education Center, Marianna, FL.
1:30 PM	Forecasting End-of-Season Peanut Yield Using Mid-Season Crop Condition Rating Signals CUNNINGHAM, T.M.¹ , Griffin, T.W. ¹ ¹ Kansas State University, Manhattan, Kansas.
1:45 PM	Peanut Yield and Imaging Response to Tillage System in North Carolina GARNER, E.H.¹ , Jordan, D.L. ¹ , Lux, L.A. ¹ , Reisig, D. ¹ , Austin, R. ¹ , Pike, B. ¹ ¹ North Carolina State University, Raleigh, NC 27695.
2:00 PM	Effects of Planting Date, Genotype, Plant Density and Growth Regulator on Late Leaf Spot Severity in Peanut (<i>Arachis hypogaea</i> L.) ODUOR, J.O.¹ , Tillman, B.L. ¹ , Goyzueta, M.D. ¹ , Gomillion, M.W. ¹ , Toruno, C.E. ¹ , Castro, S.C. ¹ ¹ Department of Agronomy, University of Florida, North Florida Research and Education Centre, Marianna, FL.
2:15 PM	Maximizing Oil Yield in Different Peanut Cultivars Through Agronomic Management Practices ANSHUL, F.¹ , Pilon, C. ¹ , Tubbs, R.S. ¹ , Monfort, W.S. ¹ , Brown, I.N. ¹ , Smith, A.R. ² ¹ Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ² Department of Agricultural and Applied Economics, University of Georgia, Tifton, GA.
2:30 PM	Plant Movement Against Climate Change: Leaf Nastic Movements and Climate Stress in <i>Arachis hypogaea</i> TORRES, L.M.¹ , Hammond, W.M. ¹ , Tillman, B. ² ¹ Agronomy Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611. ² North Florida Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida, Marianna, FL 32446.
2:45 PM	Evaluation of Crop Water Stress Index for Irrigation Scheduling in Peanut Production in Alabama PARBI, B.¹ , Ortiz, B.V. ¹ , Sanz-Saez, A. ¹ , Prasad, R. ¹ , Tian, D. ¹ , Huguley, D. ² ¹ Department of Crop, Soil, and Environmental Sciences, Auburn University. ² Huguley Farms Inc, Coffee Spring, AL 36318.
3:00 PM	Characterizing Rootworm Feeding and its Impact on Peanut Pod Yield ROYSTON, J.¹ , Abney, M.R. ¹ ¹ Department of Entomology, University of Georgia Tifton Campus, Tifton, GA 31793.
3:15 PM	BREAK

1:15 PM – 5:15 PM	Joe Sugg MS Competition I continued Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemeraït, University of Georgia</i>
3:30 PM	Dissecting an Introgression – Locating Wild PRKN Resistance in Peanut BOTTON, S. ^{1,2} , Pokhrel, S. ¹ , Korani, W. ³ , Clevenger, J. ³ , Schumacher, L. ⁴ , Timper, P. ⁴ , Chu, Y. ^{1,2} , Holbrook, C.C. ⁴ , Ozias-Akins, P. ^{1,2} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Tifton, GA. ² Department of Horticulture, University of Georgia, Tifton, GA. ³ Hudson-Alpha Institute for Biotechnology, Huntsville, AL. ⁴ USDA-ARS, Crop Genetics and Breeding Research, Tifton, GA.
3:45 PM	'TxAG-6'-Derived Peanut Breeding Lines for Resistance to Late Leaf Spot MARCHETTI, A. ¹ , Brown, I.N. ^{1,2} , Cason, J. ³ , Simpson, C. ³ , Anco, D.J. ⁴ ¹ Institute of Plant Breeding, Genetics, and Genomics, University of Georgia, Tifton, GA 31793. ² Department of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793. ³ Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX, 76401. ⁴ Plant and Environmental Sciences Department, Clemson University, Blackville, SC 29817.
4:00 PM	Effects of Seed and Foliar Micronutrient Applications on Peanut Yield TUBERVILLE, J. ¹ , Zurweller, B. ¹ , Pieralisi, B. ¹ , Vaughn, R. ¹ , Whitney, C. ² ¹ Department of Plant and Soil Sciences, Mississippi State University, Starkville, MS. ² Department of Agricultural Science and Plant Protection, Mississippi State University, Starkville, MS.
4:15 PM	Assessing Sulfur and Copper Fungicide Programs for Early and Late Leaf Spot Suppression as Regulatory Pressure Reduces Chlorothalonil Use GARRETT, L.E. ¹ , Cavassa, M. ¹ , Parker, C. ² , Graham, S.H. ¹ , Strayer-Scherer, A.L. ¹ ¹ Department of Entomology and Plant Pathology, Auburn University, Auburn, AL. ² Wiregrass Research and Extension Center, Auburn University, Headland, AL.
4:30 PM	Temporal Infection Profiling Pertaining to Fungicide Sensitivities for Use in Late Leaf Spot Management Programs DAHALL, S. ^{1,2} , Thiessen, L. ² , Anco, D.J. ^{1,2} ¹ Edisto Research and Education Center, Department of Plant and Environmental Sciences, Clemson University, Blackville, SC. ² Department of Plant and Environmental Sciences, Clemson University, Clemson, SC.
4:45 PM	Screening for Succinate Dehydrogenase Mutations Associated With Resistance in the Early and Late Leaf Spot Pathogens of Peanut ROBERSON, G. ¹ , Cantonwine, E.G. ¹ , Effi, G. ¹ , Culbreath, A.K. ² , Phillips, J. ³ , Arias, R.S. ⁴ ¹ Department of Biology, Valdosta State University, Valdosta, GA. ² Department of Plant Pathology, University of Georgia, Tifton, GA. ³ Biomedical Sciences, Midwestern State University, Glendale, AZ. ⁴ National Peanut Research Laboratory, U.S. Department of Agriculture, Dawson, GA.
5:00 PM	Can Controlled-Release Potassium Replace Conventional Potassium Fertilization in Peanut Production in Sandy Soils? VERMA, V. ¹ Jan, M. ¹ Bolton, L. ² Kumar, S. ¹ Sidhu, S.S. ¹ and Sindhu, V.K. ³ ¹ University of Florida, IFAS North Florida Research and Education Center, 155 Research Road, Quincy, FL, United States. ² University of Florida, IFAS North Florida Research and Education Center, Live Oak, FL, United States. ³ Department of Agronomy, Punjab Agricultural University, Ludhiana, Punjab, India.

8:00 AM – 9:45 AM	General Session – <i>Peanuts: All Year Round</i> Meeting Room: San Cristobal Ballroom <i>Moderator: Maria Balota, Virginia Tech University</i>
8:00 AM	Welcome to Puerto Rico TORRES, I.R. Secretary of Agriculture, Puerto Rico Department of Agriculture, San Juan, Puerto Rico.
8:10 AM	From Research to Fields: Strengthening Puerto Rico's Agriculture Through the Land-Grant Mission ROBLES, W., O'HALLORANS, J. University of Puerto Rico, Mayaguez, Puerto Rico.
8:40 AM	Growth Beyond the Season: The ICIA Puerto Rico Overview PEREZ, L. Illinois Crop Improvement Association Winter Farm, Juana Diaz, Puerto Rico.
8:55 AM	125 Years of Research at the Tropical Agriculture Research Station CUEVAS, H. USDA-ARS Tropical Agriculture Research Station, Mayaguez, Puerto Rico.
9:25 AM	Driving Agricultural Innovation From Puerto Rico to the World COLON, L., GREGORIO, A. Puerto Rico Agricultural Biotechnology Industry Association, San Juan, Puerto Rico.

10:00 AM — 10:45 AM	Joe Sugg MS Competition II Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemerait, University of Georgia</i>
10:00 AM	Viability of Peanut Seed Under Variable Storage Conditions BOWEN, S.J. ¹ , Eason, K.M. ² , Pilon, C. ¹ , Monfort W.S. ¹ , Grey, T.L. ¹ ¹ Department of Crop & Soil Sciences, University of Georgia, Tifton, GA. ² Agricultural Research Service, United States Department of Agriculture, Tifton, GA.
10:15 AM	Repurposing Established Fungicides for Management of Aflatoxin Contamination on Peanuts in South Georgia BUTALID, J.W. ¹ , Pandey, L. ¹ , Kemerait, R.C. ¹ ¹ Department of Plant Pathology, University of Georgia, Tifton, GA.
10:30 AM	Transcriptomic Analysis of <i>Arachis hypogaea</i> L. to Identify Genes Conferring Resistance to <i>Meloidogyne arenaria</i> (Neal) Chitwood With Wild Introgression TIWARI, M. ¹ , Wheeler, T.A. ² , Cason, J.M. ³ , Simpson, C.E. ³ , Mendu, V. ⁴ , Burow, M.D. ^{1,2} ¹ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX 79409. ² Texas A&M AgriLife Research, Lubbock, TX 79403. ³ Texas A&M AgriLife Research and Extension Center, Stephenville, TX 76401. ⁴ Department of Agriculture, Agribusiness, and Environmental Sciences, Texas A&M University, Kingsville, TX 78363.

10:00 AM – 12:00 PM	Breeding, Biotechnology, and Genetics I Meeting Room: San Cristobal E, F, G <i>Moderator: Barry Tillman, University of Florida</i>
10:00 AM	The Wiregrass Peanut Project: Applying Genomics to Peanut Breeding and High School STEM Education WANG, Y.¹ , Davis, C. ¹ , East, K. ¹ , Hutchison, J. ¹ , Loftin, M. ¹ , Chu, Y. ² , Goode, K. ¹ , Myers, Z. ¹ , Vaughn, J. ^{1,3} , Simpkins, A. ¹ , White, A. ¹ , Ozias-Akins, P. ² , Holbrook, C.C. ⁴ , Clevenger, J. ¹ ¹ Hudson-Alpha Institute for Biotechnology, Huntsville, AL 35806. ² The University of Georgia, Tifton, GA, 31793. ³ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Center for Applied Genetic Technologies, 111 Riverbend Rd Athens, GA 30602. ⁴ Department of Agriculture, Agricultural Research Service, Tifton, GA, 31793.
10:15 AM	Peanut Biotechnology: Past, Present, and Future OZIAS-AKINS, P.^{1,2} , Holbrook, C.C. ^{1,3} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Tifton, GA. ² Department of Horticulture, University of Georgia, Tifton, GA. ³ Crop Genetics and Breeding Research Unit, USDA-ARS, Tifton, GA.
10:30 AM	Collaborative Peanut Improvement CLEVENGER, J.¹ , Wang, Y. ¹ , Vaughn, J. ¹ , Davis, C. ¹ , Wright, H. ¹ , Goode, K. ¹ , Myers, Z. ¹ , White, A. ¹ , Ozias-Akins, P. ² , Chamberlin, K. ³ , Holbrook, C.C. ⁴ , Tsatsos, P. ⁵ , Baldessari, J. ⁶ ¹ Hudson-Alpha Institute for Biotechnology, Huntsville, AL 35806. ² The University of Georgia, Tifton, GA, 31793. ³ U.S. Department of Agriculture Agricultural Research Service, Stillwater, OK, 74074. ⁴ U.S. Department of Agriculture Agricultural Research Service, Tifton, GA, 31793. ⁵ Mars Inc. ⁶ The National Institute of Agricultural Technology, Manfredi, Cordoba Province, Argentina.
10:45 AM	Collaborations for Peanut Through the USDA-ARS Digital Agricultural Systems Hub (DASH) HULSE-KEMP, A.M.¹ , Mirsky, S.B. ² , Reberg-Horton, S.C. ³ , Manchings, H.K. ³ , Dunne, J.C. ³ , Billings, G.T. ³ , Garrity, N.K. ³ ¹ Genomics and Bioinformatics Research Unit, USDA-ARS, Raleigh, NC 27606. ² Sustainable Agricultural Systems Lab, USDA-ARS, Beltsville, MD 20705. ³ Crop and Soil Science Department, North Carolina State University, Raleigh, NC 27606.
11:00 AM	Practical Ideas for the Pangenome and the Peanut BILLINGS, G.T.¹ , Conrad, R.E. ² , Andres, R.J. ¹ , Hulse-Kemp, A.M. ³ , Dunne, J.C. ¹ ¹ Crop and Soil Science Department, North Carolina State University, Raleigh, NC 27606. ² Center for Applied Genetic Technologies, University of Georgia, Athens, GA 30602. ³ Genomics and Bioinformatics Research Unit, USDA-ARS, Raleigh, NC 27606.
11:15 AM	Low Altitude Waypoint Drone Flights for Improved Plant Phenotyping in Peanut (<i>A. hypogaea</i>) GARRITY, N.¹ , Dunne, J.C. ¹ , Andres, R.J. ¹ , Oakley, A.T. ¹ , Pettit, N. ¹ ¹ Department of Crop and Soil Sciences, North Carolina State University, Raleigh, NC.
11:30 AM	Cultivars, Pedigrees and Genetic Vulnerability TALLURY, S.P.¹ ¹ U.S. Department of Agriculture, Agricultural Research Service, Griffin, GA 30223.
11:45 AM	Withdrawn

10:00 AM – 11:45 AM	Production Technology & Harvesting, Curing, Shelling, and Handling Meeting Room: San Cristobal B, C, D <i>Moderator: David Jordan, North Carolina State University</i>
10:00 AM	Withdrawn
10:15 AM	Examining the Utility of Early Applications of Prohexadione Calcium in Peanut (<i>Arachis hypogaea</i> L.) MONFORT, W.S.¹ , Tubbs, R.S. ¹ , Scruggs, J. ² ¹ Crop and Soil Sciences Dept., University of Georgia, Tifton, GA 31793. ² Fine-Americas, Inc., Franklin, NC 28734.
10:30 AM	Determining the Value of Cover Crops in a Peanut (<i>Arachis hypogaea</i> L.) Rotation Utilizing Variable Rate Irrigation BALKCOM, K.B.¹ , Gamble, A. ² , Knappenberger, T.J. ² , Mack, S. ³ ¹ Crop, Soils and Environmental Sciences, Auburn University, Headland, AL 36345. ² Crop, Soils and Environmental Sciences, Auburn University, Auburn, AL 36830. ³ Alabama Cooperative Extension, Auburn University, Headland, AL 36345.
10:45 AM	Optimizing Peanut Irrigation: Evaluating Threshold Shifts on Yield and Profitability Taunton, H. ¹ , PORTER, E.² , Porter, W. ¹ , Pilon, C. ¹ , Monfort, S. ¹ ¹ Department of Crop & Soil Sciences, University of Georgia, Tifton, GA. ² Department of Agriculture, Abraham Baldwin Agricultural College, Tifton, GA.
11:00 AM	Withdrawn
11:15 AM	Research Addressing Production and Pest Management Issues in Peanut in Northern Ghana Seidu, A.M. ¹ , Abudulai, M. ¹ , Mahama, G.Y. ¹ , Sugri, I. ¹ , Nboyine, J.A. ¹ , Dzomeku, I.K. ² , Arthur, S. ³ , Bolfrey-Arku, G. ³ , JORDAN, D.⁴ , MacDonald, G. ⁵ ¹ Council for Scientific and Industrial Research, Savanna Agricultural Research Institute, Tamale and Wa, Ghana. ² Department of Crop Science, University for Development Studies, Tamale, Ghana. ³ Council for Scientific and Industrial Research, Crops Research Institute, Kumasi, Ghana. ⁴ North Carolina State University, Raleigh, NC 27695. ⁵ University of Florida, Gainesville, FL 32611.
11:30 AM	Relationship of Peanut Pod Hull Strength to Harvest Yield and Grade Factors for Peanuts Exposed to Simulated Rainfall in Windrows MCINTYRE, J.S.¹ , Cook, H.J. ¹ , Read, Q.D. ² , Sorensen, R.B. ¹ , Bucior, E.R. ¹ , Lamb, M.C. ¹ ¹ USDA-ARS National Peanut Research Laboratory, Dawson, GA. ² USDA-ARS Statistician, Raleigh, NC.

10:45 AM – 12:00 PM	Joe Sugg Ph.D. Competition I Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemerait, University of Georgia</i>
10:45 AM	Seasonal Trends in Aflatoxin Contamination of Peanut Across Commercial Fields in South Georgia MAKTABI, S.¹ , Boote, K.J. ² , Fountain, J. ³ , Hoogenboom, G. ² , Pilon, C. ¹ , Vellidis, G. ¹ ¹ Institute for Integrative Precision Agriculture, Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ² Department of Agricultural and Biological Engineering, University of Florida, Gainesville, FL. ³ Department of Plant Pathology, University of Georgia, Griffin, GA.
11:00 AM	Weed Control and Fluridone Use in the Virginia-Carolina Region PENDLETON, B.¹ , Jordan, D. ¹ , Forehand, J. ² , Marshall, M. ³ , Anco, D.J. ³ ¹ NC State Extension, Raleigh, NC 27695. ² Virginia Cooperative Extension Service, Blacksburg, VA 24061. ³ Clemson University, Clemson, SC 29634.
11:15 AM	Peanut Weed Control With Residual Herbicide Programs SMITH, M.¹ , Baughman, T. ² ¹ Department of Entomology and Plant Pathology, Oklahoma State University, Altus, OK 73521. ² Texas A&M AgriLife Research and Extension, Lubbock, TX 79403.
11:30 AM	Exploring the Usage of Irrigation to Recover From Early Season Flumioxazin (Valor) Injury WARREN, C.¹ , Porter, W. ¹ , Prostko, E. ¹ ¹ Department of Crop & Soil Sciences, University of Georgia, Tifton GA.
11:45 AM	Phenomic Prediction of Virginia Peanut Maturity From Aerial Imaging and Machine Learning Models PETTIT, N.¹ , Garrity, N. ¹ , Oakley, A. ¹ , Dunne, J. ¹ ¹ Department of Crop Science, North Carolina State University, Raleigh, NC 27695.

1:30 PM – 5:30 PM	Joe Sugg Ph.D. Competition II Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemerait, University of Georgia</i>
1:30 PM	Genome Assembly of Florunner and TxAG-6 Coupled With Raman Spectroscopy-Based Selection for High-Oil Peanut Improvement for Renewable Fuel Markets PANKAJ, Y.K.¹ , Cason, J. ² , Simpson, C.E. ² , Kurouski, D. ³ , Stelly, D. ¹ , Burow, M.D. ^{1,4} , Dean, L. ⁵ ¹ Department of Soil and Crop Sciences, Texas A&M University, College Station, TX. ² Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX. ³ Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX. ⁴ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ⁵ United States Department of Agriculture - ARS, Market Quality and Handling Research Unit, Raleigh, NC.
1:45 PM	Improved Root Characteristics are the Key to the Drought Tolerance Response of Water Spender and Water Saver Peanut Cultivars HANIF, S.¹ , C. Chen, C. ¹ , Batchelor, W. ² , Dang, P. ³ , Lamb, M. ³ , Sanz-Saez, A. ¹ ¹ Crop, Soil and Environmental Science, Auburn University, AL, 36849. ² Biosystem Engineering, Auburn University, AL, 36849. ³ USDA, ARS, National Peanut Research Laboratory, Dawson, GA, 39842.
2:00 PM	Drought Adaptation in Peanut: Linking Physiological Traits, Root System Architecture, and Yield Variation in a Water-Saver × Water-Spender RIL Population PIERRE, F.¹ , Hanif, S. ¹ , Dang, P. ² , Lamb, M. ² , Batchelor, W. ³ , Chen, C. ¹ , Sanz-Saez, A. ¹ ¹ Crop, Soil and Environmental Sciences Department, Auburn University, Auburn, AL 36849, USA. ² National Peanut Research Laboratory, Dawson, GA 39842. ³ Biosystem Engineering, Auburn University, AL 36849.
2:15 PM	Variation in Aflatoxin Contamination Among Wild and Wild-Derived <i>Arachis</i> Accessions Challenged With <i>Aspergillus flavus</i> TOEWS, A.¹ , Leal-Bertioli, S.C.M. ^{2,5} , Bertioli, D.J. ^{3,5} , Tallury, S. ⁴ , Fountain, J. ¹ ¹ Department of Plant Pathology, University of Georgia (UGA), Griffin, GA. ² Department of Plant Pathology, UGA, Athens, GA. ³ Department of Crop and Soil Sciences, UGA, Athens, GA. ⁴ USDA-Agricultural Research Service, Germplasm Conservation Unit, Griffin, GA. ⁵ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA.
2:30 PM	Development and Characterization of a 16-Way MAGIC Peanut Population Using High Throughput Phenotyping and Deep Learning KHAREL, P.¹ , Chu, Y. ^{1,2} , Sanchez, J.R. ¹ , Holbrook, C.C. ³ , Ozias-Akins, P. ^{1,2} ¹ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA, USA. ² Department of Horticulture, University of Georgia, Tifton, GA, USA. ³ U.S. Department of Agriculture- Agricultural Research Service, Crop Genetics and Breeding Research Unit, Tifton, GA, USA.
2:45 PM	Bridging the Gap to Wild Species With High-Genome Coverage <i>A. valida</i> and <i>A. stenosperma</i> Introgression Lines MATUSINEC, D.¹ , Maharjan, N. ¹ , Gonzales, M. ² , Oliveira, C.J. ³ , Brenneman, T.B. ³ , Leal-Bertioli, S.C.M. ^{1,2} , Bertioli, D.J. ^{1,4} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA. ² Department of Plant Pathology, University of Georgia, Athens, GA. ³ Department of Plant Pathology, University of Georgia, Tifton, GA. ⁴ Department of Crop & Soil Sciences, University of Georgia, Athens, GA.
3:00 PM	Decoding the Peanut Pangenome: Utilizing Graph-Based Assemblies to Map Structural Variation Hotspots in <i>Arachis hypogaea</i> UPADHYAY, A.^{1,2*} , Vaughn, J. ^{1,2} , Holbrook, C. ³ , Tillman, B. ⁵ , Chen, C. ⁴ , Thompson, E. ¹ , Clevenger, J. ^{1,2} ¹ Hudson Alpha Institute for Biotechnology, Huntsville, AL, 35806. ² Institute of Plant Breeding, Genetics, and Genomics, University of Georgia. ³ United States Department of Agriculture, Tifton GA. ⁴ Auburn University, AL, 36849. ⁵ University of Florida, North Florida Research and Education Center, Marianna, Florida.
3:15 PM	Targeted Capture Enhances SNP Discovery in an EMS-Mutagenized Peanut Population PANDEY, S.¹ , Clevenger, J. ² , Holbrook, C.C. ³ , Ozias-Akins, P. ¹ ¹ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA. ² HudsonAlpha Institute for Biotechnology, Huntsville, AL. ³ U.S. Department of Agriculture-Agriculture Research Service, Tifton, GA.
3:30 PM	BREAK

1:30 PM – 5:30 PM	Joe Sugg Ph.D. Competition II continued Meeting Room: Conference 8, 9, 10 / Salon San Juan <i>Moderator: Bob Kemeraït, University of Georgia</i>
3:45 PM	Utilizing Cytometric and Spectroscopic Technologies to Further Characterize Wild <i>Arachis</i> Species COSTELLO, K.¹ , Stelly, D. ¹ , Hodnett, G. ¹ , Cason, J. ² , Simpson, C. ² , Green, E. ² , Verchot, J. ³ ¹ Texas A&M, Department of Soil and Crop Sciences, College Station, TX, 77840. ² Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX 76401. ³ Texas A&M, Department of Soil and Crop Sciences, department of Plant Pathology and Microbiology, College Station, TX, 77840.
4:00 PM	Testing the Components of Agile Genetics for White Mold Resistance in Peanut MAGIC Populations POKHREL, S.¹ , Brenneman, T.B. ² , Clevenger, J. ³ , Ozias-Akins, P. ¹ , Vaughn, J. ³ ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Tifton, GA. ² Department of Plant Pathology, University of Georgia, Tifton, GA. ³ Hudson Alpha Institute for Plant Breeding, Huntsville, AL.
4:15 PM	Utilizing PACE Marker and Automated Egg Count Detection to Identify Candidate RKN-Resistance Gene Region on Chromosome 9A Introgressed From <i>Arachis cardenasii</i> DRUPA JONES, E.¹ , Dunne, J. ¹ , Gorny, A. ² , Oakley, A. ¹ , Andres, R.J. ¹ ¹ Crop and Soil Science Department, North Carolina State University, Raleigh, NC 27606. ² Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC 27606.
4:30 PM	Development and Evaluation of Runner Introgression Populations for High Oleic Oil Content, Early Leaf Spot Resistance, and Marker Validation in Peanut (<i>Arachis hypogaea</i> L.) GAUS-BOWLING, T.¹ , Tengey, T. ² , Cason, J. ³ , Simpson, C. ³ , Burow, M.D. ⁴ ¹ Biological Sciences, Amarillo College, Amarillo, TX 79178, and Texas Tech University, Dept. of Plant and Soil Science, Lubbock, TX 79409; ² Savanna Agricultural Research Institute, Ghana. ³ Texas A&M AgriLife Research, Stephenville, TX 76401; ⁴ Texas A&M AgriLife Research, Lubbock, TX 79403, and Texas Tech University, Dept. of Plant and Soil Science, Lubbock, TX 79409.
4:45 PM	The Kingdom of Lost Resistance: Unlocking Wild Defenses Against Peanut Early Leaf Spot DONG, A.K.¹ , Hopkins, M.S. ³ , Bertioli, D.J. ^{2,3} , and Leal-Bertioli S.C.M. ^{1,3} ¹ Department of Plant Pathology, University of Georgia, Athens, GA. ² Department of Crop & Soil Sciences, University of Georgia, Athens, GA. ³ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA.
5:00 PM	Integrating Host Resistance and In-Furrow Fungicide Applications for Leaf Spot Management in Peanut Production SILVA, F.A.¹ , Culbreath, A.K. ¹ , Kemeraït, R.C. ¹ , Ozias-Akins, P. ² , Severns, P. ³ , Holbrook, C.C. ⁴ ¹ Department of Plant Pathology, University of Georgia, Tifton, GA. ² Institute of Plant Breeding, Genetics, and Genomics, University of Georgia, Tifton, GA. ³ Department of Plant Pathology, University of Georgia, Athens, GA. ⁴ United States Department of Agriculture-Agricultural Research Service, Tifton, GA.
5:15 PM	Genotypic Resistance Alters Fungicide Response and Yield Stability in Peanut Under Late Leaf Spot Pressure LEONARD, D.J.¹ , Tillman, B.L. ¹ , Gomillion, M.W. ¹ , Goyzueta, M.D. ¹ , Castro, S.C. ¹ , Oduor, J.O. ¹ , Toruno, C.E. ¹ ¹ North Florida Research and Education Center, University of Florida/IFAS, Marianna, FL.

1:30 PM – 4:15 PM	Breeding, Biotechnology, and Genetics II Meeting Room: San Cristobal E, F, G <i>Moderator: Carlos Cardon, University of Georgia</i>
1:30 PM	A Third Gene Needed for Genotyping Oleic Acid Content in Peanut THOMPSON, E. ^{1,2,3} , Korani, W. ¹ , Wu, D. ^{2,3} , Garg, V. ⁴ , Tonniss, B. ⁵ , Wang, M. ⁵ , Holbrook, C.C. ³ , Ozias-Akins, P. ⁶ , Culbreath, A. ² , Varshney, R.K. ⁴ , Guo, B. ³ , Clevenger, J.P. ¹ ¹ HudsonAlpha Institute for Biotechnology, Huntsville, AL, USA. ² Department of Plant Pathology, University of Georgia, Tifton, GA, USA. ³ USDA-ARS Crop Genetics and Breeding Research Unit, Tifton, GA, USA. ⁴ WA State Agricultural Biotechnology Centre, Centre for Crop and Food Innovation, Food Futures Institute, Murdoch University, Murdoch, WA, Australia. ⁵ USDA-ARS Plant Genetic Resources Conservation Research Unit, Griffin, GA, USA. ⁶ Department of Horticulture and Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA, USA.
1:45 PM	Genes Regulating Enhanced Sequestration of Polyunsaturated Fatty Acids Into Triacylglycerols and Sterol Esters Will Improve the Heat Tolerance of Peanuts NARAYANAN, S. ¹ , Sathasivam, M. ¹ , Spivey, W.W. ¹ , Rustgi, S. ¹ , Burow, M.D. ^{2,3} , Welti, R. ⁴ ¹ Department of Plant and Environmental Sciences, Clemson University, Clemson, SC. ² Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX. ³ Texas A&M AgriLife Research and Extension, Lubbock, TX. ⁴ Division of Biology, Kansas State University, Manhattan, KS.
2:00 PM	HSP70: A Heat Shock Protein Marker Associated With Flavor and Maturity THOMAS, J. ¹ , Marshall, J. ¹ , Liebold, C. ² , Fisher, B. ³ ¹ Department of Chemistry and Biochemistry, Lubbock Christian University, Lubbock, TX. ² The J.M. Smucker Co., Lexington, KY. ³ Department of Mathematics, Lubbock Christian University, Lubbock, TX.
2:15 PM	Drought Response in Peanut: Physiological and Transcriptomic Differences Between Water Savers and Water Spenders Zhang, J. ¹ , Hanif, S. ¹ , Lamb, M. ² , Dang, P. ² , Yucheng, F. ¹ , Sanz-Saez, A. ¹ , CHEN, C. ¹ ¹ Crop, Soil and Environmental Sciences Department, Auburn University, Auburn, AL 36849, USA; ² National Peanut Research Laboratory, Dawson, GA 39842.
2:30 PM	Mapping Resistance to Aflatoxin Contamination in Recombinant Inbred Line Populations of Peanut (<i>Arachis hypogaea</i> L.) WIGGINS, R. ¹ , Cardon, C. ¹ , Clevenger, J. ² , Korani, W. ² , Holbrook, C.C. ³ , Nix, E. ^{2,4} , Ozias-Akins, P. ¹ ¹ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA, USA; ² HudsonAlpha Institute for Biotechnology, Huntsville, AL, USA; ³ USDA-ARS, Coastal Plains Experiment Station, Tifton, GA, USA; ⁴ Department of Biological and Environmental Sciences, Alabama A&M University, Huntsville, AL, USA.
2:45 PM	A Pangenome Study of an 8-Way MAGIC Population for Aflatoxin Resistance in Peanut CARDON, C.H. ^{1,2} , Cheek, B. ^{1,2} , Chu, Y. ^{1,2} , Holbrook, C. C. ³ , Pokhrel, S. ^{1,2} , Rodriguez, L. ^{1,2} , Vaughn, J.N. ⁴ , Clevenger, J. ⁵ , Ozias-Akins, P. ^{1,2} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Tifton, GA. ² Department of Horticulture, University of Georgia, Tifton, GA. ³ USDA-ARS, Coastal Plain Exp. Station, Tifton, GA. ⁴ USDA-ARS, Athens, Georgia. ⁵ HudsonAlpha Institute for Biotechnology, Huntsville, AL.
3:00 PM	BREAK
3:15 PM	Identification of a Large Effect QTL for Peanut Stem Rot Resistance BISWAL, A.K. ^{1,2} , Wright, H. ³ , Nugraha, G.T. ² , Clevenger, J. ³ , Oliviera, C. ⁴ , Hovav, R. ⁵ , Holbrook, C.C. ⁶ , Brenneman, T. ⁴ , Ozias-Akins, P. ^{1,2} ¹ Department of Horticulture, University of Georgia, Tifton, GA 31793. ² Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Tifton, GA 31793. ³ HudsonAlpha Institute for Biotechnology, Huntsville, AL 35806. ⁴ Department of Plant Pathology, University of Georgia, Tifton, GA 31793. ⁵ Agricultural Research Organization (ARO), Rishon LeZion, Israel. ⁶ U.S. Department of Agriculture-ARS Coastal Plain Experiment Station, Tifton, GA USA 31793.

1:30 PM – 4:15 PM	Breeding, Biotechnology, and Genetics II continued Meeting Room: San Cristobal E, F, G <i>Moderator: Carlos Cardon, University of Georgia</i>
3:30 PM	An Analysis of the “Assistance” Needed to Optimize the Performance of Cultivar Resistance to Major Peanut Diseases TILLMAN, B.L. ¹ , Goyzueta, M.D. ¹ , Gomillion, M.W. ¹ , Leonard, D.J. ¹ , Oduor, J.O. ¹ , Castro S.C. ¹ , Toruno, C.E. ¹ , Dufault, N.S. ² , Oliveira, C.J. ³ , Culbreath, A.K. ³ , and Brenneman T.B. ³ ¹ North Florida Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida, Marianna, FL; ² Plant Pathology Department, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL; ³ Plant Pathology Department, Coastal Plains Experiment Station, University of Georgia, Tifton, GA.
3:45 PM	Cross-Continental Discovery and Deployment of a Smut Disease Resistance Locus WRIGHT, H.C. ¹ , Korani, W. ¹ , Mamani, E. ² , SanMartin, P. ¹ , Myers, Z. ¹ , Guillermo de la Barrera ² , Davis, C.E.M. ¹ , Botton, S. ^{3,4} , Grandon, N. ² , Rodriguez, A. ² , Koch-Bach, R. ⁵ , Cordes, G. ² , Bennett, R.S. ⁶ , Ozias-Akins, P. ^{3,4} , Holbrook, C.C. ⁷ , Chamberlin, K. ⁶ , Tsatsos, P. ⁸ , Baldessari, J. ² , Clevenger, J. ¹ ¹ HudsonAlpha Institute for Biotechnology, Huntsville, AL, 35806, USA. ² Manfredi Experimental Station, Instituto Nacional de Tecnología Agropecuaria, (5988) Manfredi, Argentina. ³ Department of Horticulture, University of Georgia, Tifton, GA, 31793, USA. ⁴ Institute for Plant Breeding, Genetics, and Genomics, University of Georgia, Tifton, GA, 31793, USA. ⁵ USDA-ARS, Foreign Disease/Weed Science Research, Fort Detrick, MD, 21702, USA. ⁶ USDA-ARS, Peanut and Small Grains Research Unit, Stillwater, OK, 74075, USA. ⁷ USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, Georgia, 31793, USA. ⁸ Mars, Incorporated, McLean, VA, 22101, USA.
4:00 PM	Variability in Expression of Resistance to Leaf Spot HOLBROOK, C.C. ^{1,2} , Anco, D.J. ³ , Tillman, B.L. ⁴ , Leonard, D.J. ⁴ , Botton, S. ^{2,5} , Zurweller, B. ⁶ , Brown, I.N. ^{2,7} , Marchetti, A. ^{2,7} , Culbreath, A.K. ⁸ , Ozias-Akins, P. ^{2,5} ¹ Crop Genetics and Breeding Research Unit, USDA-ARS, Tifton, GA. ² Institute of Plant Breeding Genetics & Genomics, University of Georgia. ³ Edisto Research and Education Center, Clemson University, Blackville, SC. ⁴ North Florida Research and Education Center, Agronomy Department, University of Florida, Marianna, FL. ⁵ Department of Horticulture, University of Georgia, Tifton, GA. ⁶ Department of Plant and Soil Sciences, Mississippi State University, Mississippi State, MS. ⁷ Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ⁸ Department of Plant Pathology, University of Georgia, Tifton, GA.

1:30 PM – 4:45 PM	Extension Techniques and Technology & Economics Meeting Room: San Cristobal B, C, D <i>Moderator: Scott Tubbs, University of Georgia</i>
1:30 PM	Peanut Advisor: A Support Tool for Peanut Production GOYZUETA, M.D.¹ , Tillman, B.L. ¹ , Kim, D.Y. ² , Brym, Z. ² , Zurweller, B. ³ ¹ University of Florida, North Florida Research and Education Center, Marianna, FL. ² University of Florida Tropical Research and Education Center, Homestead, FL. ³ Mississippi State University.
1:45 PM	Improving the Checkbook Method of Irrigation Scheduling Via Utilization of the Smart Irrigation CropFit App (SICropFit) in Peanut EDWARDS, P.¹ , Beasley, S. ² , Carlson, S. ³ , Butts, C.L. ⁴ , Gallios, I. ⁵ , Kichler, J. ⁶ , Hall, D. ⁷ , Mallard, J. ⁸ , Tanner, S. ⁹ , Trevisan, V. ¹⁰ , Vellidis, G. ^{10,11} ¹ Cooperative Extension, University of Georgia, Tifton, GA. ² Cooperative Extension University of Georgia, Tifton, Georgia. ³ Cooperative Extension, University of Georgia, Sylvester, GA. ⁴ National Peanut Research Laboratory, USDA-ARS, Dawson, GA. ⁵ Soil Science Artificial Intelligence Lab, University of Florida, Immokalee, FL. ⁶ Cooperative Extension, University of Georgia, Moultrie, GA. ⁷ Cooperative Extension, University of Georgia, Cochran, GA. ⁸ Cooperative Extension, University of Georgia, Statesboro, GA. ⁹ Cooperative Extension, University of Georgia, Swainsboro, GA. ¹⁰ Crop and Soil Sciences Department, University of Georgia, Tifton, GA. ¹¹ Institute of Integrative Precision Agriculture, University of Georgia, Tifton, GA.
2:00 PM	Results From Grower Meeting Surveys in the Virginia-Carolina Region for the 2025 and 2026 Cropping Cycles ELLISON, C.¹ , Barrow, B. ¹ , Godfrey III, E. ¹ , Howe, H. ¹ , Grimes, L. ¹ , Strickland, M. ¹ , Miles, L. ¹ , Carroll, M. ¹ , King, D. ¹ , Jalai, S. ¹ , Smith, P. ¹ , Pike, B. ¹ , Pendleton, B. ¹ , Britton, T. ¹ , Lilley, D. ¹ , Morgan, J. ¹ , Waters, M. ¹ , Huffman, M. ¹ , Seitz, M. ¹ , Harrell, J. ¹ , Smith, J. ¹ , Smith, M. ¹ , Grove, A. ¹ , Malloy, M. ¹ , Wood, R. ¹ , Anderson, D. ¹ , Batts, T. ¹ , Parker, Z. ¹ , Haines, W. ¹ , Reisig, D. ¹ , Lux, L. ¹ , Jordan, D.L. ¹ , Preisser, L. ² , Reiter, S. ² , Cooper, E. ² , Rutherford, S. ² , Clark, N. ² , Slye, A. ² , Parrish, M. ² , Malone, S. ² , Forehand, J. ² , Langston, D. ² , Frame, W.H. ² , Bryant, T.B. ² , Croft, J. ³ , Varn, J. ³ , Gibson, R. ³ , Mikell, H. ³ , Smith, K. ³ , Dewitt, D. ³ , Dantzler, Z. ³ , Hardee, W. ³ , Barnes, M. ³ , Anco, D.J. ³ , Marshall, M. ³ ¹ NC State Extension, Raleigh, NC 27695. ² Virginia Cooperative Extension Service, Blacksburg, VA 24061. ³ Clemson Cooperative Extension Service, Clemson, SC 29634.
2:15 PM	Peanut Yield, Market Grade Characteristics, Financial Return, and Leaf Spot Reaction in Large-Plot Variety Trials in North Carolina in the 2025 Growing Season HOWE, H.¹ , Barrow, B. ¹ , Godfrey III, E. ¹ , Ellison, C. ¹ , Grimes, L. ¹ , Strickland, M. ¹ , Jalai, S. ¹ , Pendleton, B. ¹ , Lilley, D. ¹ , Waters, M. ¹ , Anderson, D. ¹ , Batts, T. ¹ , Lux, L. ¹ , Jordan, D.L. ¹ , Forehand, J. ² , Brake, M. ³ , Stevens, B. ³ , Lanier, I. ³ , Deal, C. ³ ¹ NC State Extension, Raleigh, NC 27695. ² Virginia Cooperative Extension Service, Blacksburg, VA 24061. ³ North Carolina Department of Agriculture and Consumer Services, Raleigh, NC 27849.
2:30 PM	Optimal Timing and Applicate Rates of Plant Growth Regulator Kudos PARKER, W.¹ , Monfort, S. ² , Powell, S. ³ , Tanner, S. ⁴ ¹ Area Agronomy Agent, University of Georgia, Statesboro, GA 30458. ² Extension Peanut Agronomist, University of Georgia, Tifton, GA 31793. ³ Treutlen County Extension Agent, University of Georgia, Soperton, GA, 30457. ⁴ Emanuel County Extension Agent, University of Georgia, Swainsboro, GA, 30401.
2:45 PM	Evaluation of High-Yielding Runner-Type Peanut Varieties and the Effects of a Plant Growth Regulator (PGR) on a New Peanut Variety in Southwest Georgia CREWS, B.G.¹ , Beasley, S. ² , Collins, D. ³ , Edwards, R.P. ⁴ , McAllister, S.T. ⁵ , Odom, C. ⁶ , Monfort, W.S. ⁷ , Quayle, J. ⁸ , Sanders, H. ⁹ , Spray, W. ¹⁰ , Starr, B. ¹¹ ¹ Marion/Webster County Extension, Preston, GA 31824. ² Southwest District Ag Water Team, Tifton, GA 31793. ³ Lee County Extension, Leesburg, GA 31763. ⁴ Southwest District Ag Water Team, Tifton, GA 31793. ⁵ Terrell County Extension, Dawson, GA 39842. ⁶ Sumter County Extension, Americus, GA 31709. ⁷ Department of Crop and Soil Sciences, University of Georgia Tifton Campus, Tifton, GA 31793. ⁸ Crisp County Extension, Cordele, GA 31010. ⁹ Ben Hill County Extension, Fitzgerald, GA 31750. ¹⁰ Stewart County Extension, Lumpkin, GA 31815. ¹¹ Dooly/Schley County Extension, Vienna, GA 31092.
3:00 PM	BREAK

1:30 PM — 4:45 PM	Extension Techniques and Technology & Economics continued Meeting Room: San Cristobal B, C, D <i>Moderator: Scott Tubbs, University of Georgia</i>
3:15 PM	Valuation of RTK-GNSS Outage Nowcasts: Assessing Peanut (<i>Arachis hypogaea</i>) Production Vulnerability From Threats to the A-B Line GRIFFIN, T.W. ¹ , Porter, W.M. ² ¹ Department of Agricultural Economics, Kansas State University, Manhattan, Kansas 66506. ² Department of Crop and Soil Sciences, University of Georgia, Tifton, Georgia 31793.
3:30 PM	PeanutLink: A Mobile Reporting Platform Connecting Extension, Research, and Technology to Strengthen Peanut IPM in the Southeast FULLEM, K.R. ¹ , Dufault, N.S. ¹ , LaForest, J.H. ^{2,3} , Pittman, H.T. ⁴ , Warren, M.W. ⁵ , Cannon, E. ⁵ , Wynn, K.W. ⁶ , Carter, E.T. ⁷ , Korus, K.A. ⁸ ¹ Department of Plant Pathology, University of Florida, Gainesville, FL. ² Center for Invasive Species and Ecosystem Health, Department of Entomology, University of Georgia, Tifton, GA. ³ Southern Integrated Pest Management Center, Raleigh, NC. ⁴ UF/IFAS Extension, Trenton, FL. ⁵ UF/IFAS Extension, Bronson, FL. ⁶ UF/IFAS Extension, Jasper, FL. ⁷ UF/IFAS Extension, Marianna, FL. ⁸ UF/IFAS Extension, Newberry, FL.
3:45 PM	25 Years Large-Plot of On-Farm Fungicide Trials for UGA Extension LY, P. ¹ , Kemerait, R.C. ¹ , Tyson, W. ² , Price, T. ³ , Hayes, B. ⁴ , McAllister, S. ⁵ , Crews, B. ⁶ , Lopez, C. ⁷ , Edwards, P. ⁸ , Anderson, H. ⁸ , Sanders, F. ⁹ , Sapp, P. ¹⁰ , Collins, C. ¹⁰ , Reeves, B. ¹¹ , Barnes, T.L. ¹² , Handcock, K. ¹³ ¹ Department of Plant Pathology, University of Georgia, Tifton, GA. ² University of Georgia Extension, Bulloch County, GA. ³ University of Georgia Extension, Cook County, GA. ⁴ University of Georgia Extension, Mitchell County, GA. ⁵ University of Georgia Extension, Terrell County, GA. ⁶ University of Georgia Extension, Webster County, GA. ⁷ University of Georgia Extension, Sumter County, GA. ⁸ University of Georgia Extension, Irwin County, GA. ⁹ University of Georgia Extension, Ben Hill County, GA. ¹⁰ University of Georgia Extension, Burke County, GA. ¹¹ University of Georgia Extension, Berrien County, GA. ¹² University of Georgia Extension, Atkinson County, GA. ¹³ University of Georgia Extension, Early County, GA.
4:00 PM	Evaluating Peanut Fungicide Programs in Berrien County, Georgia: A 2-Year Summary REEVES, B.L. ¹ , Barnes, T.L. ² , Kemerait Jr., R.C. ³ ¹ University of Georgia Extension, Berrien County, Nashville, GA. ² University of Georgia Extension, Atkinson County, Pearson, GA. ³ Department of Plant Pathology, University of Georgia, Tifton, GA.
4:15 PM	Withdrawn
4:30 PM	Evaluating White-Tailed Deer Injury in Florida Peanut CARTER, E. ¹ , Mauldin, M. ² , Waters, K. ³ , McDonald, B. ⁴ , Williams, N. ⁴ , Bolton, L. ⁴ , Tillman, B. ⁵ , Sidhu, S. ⁴ , Baruzzi, C. ⁴ ¹ University of Florida Institute of Food and Agricultural Sciences Jackson County Extension, Marianna, FL. ² University of Florida Institute of Food and Agricultural Sciences Washington County Extension, Chipley, FL. ³ University of Florida Institute of Food and Agricultural Sciences Holmes County Extension, Bonifay, FL. ⁴ University of Florida Institute of Food and Agricultural Sciences North Florida Research and Education Center Quincy, Quincy, FL. ⁵ University of Florida Institute of Food and Agricultural Sciences North Florida Research and Education Center Marianna, Marianna, FL.

8:00 AM – 10:45 AM	Plant Pathology and Nematology & Mycotoxins Meeting Room: San Cristobal E, F, G <i>Moderator: Emily Cantonwine, Valdosta State University</i>
8:00 AM	Multi-Location/Year Evaluation of Fungicide Program Performance in Florida Peanut Production Systems KORUS, K.A. ¹ , Balaguer, R. ² , Wynn, K. ³ , Beach, E. ⁴ , Dufault, N.S. ⁵ ¹ University of Florida, Institute of Food and Agricultural Sciences, Alachua County Extension Agent, Newberry, Florida. ² University of Florida, Institute of Food and Agricultural Sciences, Suwannee County Extension Agent, Live Oak, Florida. ³ University of Florida, Institute of Food and Agricultural Sciences, Hamilton County Extension Agent, Jasper, Florida. ⁴ University of Florida, Institute of Food and Agricultural Sciences, Lafayette County Extension Agent, Mayo, Florida. ⁵ University of Florida, Department of Plant Pathology, Gainesville, Florida.
8:15 AM	A Flexible Framework for Figuring Fungicide Field Efficacy Against Late Leaf Spot in Peanut ANCO, D.J. ¹ , Hiers, J.B. ¹ ¹ Edisto Research and Education Center, Department of Plant and Environmental Sciences, Clemson University, Blackville, SC.
8:30 AM	Correlating Fungicide Sensitivity Assays to Field Performance for the Early and Late Leaf Spot Pathogens of Peanut CANTONWINE, E.G. ¹ , Effi, G. ¹ , Lokdarshi, A. ¹ , Culbreath, A.K. ² ¹ Department of Biology, Valdosta State University, Valdosta, GA. ² Department of Plant Pathology, University of Georgia, Tifton, GA.
8:45 AM	Comparison of Phosphonate Products for Leaf Spot Control in Peanut CULBREATH, A.K. ¹ , Brenneman, T.B. ¹ , Kemerait, R.C. ¹ , Cantonwine, E.G. ² ¹ Department of Plant Pathology, University of Georgia, Tifton, GA. ² Department of Biology, Valdosta State University, Valdosta, GA.
9:00 AM	Foliar Fungicide Trial Reveals Contrasting Leaf Spot and Southern Blight Pressure From Two Locations in Georgia MACDONALD, G. ¹ , Phillippi, C. ¹ , Kemerait Jr., R. ¹ ¹ Department of Plant Pathology, University of Georgia Tifton Campus, GA.
9:15 AM	Translating the Florida 1 to 10 Scale into Severity and Defoliation Ratings Improves Biological Interpretation of Disease Data DUFAULT, N.S. ¹ , Wynn, K. ² and Carter, E. ³ ¹ Department of Plant Pathology, University of Florida, Gainesville, FL. ² UF/IFAS Extension Hamilton County, Jasper, FL. ³ UF/IFAS Extension Jackson County, Marianna, FL.
9:30 AM	BREAK
9:45 AM	Leveraging UAV-Based Imagery and Machine Learning for Precision Prediction of Sclerotinia Blight in Peanut KAFLE, B.D. ¹ , Bennett, B.D. ¹ , Faith, A., Burow, M.D. ^{2,3} , Bhandari, M. ⁴ , Cason, J.M. ¹ ¹ Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX. ² Texas A&M AgriLife Research, Texas A&M University System, Lubbock, TX. ³ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ⁴ Texas A&M AgriLife Research and Extension Center - Corpus Christi.
10:00 AM	The 1,000 A. flavus Genomes Initiative: From Genomic Diversity to Phenotypic Characterization Joson, S.E.A. ¹ , Adams, A.K. ¹ , Clevenger, J. ² , Myers, Z. ² , Korani, W. ² , Wiggins, R. ³ , Mathis, J. ⁴ , Aktaruzzaman, M. ⁵ , Brenneman, T.B. ⁶ , FOUNTAIN, J.C. ¹ ¹ Department of Plant Pathology, University of Georgia, Griffin, GA. ² HudsonAlpha Institute for Biotechnology, Huntsville, AL. ³ Premium Peanut LLC, Douglas, GA. ⁴ American Peanut Growers Group, Donalsonville, GA. ⁵ Department of Plant Sciences, University of Arizona, Tucson, AZ. ⁶ Department of Plant Pathology, University of Georgia, Tifton, GA.

8:00 AM – 10:45 AM	Plant Pathology and Nematology & Mycotoxins continued Meeting Room: San Cristobal E, F, G <i>Moderator: Emily Cantonwine, Valdosta State University</i>
10:15 AM	Development of Aflatoxin Risk Maps to Support Precision Management in Peanut MAKTABI, S.¹ , Boote, K.J. ² , Fountain, J. ³ , Hoogenboom, G. ² , Pilon, C. ¹ , Vellidis, G. ¹ ¹ Institute for Integrative Precision Agriculture, Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ² Department of Agricultural and Biological Engineering, University of Florida, Gainesville, FL. ³ Department of Plant Pathology, University of Georgia, Griffin, GA.
10:30 AM	The Genetic Structure of the Causal Agent of Peanut Smut, <i>Thecaphora frezzii</i>, and Potential Impacts on the Durability of Host Resistance KOCH BACH, R.A.¹ , Greatens, N.G. ¹ , Bennett, R.S. ² , Chamberlin, K. ² , Cheek, B. ³ , Tsatsos, P. ³ ¹ USDA-ARS Foreign Disease-Weed Science Research Unit, Fort Detrick, MD. ² USDA-ARS Peanuts and Small Grains Research Unit, Stillwater, OK. ³ Mars, Inc., Chicago, IL.

9:45 AM – 12:00 PM	Charles Simpson Wild Species Session Meeting Room: San Cristobal B, C, D <i>Moderator: Shyam Tallury, USDA-ARS Griffin, GA</i>
9:45 AM	How Robert K. Merton Captured the Dysfunction of the Convention on Biological Diversity in a Nutshell BERTIOLI, D.J.^{1,2} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA. ² Department of Crop & Soil Sciences, University of Georgia, Athens, GA.
10:00 AM	Updating the Wild Allotetraploid Portfolio: From Genetic Diversity to Breeding Deployment in Peanut LEAL-BERTIOLI, S.C.M.^{1,2} , Rutherman, E. ¹ , Dong, A. ^{1,2} , Barnes, E.C. ¹ , Matusinec, D. ¹ , Essandoh, D.A. ¹ , Avosa, M. ¹ , Aylr, M. ¹ , Bertoli, D.J. ^{1,3} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA. ² Department of Plant Pathology, University of Georgia, Athens, GA. ³ Department of Crop & Soil Sciences, University of Georgia, Athens, GA.
10:15 AM	Wild <i>Arachis</i> Species Genome Assemblies to Improve our Understanding of Genomic Diversity Outside of <i>Arachis hypogaea</i> THOMPSON, E.¹ , Bentz, P. ¹ , Wright, H. ¹ , Lee, K. ¹ , Upadhyay, A. ^{1,2} , Scheffler, B. ³ , Tallury, S. ⁴ , Clevenger, J.P. ¹ ¹ HudsonAlpha Institute for Biotechnology, Huntsville, AL, USA. ² Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Athens, GA, USA. ³ USDA-ARS Genomics and Bioinformatics Research Unit, Stoneville, MS, USA. ⁴ USDA-ARS Plant Genetic Resources Conservation Research Unit, Griffin, GA, USA.
10:30 AM	Genome Annotation of <i>Arachis cardenasii</i> at PeanutBase DASH, S.¹ , Bertoli, D.J. ⁵ , Cannon, S. ² , Clevenger, J. ³ , Farmer, A.D. ¹ , Grimwood, J. ³ , Leal-Bertioli, S.C.M. ⁵ , Ozias-Akins, P. ⁴ ¹ National Center for Genome Resources, Santa Fe, NM. ² Corn Insects and Crop Genetics Research Unit, Ames, IA. ³ HudsonAlpha Institute for Biotechnology, Huntsville, AL. ⁴ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA. ⁵ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Athens, GA.
10:45 AM	Advancement, Characterization, and Utilization of Wild-Species Introgression Lines for Resistance to Multiple Pathogens BUROW, M.D.^{1,2} , Tiwari, M. ² , Gaus-Bowling, T. ^{2,3} , Naapoal, C. ⁴ , Tengey, T.K. ⁴ , Pankaj, Y.K. ⁵ , Shumaker, J. ⁶ , Wheeler, T.A. ¹ , Pham, H. ¹ , Akromah, R. ⁷ , Mendu, V. ^{1,8} , Cason, J.M. ⁶ , Simpson, C.E. ⁶ ¹ Texas A&M AgriLife Research, Lubbock, TX. ² Texas Tech University, Dept. of Plant and Soil Science, Lubbock, TX. ³ Amarillo College, Amarillo, TX. ⁴ Savanna Agricultural Research Institute, Tamale, Northern Region, Ghana. ⁵ Texas A&M University Dept. of Soil and Crop Science, College Station, TX. ⁶ Texas A&M AgriLife Research, Stephenville, TX. ⁷ Kwame Nkrumah University and Science and Technology, Dept. of Crop and Soil Science, Kumasi, Ghana. ⁸ Texas A&M University-Kingsville, Dept. of Agriculture, Agribusiness, and Environmental Sciences, Kingsville, TX.
11:00 AM	Early Leaf Spot Resistance in a Spanish-Type Groundnut Breeding Population: Field Evaluation and Marker Validation NAAPOAL, C.^{1,3} , Tengey, T.K. ² , Akromah, R. ³ , Burow M.D. ^{1,4} ¹ Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409. ² CSIR-Savanna Agricultural Research Institute, Nyankpala, Ghana. ³ Department of Crop and Soil Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. ³ Texas A&M AgriLife Research and Extension Services, Lubbock, TX 79403.
11:15 AM	Molecular Characters of Peanut in Responding to Heat Stress at Reproductive Stage Arachchige, S. M. ¹ , Awori, K.J. ² , Pilon, C. ² , WANG, J.¹ ¹ Agronomy Department, University of Florida, Gainesville, FL, 32610, USA. ² Department of Crop and Soil Sciences, University of Georgia, Tifton, GA, 31793, USA.

9:45 AM — 12:00 PM	Charles Simpson Wild Species Session continued Meeting Room: San Cristobal B, C, D <i>Moderator: Shyam Tallury, USDA-ARS Griffin, GA</i>
11:30 AM	Wild-derived Structural-Variant Haplotypes Disrupting Auxin and Root-Development Genes Confer Resistance to Root-Knot Nematode in Peanut Wu, D. ^{1,2} , Thompson, E.A. ^{1,2,3} , Paterson, W. ² , Gangurde, S.S. ^{1,2,4} , Fountain, J.C. ⁵ , Culbreath, A.K. ² , Holbrook, C.C. ¹ , Clevenger, J.P. ³ , GUO, B.Z. ¹ ¹ USDA-ARS Crop Genetics and Breeding Research Unit, Tifton, GA, USA. ² Department of Plant Pathology, University of Georgia, Tifton, GA, USA. ³ HudsonAlpha Institute for Biotechnology, Huntsville, AL, USA. ⁴ International Maize and Wheat Improvement Center (CIMMYT), Texcoco, Mexico. ⁵ Department of Plant Pathology, University of Georgia, Griffin, GA, USA.
11:45 AM	Withdrawn

10:45 AM – 11:30 AM	Entomology & Weed Science Meeting Room: San Cristobal E, F, G <i>Moderator: Greg MacDonald, University of Florida</i>
10:45 AM	Optimizing Planting Date and Variety Selection for Insect Pest Management in Virginia Peanut BRYANT, T.B. ¹ , Forehand J.C. ¹ ¹ Tidewater Agricultural Research and Extension Center, Virginia Tech, Suffolk, VA.
11:00 AM	Tracking Tomato Spotted Wilt: A Six Year Survey of Disease Incidence in Georgia ABNEY, M.R. ¹ , Monfort, W.S. ² , Srinivasan, R. ³ , Culbreath, A.K. ⁴ , Kemerait, R.C. ⁴ ¹ Department of Entomology, University of Georgia, Tifton, GA. ² Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ³ Department of Entomology, University of Georgia, Griffin, GA. ⁴ Department of Plant Pathology, University of Georgia, Tifton, GA.
11:15 AM	Cover Crop Influence on Herbicide Interception in Peanut Systems: A Novel UPLC Approach LINDELL, H.L. ^{1,2} , Bowen, S.J. ² , Eason, K. ³ , Grey T.L. ² , Basinger, N.T. ¹ ¹ Department of Crop and Soil Sciences, University of Georgia, Athens, GA; ² Department of Crop and Soil Science, University of Georgia, Tifton, GA; ³ USDA-Agricultural Research Services, Weed Science Research, Tifton, GA.

1:30 PM – 3:15 PM	Physiology and Seed Technology & Food Science (Processing, Utilization, Nutrition, and Allergy) Meeting Room: San Cristobal E, F, G <i>Moderator: Lisa Dean, USDA-ARS, Raleigh, NC</i>
1:30 PM	Impacts of Winter Cover Crops on Soil Properties, Root Development, and Crop Performance in Peanut-Cotton Rotations SANZ-SAEZ, A.¹ , Reyes, A.M. ¹ , Singh, J. ³ , Feng, Y. ¹ , Balkcom, K.S. ² , Gamble, A.V. ¹ ¹ Department of Crop, Soil and Environmental Sciences, Auburn University, Auburn, AL, 36849, USA. ² USDA-ARS, National Soil Dynamics Laboratory, Auburn, AL, 36832, USA. ³ Agronomy Advisor, University of California, Cooperative Extension, Yreka, CA 96097, USA.
1:45 PM	Associations of Seed Physical and Compositional Traits With Seedling Emergence and Vigor in Peanut PARKASH, V.^{1,2} , Adams J. ^{1,2} , Marchetti, A. ^{1,2} , Pilon, C. ² , Schwartz, B. ^{1,2} , Brown I.N. ^{1,2} ¹ Institute of Plant Breeding, Genetics, and Genomics, University of Georgia, Tifton, GA, 31793. ² Department of Crop and Soil Sciences, University of Georgia, Tifton, GA, 31793.
2:00 PM	A Quantitative Approach to Assessing Heat Stress Resilience in Peanut PILON, C.¹ , Awori, K.J. ¹ , Leal-Bertioli, S.C.M. ^{2,3} , Snider, J.L. ¹ , Bertioli, D.J. ^{3,4} , Tishchenko, V. ⁵ ¹ Crop and Soil Sciences Department, University of Georgia, Tifton, GA. ² Plant Pathology Department, University of Georgia, Athens, GA. ³ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA. ⁴ Crop and Soil Sciences Department, University of Georgia, Athens, GA. ⁵ College of Agricultural and Environmental Sciences, Griffin, GA.
2:15 PM	Analysis of Polyphenol Content in Blanched and Redskin Roasted Peanuts KHATRI, A.¹ , Gilliam, L. ² , Marshall, J. ² , Scholten, M. ³ , Cherry, A. ⁴ ¹ The J.M. Smucker Co., Orrville, OH. ² Department of Chemistry and Biochemistry, Lubbock Christian University, Lubbock, TX. ³ The J.M. Smucker Co., Lexington, KY. ⁴ Department of Mathematics, Lubbock Christian University, Lubbock, TX.
2:30 PM	Optimized Sample Shelling for Breeders BUTTS, C.L.¹ , Lamb, M.C. ² ¹ Full Moon Engineering LLC, Leesburg, GA. ² USDA-ARS National Peanut Research Laboratory, Dawson, GA 39842.
2:45 PM	Peanut (<i>Arachis hypogaea</i> L.) Flavor Response to Drought Stress DEAN, L.L.¹ , Hendrix, K.W. ¹ , Bucior, E.R. ¹ , Dang, P. ² , Lamb, M.C. ² ¹ Food Science and Market Quality and Handling Research Unit, USDA, ARS, SEA, Raleigh, NC. ² National Peanut Research Laboratory, USDA, ARS, SEA, Dawson, GA.
3:00 PM	Partial Replacement of Soybean Meal With High-Oleic Peanuts in the Diets of Domesticated Striped Bass (<i>Morone saxatilis</i>) Enriches the Fillets With Linoleic Acid Frinsko, M. ¹ , Kelly, R. ¹ , Vu, T.C. ² , Dean, L.L. ² , Read, Q.D. ³ , Sealey, W.M. ⁴ , Hall, S.G. ⁵ , TOOMER, O.T.² ¹ Marine Aquaculture Research Center, NC State University, Smyrna, NC 28579. ² Food Science & Market Quality and Handling Research Unit, ARS, US Dept. of Agriculture, Raleigh, NC 27695. ³ Southeast Area, Agricultural Research Service, U.S. Department of Agriculture, Raleigh, NC, 27695. ⁴ Bozeman Fish Technology Center, Agricultural Research Service, U.S. Department of Agriculture, Bozeman, MT, 59715. ⁵ Marine Aquaculture Research Center, NC State University, Smyrna, NC 28579.

2:00 PM – 3:15 PM	Grower-Focused Session Meeting Room: San Cristobal B, C, D <i>Moderator: Brendan Zurweller, Mississippi State University</i>
2:00 PM	Effect of Peanut Following Peanut After Completion of Various Cotton and Corn Rotations TUBBS, R.S.¹ , Kemerait, R.C. ² , Culbreath, A.K. ² , Beasley, J.P. ¹ , Monfort, W.S. ¹ ¹ Department of Crop and Soil Sciences, University of Georgia, Tifton, GA. ² Department of Plant Pathology, University of Georgia, Tifton, GA.
2:15 PM	Evaluating Adjuvant and Agrichemical Mixtures With a Liquid Formulation of Prohexadione Calcium in Peanut FOREHAND, J.C.¹ , Foote, E. ² , Jordan, D.L. ² ¹ Tidewater Agricultural Research and Extension Center, Virginia Polytechnic Institute and State University, Suffolk, VA 23437; ² Department of Crop and Soil Sciences, North Carolina State University.
2:30 PM	Influence of Fertilizer Source on Soil Test Values and Peanut Productivity ZURWELLER, B.¹ , Tuberville, J. ¹ , May, J. ¹ ¹ Plant and Soil Sciences, Mississippi State University, Mississippi State, MS 39762.
2:45 PM	Optimizing Row Crop Planter Settings, Specifically Ground Speed and Vacuum Level to Maximize Peanut Seed Placement, Emergence, and Yield PORTER, W.M.¹ , Torresan, M. ² , Mirzakhani-fachi, H. ³ , Rains, G. ³ , Monfort, W.S. ¹ , Listuzzi, M. ¹ ¹ University of Georgia, Department of Crop and Soil Sciences, Tifton, GA. ² Technical Service and Product Support, Maschio Gaspardo North America Inc. ³ University of Georgia, Department of Entomology, Tifton, GA.
3:00 PM	Peanut Cultivars: Where Do the New Traits Come From? TALLURY, S.P.¹ , Mobley, M.B. ¹ , Harrison, M.L. ¹ , Brooks, A. ² ¹ Plant Genetic Resources Conservation Unit, USDA-ARS, Griffin, GA. ² University of Georgia, Griffin, GA.

3:30 PM – 5:00 PM Poster #	MS Poster Competition Meeting Room: San Cristobal Foyer
1	Integrating Cover Crops Alone or in Mixture With Herbicides for Weed Control in Peanut Grown With Regenerative Agriculture Practices Chahal, G. ¹ , KHANAL, K. ¹ , Price, A.J. ² , Kumari, A. ³ , Bonnell, C.J. ¹ , Li, S. ¹ , Gamble, A. ¹ ¹ Department of Crop, Soil and Environmental Sciences, Auburn University, Auburn, AL, USA. ² USDA-ARS, Auburn, AL, USA; ³ Nufarm, Newark, NC, USA.
2	Relationship Between Ca Concentration, Germination, and Growth of Hypocotyl and Primary Root Driven by the Effect of Gypsum Application TORUNO, C.E. ¹ , Tillman, B.L. ¹ , Goyzueta, M.D. ¹ , Gomillion, M.W. ¹ , Oduor, J.O. ¹ , Castro, S.C. ¹ , Peeler, C.B. ¹ ¹ University of Florida, North Florida Research and Education Center, Marianna, FL.
3	Dual-Trait Selection in Peanut: Combining Drought Tolerance With <i>A. flavus</i> Resistance NAAPOAL, C. ¹ , Laza, H. ¹ , Cason J. ⁴ , Janga M. ¹ , Tengey, T.K. ² , Oteng-Frimpong, R. ² , Faye, I. ³ , Burow M.D. ^{1,5} ¹ Department of Plant and Soil Sciences, Texas Tech University, Lubbock, TX 79409. ² CSIR-Savanna Agricultural Research Institute, Nyankpala, Ghana. ³ Groundnut Breeding & Genetics Lab ISRA/CNRA, Bambey, Senegal. ⁴ Texas A&M AgriLife Research and Extension Center, Stephenville, TX 76401. ⁵ Texas A&M AgriLife Research and Extension Center, Lubbock, TX 79403.
4	Implementing Genomic Selection Through Predictive Modeling of High-Value Breeding Traits in Peanuts MCGLADE, K.S. ¹ , Dunne, J.C. ¹ , Andres, R.J. ¹ , Garrity, N.K. ¹ , Oakley, A.T. ¹ ¹ Department of Crop and Soil Sciences, North Carolina State University, Raleigh, NC.
5	Evaluating Photosystem II Efficiency as an Indicator of Resistance to Late Leaf Spot (<i>Nothopassalora personata</i>) in Peanut BEEBOUT, C.O. ¹ , Asiedu, E. ¹ , Cantonwine, E.G. ¹ , Lokdarshi, A. ¹ ¹ Department of Biology, Valdosta State University, Valdosta, GA.

3:30 PM – 5:00 PM Poster #	PhD Poster Competition Meeting Room: San Cristobal Foyer
6	Integrated Transcriptome Meta-Analysis and Machine Learning Identify Core Drought-Responsive Genes in Cultivated Peanut MENSAH, F.S.¹ , Cason, J.M. ² , Erazo-Barradas, M. ³ ¹ College of Agriculture and Natural Resources, Tarleton State University, Stephenville, TX. ² Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX. ³ Department of Wildlife and Natural Resources, Tarleton State University, Stephenville, TX.
7	Impact of Winter Cover Crops on the Critical Period for Weed Control in Peanut CHAHAL, G.¹ , Bonnell, C.J. ¹ , Khanal, K. ¹ , Virk, S. ¹ , Russell, D. ¹ , Price, A.J. ² ¹ Auburn University, Auburn, AL. ² United States Department of Agriculture (USDA-ARS), Auburn, AL.
8	Leveraging Multispectral Imagery and Machine Learning to Assess Peanut Leaf Wilting Under Water Stress in Rainfed Environments VENNAM, R.R.^{1,2} , Raymond, S. ^{1,3} , Chandel, A.K. ^{1,3} , Balota, M. ¹ ¹ Tidewater Agricultural Research and Extension Center, Virginia Tech, Suffolk, VA. ² School of Plant & Environmental Sciences, Virginia Tech, Blacksburg, VA. ³ Department of Biological Systems Engineering, Virginia Tech, Blacksburg, VA.
9	Evaluating Efficacy of Several Peanut Fungicides Against <i>Sclerotinia minor</i> Using a Detached Stem Bioassay FOREHAND, J.C.¹ , Langston, D.B. ¹ , Lux L. ² , Jordan, D.L. ³ , Rideout, S.L. ⁴ ¹ Tidewater Agricultural Research and Extension Center, Virginia Polytechnic Institute and State University, Suffolk, VA 23437. ² Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC 27695. ³ Department of Crop and Soil Sciences, North Carolina State University. ⁴ Department of Plant Pathology, Physiology, and Weed Science, Virginia Polytechnic Institute and State University.
10	Evaluating Peanut Genotypes for Resistance to Injury From Peanut Burrower Bug (<i>Pangaeus bilineatus</i>) WIGGINS, R.^{1,2} , Sutton, K. ³ , Abney, M.R. ³ , Holbrook, C.C. ⁴ , Ozias-Akins, P. ¹ ¹ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA, USA; ² Premium Peanut, Douglas, GA 31535; ³ Department of Entomology, University of Georgia, Tifton, GA 31794; ⁴ USDA-ARS, Coastal Plain Experiment Station, Tifton, GA, USA.
11	Adjusting NDVI-Derived Crop Coefficient Curves for Precision Irrigation in Peanuts Across Southern Georgia, USA SIGDEL, U.¹ , Porter, W.M. ² , Vellidis, G. ² , Lacerda, L.N. ¹ ¹ Department of Crop & Soil Sciences, University of Georgia, Athens, GA, 30602. ² Department of Crop & Soil Sciences, University of Georgia, Tifton, GA, 31793.
12	Withdrawn

3:30 PM – 5:00 PM Poster #	General Poster Session Meeting Room: San Cristobal Foyer
13	Genetic Improvement of Spanish Peanut (<i>Arachis hypogaea</i>) Cultivars in the Texas A&M AgriLife Breeding Program BENNETT, B.D. ^{1,2} , Cason, J.M. ² , Simpson, C.E. ² , Burow, M.D. ^{3,4} , Faith, A.R. ² ¹ Tarleton State University, Stephenville, TX. ² Texas A&M AgriLife Research, Stephenville, TX. ³ Texas A&M AgriLife Research, Lubbock, TX. ⁴ Texas Tech University, Lubbock, TX.
14	High-Accuracy SNP Markers for Peanut Smut Resistance Identified by GWAS in <i>Arachis hypogaea</i> BRESSANO, M. ¹ , de Blas, F. ¹ , Garcia, J. ² , Yaduru, S. ² , Moore, L. ² , Moore, K. ² ¹ Universidad Nacional de Córdoba, Facultad de Ciencias Agropecuarias, Córdoba, Córdoba, Argentina X5000. ² AgResearch Consultants Inc., 1441 Shingler Little River Rd, Sumner, GA, USA 31789.
15	Improving the Nutritional Profile of Peanut Meal Through Amino Acid Enhancement CASON, J.M. ¹ , Burow, M.D. ^{2,3} , Simpson, C.E. ¹ , Joshi, V. ⁴ , Janga, M. ⁵ ¹ Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX. ² Texas A&M AgriLife Research, Texas A&M University System, Lubbock, TX. ³ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ⁴ Texas A&M AgriLife Research, Texas A&M University System, Uvalde, TX. ⁵ Plant Transformation Facility, Texas Tech University, Lubbock, TX.
16	USDA ARS Myers' Matador: A New High-Oleic Spanish Peanut Cultivar for Production in the Southwestern U.S. CHAMBERLIN, K.D. ¹ , Bennett, R.S. ¹ ¹ USDA-ARS Peanuts and Small Grains Research Unit, Stillwater, OK.
17	Development and Evaluation of a PCR-based Diagnostic Method to Detect the Presence of the Causal Agent of Peanut Smut (<i>Thecaphora frezzii</i>) DANG, P.D. ¹ , Koch Bach, R.A. ² , Chamberlin, K.D. ³ , Bennett, R.S. ³ , Tsatsos, P. ⁴ , Cheek, B. ⁴ ¹ USDA-ARS National Peanut Research Lab, Dawson, GA. ² USDA-ARS Foreign Disease-Weed Science Research Unit, Fort Detrick, MD. ³ USDA-ARS Peanut and Small Grains Research Unit, Stillwater, OK; ⁴ Mars, Inc, Chicago, IL.
18	Withdrawn
19	Inhibiting Aflatoxin Production Through RNA Interference Joson, S.E.A. ¹ , Adams, A.K. ¹ , FOUNTAIN, J.C. ¹ ¹ Department of Plant Pathology, University of Georgia, Griffin, GA.
20	A Novel Cross Between <i>Arachis vallsii</i> and a <i>Procumbentes</i> Hybrid for Cultivated Peanut (<i>A. hypogaea</i> L.) Improvement GREEN, E.N. ^{1,2} , Muir, J.P. ^{1,2} , Erazo-Barradas, M. ¹ , Murray, D.B. ¹ , Cason, J.M. ² , Simpson, C.E. ² ¹ Department of Wildlife and Natural Resources, Tarleton State University, Stephenville, TX. ² Texas A&M AgriLife Research, Stephenville, TX.
21	Citizen Scientists Crowdsourcing GNSS Outage Data in Agricultural Production Shank, J.L. ^{1,2} , Skov, T.M. ² , GRIFFIN, T.W. ³ ¹ Independent GIS Consultant, Millersville, Pennsylvania 17551. ² Space Weather and Environment: Science, Policy and Communication (SWEN), Millersville University, Millersville, Pennsylvania 17551. ³ Department of Agricultural Economics, Kansas State University, Manhattan, Kansas 66506.

3:30 PM – 5:00 PM Poster #	General Poster Session continued Meeting Room: San Cristobal Foyer
22	Genetic Manipulation of Peanut Catalase Gene Expression to Enhance Drought Tolerance and Mitigate Aflatoxin Contamination KHAREL, P.¹ , Fountain, J.C. ² , Chu, Y. ^{1,3} , Conner, J. ^{1,3} , Biswal, A.K. ^{1,3} , Holbrook, C.C. ⁴ , Ozias-Akins, P. ^{1,3} ¹ Institute of Plant Breeding, Genetics and Genomics, University of Georgia, Tifton, GA. ² Department of Plant Pathology, University of Georgia, Griffin, GA. ³ Department of Horticulture, University of Georgia, Tifton, GA. ⁴ U.S. Department of Agriculture- Agricultural Research Service, Crop Genetics and Breeding Research Unit, Tifton, GA, USA.
23	Expanded Disease Resistance Potential in Transgenic Peanuts Expressing Oxalate Oxidase MATUSINEC, D.¹ , Leal-Bertioli, S.C.M. ^{1,2} , Bertioli, D.J. ^{1,3} ¹ Institute of Plant Breeding, Genetics & Genomics, University of Georgia, Athens, GA. ² Department of Plant Pathology, University of Georgia, Athens, GA. ³ Department of Crop & Soil Sciences, University of Georgia, Athens, GA.
24	Evaluation of Advanced Peanut Breeding Lines in the Southwest Uniform Peanut Performance Test in Central Texas RESSMANN, K.D.^{1,2} , Cason, J. ² , Burow, M.D. ^{3,4} , Chamberlin, K. ⁵ , Ravelombola, W. ⁶ , Puppala, N. ⁷ ¹ Tarleton State University, Stephenville, TX ² Texas A&M AgriLife Research, Texas A&M University System, Stephenville, TX. ³ Texas A&M AgriLife Research, Texas A&M University System, Lubbock, TX. ⁴ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ⁵ United States Department of Agriculture – Agricultural Research Service, Stillwater, OK. ⁶ Texas A&M AgriLife Research, Texas A&M University System, Vernon, TX. ⁷ New Mexico State University, Clovis, TX.
25	Cross-Generational Validation of SNP Markers Linked to Leafspot Resistance in Peanut Breeding Populations TENGEY, T.K.^{1,2,3} , Simpson, C.E. ⁴ , Cason, J. ⁴ , Hillhouse, A. ⁵ , Mendu, V. ^{3,6} , Burow, M.D. ^{2,3} ¹ CSIR-Savanna Agricultural Research Institute, Nyankpala, Ghana. ² Texas A&M AgriLife Research, Lubbock, TX. ³ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ⁴ Texas A&M AgriLife Research, Stephenville, TX 76401. ⁵ Department of Veterinary Pathobiology, College of Veterinary Medicine, Texas A&M University, College Station, TX. ⁶ Department of Agriculture, Agribusiness and Environmental Sciences, Texas A&M University, Kingsville, TX.
26	Evaluating Peanut White Mold Fungicide Programs in Georgia in 2025 BARNES, T.L.¹ , Reeves, B.L. ² , Kemerait Jr., R.C. ³ ¹ University Extension, Atkinson County, Pearson, Ga. ² University of Georgia Extension, Berrien County, Nashville, Ga. ³ Department of Plant Pathology, University of Georgia, Tifton, Ga.
27	In-Furrow Fungicide Applications Reduce Northern Root-Knot Nematode in Peanuts BATISTA DA SILVA, M.¹ , Langston Jr., D.B. ¹ ¹ Tidewater, Research & Extension Center, Virginia Polytechnic Institute & State University, Suffolk, 23437.
28	Effects of Cotton and Corn Rotations and Cover Crops on Peanut Pod Rot and Nematodes in Oklahoma BENNETT, R.S.¹ , Northup, B. ² , Witt, T. ² , Duffeck, M. ³ , Walker, N. ³ , Black, K. ³ , Weerasuriya, N. ³ , Weidenmaier, R. ⁴ , Baughman, T. ⁵ ¹ Peanut and Small Grains Research Unit, Oklahoma and Central Plains Agricultural Research Center, U.S. Department of Agriculture, Agricultural Research Service, Stillwater, OK. ² Livestock, Forage and Pasture Management Research Unit, Oklahoma and Central Plains Agricultural Research Center, Department of Agriculture, Agricultural Research Service, El Reno, OK. ³ Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK. ⁴ Caddo Research Station, Oklahoma State University, Fort Cobb, OK. ⁵ Texas AgriLife, Lubbock Research and Extension Center, Lubbock, TX.
29	Impact of Cultivar Selection on Diseases of Peanuts in Alabama BURCH, K.B.¹ , Jordan, H. ² , Miller, H.B. ³ , Stockdale, N.L. ⁴ , Frank, E.T. ⁵ , Parker, C.W. ⁶ , Strayer-Scherer, A. ¹ ¹ Department of Entomology and Plant Pathology, Auburn University, AL. ² Department of Crop, Soil, and Environmental Sciences, Auburn University, AL. ³ Brewton Agricultural Research Unit, Auburn University, Brewton, AL. ⁴ Plant Breeding Unit, E.V. Smith Research Center, Auburn University, Shorter, AL. ⁵ Gulf Coast Research and Extension Center, Auburn University, Fairhope, AL. ⁶ Wiregrass Research and Extension Center, Auburn University, Headland, AL.

3:30 PM – 5:00 PM Poster #	General Poster Session continued Meeting Room: San Cristobal Foyer
30	Evaluation of Reglone (Diquat) as an Alternative to Gramoxone (Paraquat) for Postemergence Use in Peanut COLLIE, L.M. ¹ , Barber, L.T. ¹ , Ross, A.W. ¹ , Scott, R.C. ¹ ¹ University of Arkansas Research and Extension Service, Lonoke, AR.
31	Peanut Response to Fluridone DOTRAY, P.A. ^{1,2,3} , Grichar, W.J. ⁴ , Kohler, J.J. ¹ , Woolard, M.C. ¹ , Singletary, M.M. ¹ , Sagarato, A.C. ¹ , Rodriguez, B. ² ¹ Department of Plant and Soil Science, Texas Tech University, Lubbock, TX. ² Texas A&M AgriLife Research, Lubbock, TX. ³ Texas A&M AgriLife Extension Service, Lubbock, TX. ⁴ Texas A&M AgriLife Research, Yoakum, TX.
32	Sensitivity of <i>Aspergillus flavus</i> Isolates from Peanut Seeds in Oklahoma to Quinone outside Inhibitor (QoI) Fungicide Paiva, G.F. ¹ , Rodriguez, I.E.J. ¹ , Muller, M. ¹ , dos Santos, C.G.T. ¹ , Bennett, R.S. ² , Wallace, S. ¹ , Olson, J. ¹ , DUFFECK, M.R. ¹ ¹ Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK. ² Peanut and Small Grains Research Unit, Oklahoma and Central Plains Agricultural Research Center, U.S. Department of Agriculture-Agricultural Research Service, Stillwater, OK.
33	Variability of Aflatoxin Levels in Irrigated Peanut Fields With Rainfed Edges EDWARDS, P. ¹ , Anderson, H. ¹ , Beasley, S. ¹ , Carlson, S. ¹ , Hall, D. ¹ , Hayes, B. ¹ , Kichler, J. ¹ , Lyon, D. ¹ , Mallard, J. ¹ , Sanders, H. ¹ , Sapp, P. ¹ , Smith, A. ¹ , Tanner, S. ¹ , Wilson, T. ¹ , Poles, B.S. ² , Pilon, C. ² , Porter, W. ² ¹ Cooperative Extension, University of Georgia, GA. ² Crop and Soil Sciences, University of Georgia Tifton, GA.
34	Peanut Response to Biological Products Applied in North Carolina ELLISON, C. ¹ , Lilley, D. ¹ , Batts, T. ¹ , Jordan, D.L. ¹ ¹ NC State Extension, Raleigh, NC 27695.
35	Peanut Cultivar Response to Three Rates of Prohexadione Calcium GOMILLION, M.W. ¹ , Goyzueta, M.D. ¹ , Toruno, C.E. ¹ , Tillman, B.L. ¹ , Castro, S.C. ¹ , Oduor, J.O. ¹ , Peeler, C.B. ¹ ¹ North Florida Research and Education Center, Institute of Food and Agricultural Sciences, University of Florida, Marianna, FL.
36	Herbicide Systems for Use in South Texas Peanut Production GRICHAR, W.J. ¹ , McGinty, J.A. ¹ ¹ Texas A&M AgriLife Research, Corpus Christi, TX 78406.
37	Peanut Response to Kudos OD Rate in Large-Plot Trials in North Carolina and Virginia HOWE, H. ¹ , Pike, B. ¹ , Peacock, C. ¹ , Anderson, D. ¹ , Garner, E. ¹ , Grimes, L. ¹ , Jordan, D.L. ¹ , Forehand, J. ² , Brake, M. ³ , Stevens, B. ³ , Lanier, I. ³ , Deal, C. ³ ¹ NC State Extension, Raleigh, NC 27695. ² Virginia Cooperative Extension Service, Blacksburg, VA 24061. ³ North Carolina Department of Agriculture and Consumer Services, Raleigh, NC 27849.
38	Weed Risk Tools for Peanut and Other Crops in North Carolina Buol, G. ¹ , JORDAN, D. ¹ ¹ North Carolina State University, Raleigh, NC 27695.
39	Withdrawn

3:30 PM – 5:00 PM Poster #	General Poster Session continued Meeting Room: San Cristobal Foyer
40	Withdrawn
41	Growth and Sporulation of <i>Passalora arachidicola</i> and <i>Nothopassalora personata</i> on PDA and V8 Media O'QUINN, B.A.¹ , Beebout, C.O. ¹ , Cantonwine, E.G. ¹ ¹ Department of Biology, Valdosta State University, Valdosta, GA.
42	Peanut Yield, Labor Costs, and Pest Management With Fewer Pesticide Options Jalali, S. ¹ , PENDLETON, B.¹ , Jordan, D.L. ¹ , Foote, E. ¹ , Reisig, D. ¹ , Lux, L. ¹ ¹ NC State Extension, Raleigh, NC 27695.
43	Peanut Cropping Frequency Influence on Leaf Spot and Stem Rot Intensity, Root-Knot Damage and Populations and Yield Parameters as Impacted by Cultivar Selection From 2011 to 2016 STRAYER-SCHERER, A.¹ , Hagan, A. K. ¹ , Campbell, H. L. ¹ , and Parker, C. ² ¹ Department of Entomology and Plant Pathology, Auburn University, Auburn, AL. ² Wiregrass Research and Extension Center, Headland, AL.
44	Efficacy of Reduced Rate Applications of Convoys for Control of Southern Blight TUBERVILLE, J.¹ , Zurweller, B. ¹ , Pieralisi, B. ¹ , Vaughn, R. ¹ , Whitney, C. ² ¹ Department of Plant and Soil Sciences, Mississippi State University, Starkville, MS. ² Department of Agricultural Science and Plant Protection, Mississippi State University, Starkville, MS.
45	Detecting Peanut Storage Risk Before It Happens: A Field-to-Warehouse Approach BUCIOR, E.R.¹ , Dunne, J.C. ¹ , Dean, L.L. ² , McIntyre, J.S. ³ , Wiggins, R. ⁴ , Tsatsos, P. ⁵ ¹ Department of Crop and Soil Sciences, North Carolina State University, Raleigh, NC. ² USDA-ARS Food Science and Market Quality and Handling Research Unit, Raleigh, NC. ³ USDA-ARS National Peanut Research Laboratory, Dawson, GA. ⁴ Premium Peanut, Douglas, GA. ⁵ MARS Snacking, Chicago, IL.
46	Withdrawn
47	Varying Soil Texture is Linked to Changes in Peanut Seed and Pod Characteristics DAHALL, S.¹ , Hiers, J.B. ¹ , Plumblee, M.T. ¹ , Anco, D.J. ¹ ¹ Edisto Research and Education Center, Department of Plant and Environmental Sciences, Clemson University, Blackville, SC.
48	What Do Growers Need? Survey-Based Identification of IPM Priorities in Oklahoma Peanut Production FARIS, A.M.¹ , Duffeck, M.R. ¹ , Smith, M. ^{1,2} ¹ Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK. ² Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK.

3:30 PM – 5:00 PM Poster #	General Poster Session continued Meeting Room: San Cristobal Foyer
49	Georgia Farmers Increase Adoption Rate of Soil Moisture Sensor Technology for Irrigation Scheduling Through the Master Irrigator Program EDWARDS, P. ¹ , Anderson, H. ² , Beasley, S. ³ , Bennett, J. ² , Bowen, D. ² , Brown, W. ² , Carlson, S. ² , Carter, B. ² , Cloud, C. ² , Collins, C. ² , Crews, B. ² , Dowdy, M. ² , Edenfield, J. ² , Frye, M. ² , Green, R. ² , Hall, D. ⁴ , Hayes, B. ² , Kalina, J. ² , Kichler, J. ² , Mallard, J. ⁵ , McAllister, S. ² , Miller, J. ² , Porter, W. ⁶ , Powell, S. ² , Royal, C. ² , Sapp, P. ² , Sapp, P. ² , Smith, A. ² , Shirley, A. ² , Stanley, L. ² , Tanner, R. ² , Tanner, S. ² , Tyson, B. ² , Wilson, T. ² ¹ SW District Area Agent, UGA Cooperative Extension, Tifton, Georgia 31793. ² UGA County Extension Agent, UGA Cooperative Extension. ³ SW Dist. Area Educator, UGA Cooperative Extension, Tifton, Georgia 31793. ⁴ SE District Area Educator, UGA Cooperative Extension, Cochran, Georgia 31014. ⁵ SE District Area Agent, UGA Cooperative Extension, Statesboro, Georgia 31046. ⁶ Associate Professor UGA Cooperative Extension Tifton, Georgia 31793.
50	Peanut Response to Tillage and Cover Crops in North Carolina Using Large and Small Plot Sizes GARNER, E.H. ¹ , Jordan, D.L. ¹ , Lux, L.A. ¹ , Reisig, D. ¹ , Austin, R. ¹ , Pike, B. ¹ , Lanier, I. ² , Stevens, B. ² ¹ North Carolina State University, Raleigh, NC 27695. ² Peanut Blet Research Station, North Carolina Department of Agriculture and Consumer Services, Lewiston-Woodville, NC 27849.
51	Effect of Digging Dates on the Yield Performance of Four Market Types of Peanuts (<i>Arachis hypogaea</i> L.) Naik, Y. ¹ , PUPPALA, N. ¹ , Ravelombola, W. ² , Cason, J. ³ , Burow, M. ⁴ , Chamberlin, K. ⁵ ¹ New Mexico State University, Agricultural Science Center, Clovis, NM. ² Texas A&M AgriLife Research and Extension Center, Vernon, TX. ³ Texas A&M AgriLife Research and Extension Center, Stephenville, TX. ⁴ Texas A&M AgriLife Research and Extension Center, Lubbock, TX. ⁵ USDA-ARS Wheat, Peanut and Other Field Crops Research Unit, Stillwater, OK.
52	Evaluation of Peanut Varieties in Ben Hill County, Georgia SANDERS, H. ¹ , Anderson, H. ² , Monfort, W.S. ³ ¹ Extension Agent, University of Georgia Extension, Ben Hill County, Fitzgerald, Georgia 31750. ² Extension Agent, University of Georgia Extension, Irwin County, Ocilla, Georgia 31774. ³ Extension Peanut Agronomist, Crop and Soil Science Department, University of Georgia, Tifton, Georgia 31793.
53	Effects of Approved Seed Treatment Products on Stand Establishment and Agronomic Performance of Certified-Organic Peanut WANN, D.Q. ¹ , Gregory, M.R. ¹ , Sawatzky, A.T. ¹ ¹ International Peanut Group, Brownfield, TX.
54	Validation of Equilibrium Moisture Content Based Models for Predicting Kernel Moisture Loss During Windrow Curing ZURWELLER, B. ¹ , Tillman, B. ² , Brym, Z. ² , Hammond, W. ² , Wiggins, R. ³ , Goyzueta, M.D. ² , Kim, D.M. ² ¹ Plant and Soil Sciences, Mississippi State University, Mississippi State, MS 39762. ² University of Florida, Agronomy Department, Gainesville, FL 32611. ³ Institute of Plant Breeding, Genetics, Genomics, University of Georgia, Tifton, GA.
55	Withdrawn
56	Preliminary Assessment of Microbial Inoculation on Peanut Seed for Improved Drought Tolerance DORIA, J. ¹ , Hussain, S., Moreno, L.A., Torres, T.S.C., Pilon, C. ² ¹ School of Agricultural Sciences of Lavras, Department of Agriculture, Federal University of Lavras (UFLA), Lavras, Brazil. ² Department of Crop & Soil Sciences, University of Georgia, (UGA), Tifton, GA 31793, USA.
57	Photosynthetic and Yield Variation among Peanut Genotypes to Biochar Amended-Soil Conditions in a Diverse Origin Peanut Population PIERRE, F. ¹ , Hanif, S. ¹ , Sanz-Saez, A. ¹ , Chen, C. ¹ ¹ Crop, Soil and Environmental Sciences Department, Auburn University, Auburn, AL 36849, USA.

PRESENTATION ABSTRACTS

Assessing Root and Hypocotyl Length as Indicators of Field Emergence in Peanut (*Arachis hypogaea* L.)

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Seed germination tests assess viability, but their ability to predict field emergence in peanut (*Arachis hypogaea* L.) is limited, especially under variable soil conditions. Standard procedures from the Association of Official Seed Analysts (AOSA) measure germination under optimal laboratory conditions, often overestimating field performance. Consequently, peanut emergence is not consistently predicted by current protocols. This study examined whether hypocotyl length (HL) and root length (RL), measured using a modified hanging towel test, could better predict field emergence than the official germination test. HL and RL were recorded at 4, 7, and 10 days after planting (DAP) for three genotypes across five maturity classes. Field emergence was evaluated at Marianna and Live Oak, Florida, while standard germination tests were conducted by the Georgia Department of Agriculture Seed Laboratory. Data was analyzed using ANOVA and Pearson correlation in SAS 9.4, with mean separation by Tukey's HSD test ($\alpha = 0.05$). Root and hypocotyl measurements showed stronger correlations with field emergence than the official germination test, which failed to predict emergence in Marianna at 14 DAP ($p=0.3218$; $R^2=0.03$) and Live Oak at 14 DAP ($p=0.2741$; $R^2=0.04$). RL was correlated with emergence at 10 DAP in Marianna at 10 DAP ($p=0.0011$; $R^2=0.32$) and at 10 and 14 DAP in Live Oak ($R^2=0.26$ and 0.23). HL was correlated with FE at 10 DAP in Marianna ($p=0.0434$; $R^2=0.14$). Overall, below-ground growth, particularly RL, provided better predictive value for peanut field emergence, supporting the inclusion of root assessments in seed quality testing.

Forecasting End-of-Season Peanut Yield Using Mid-Season Crop Condition Rating Signals

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Peanut production in the U.S. is concentrated in three geographically distinct regions: the Southeast, Southwest, and Virginia–Carolina regions, making it a relatively specialized commodity compared with other major crops. Despite being one of the most valuable U.S. crops, relatively little empirical research has examined peanut yield forecasting. In contrast, extensive literature has evaluated the use of crop condition ratings to forecast yields for corn and soybeans. This study addresses this gap by evaluating the use of USDA National Agricultural Statistics Service (NASS) crop condition ratings for forecasting U.S. peanut yields.

Weekly crop condition ratings and yield data were obtained from USDA NASS for Alabama, Florida, Georgia, the Carolinas, and Texas. Structural break analysis indicated that observations prior to 2012 were not informative for forecasting, so the study period was restricted to 2012–2025. Forecast performance was evaluated weekly throughout the growing season using multiple modeling approaches, including Good + Excellent, NCI, NCI 2.0, Linear, Stress, and Empirical weighting schemes.

Results indicate that the Good + Excellent scheme consistently outperformed alternative approaches across the growing season. By week 40 (early October), this model achieved the lowest forecast error (RMSE = 0.16; MAE = 0.13) and the highest explanatory power ($R^2 = 0.41$). Forecasts became reliable beginning around week 32 and remained statistically significant through the end of the season.

These findings demonstrate that USDA crop condition ratings provide a practical and interpretable tool for mid-season peanut yield forecasting, supporting earlier marketing, storage, and processing decisions within the peanut industry.

Peanut Yield and Imaging Response to Tillage System in North Carolina

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The majority of peanuts in North Carolina are planted in conventional tillage systems on raised beds. Experiments were conducted in eight fields over two years on a private farm to compare pest reaction and peanut yield when planted in strip tillage into desiccated wheat, conventional tillage in flat ground, and conventional tillage with beds. When pooled over eight trials conducted over two years, peanut yield and net return were greater when planted in conventional tillage on beds than when peanut was strip tilled into previous crop stubble with a wheat cover crop or when planted into conventionally tilled fields without beds. No differences in yield or net returns were noted when comparing strip till with planting flat in conventional tillage. Imaging data are being processed and will be discussed in the presentation.

Effects of Planting Date, Genotype, Plant Density and Growth Regulator on Late Leaf Spot Severity in Peanut (*Arachis hypogaea* L.)

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Planting date, host resistance, and canopy structure shapes disease environment in peanut by altering exposure to favorable conditions for late leaf spot (LLS) (*Nothopassalora personata*). This study evaluated how planting date, genetic resistance and canopy management affect LLS development and how seeding density interacts with genotype to affect LLS severity and yield.

Planting date significantly affected final LLS severity ($F=60.33$, $P=0.0001$) and cumulative disease (AUDPC, $F=24.3$, $P=0.0013$), with later planting dates increasing disease pressure. Genotype had the strongest influence, showing effects on final ratings ($F=596.86$, $P<0.0001$) and AUDPC ($F=704.71$, $P<0.0001$). A significant planting date by genotype interaction (final rating: $F=14.57$, $P<0.0001$; AUDPC: $F=7.11$, $P=0.0003$) confirmed that resistant and susceptible lines responded differently to disease risks.

The susceptible genotype remained highly diseased across planting dates, while resistant genotypes showed greater LLS severity in later plantings. Gorbet consistently limited disease across planting dates, showing lower severity in the high-risk late planting than the susceptible FloRun T61 in low-risk early planting. Prohexadione-calcium did not significantly change LLS severity but increased harvest index ($F=22.99$, $P=0.0001$), suggesting improved biomass allocation.

In the seeding density experiment, higher plant density intensified disease in the susceptible genotype, reflecting a canopy-driven microclimate effect. Resistant genotypes showed limited disease response to changes in seeding density, and yield responses were primarily genotype dependent.

These findings indicate that planting date and seeding density influence LLS severity through their interaction with variety. Susceptible genotypes exhibited high disease and were sensitive to delayed planting and canopy density.

Maximizing Peanut Oil Yield Through Agronomic Management in the Southeastern United States

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Rainfall variability, drought, and aflatoxin risk in southeastern United States and uneven pod maturity due to indeterminate flowering impact edible peanut (*Arachis hypogaea* L.) yield. These challenges emphasize the need to diversify oilseed peanut production, where these factors are less critical. Field studies were conducted in Tifton, Georgia using a split-plot design with four replications to: i) determine which combination of seeding rate, row pattern and cultivar maximizes peanut oil yield, and ii) determine optimal harvest time for maximum oil. The main plot effect had single, twin and triple row patterns with 91, 30 and 30 cm spacing between the pairs of rows on a bed, respectively. The sub-plot effects consisted of cultivars Georgia-06G, Georgia-21GR, and TifNV-HG and seeding rates of 19.7 and 39.4 seeds/m in a factorial arrangement. Pod number and oil yield were measured per plant from samples collected at 60, 80, 99, 120, 140, and 161 days after planting (DAP). Results from the 2024 season showed that single-row planting at 19.7 seeds/m resulted in more pods per plant; however, Georgia-06G planted at 19.7seeds/m (irrespective of the row pattern) resulted in more oil yield. Overall, both parameters reached a maximum at 140 DAP, suggesting it as the optimal harvest time. This study provides insights to help growers determine the optimal harvest timing to maximize peanut oilseed production.

Plant Movement Against Climate Change: Leaf Nastic Movements and Climate Stress in *Arachis hypogaea*

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Plants are sessile, which forces them to acclimate and adapt to often-challenging environments in which they develop. Despite their apparent immobility, many plants are in constant motion. We conducted a series of manipulative experiments in controlled environments with *Arachis hypogaea* L. We modified leaf angles (0°, 45°, 90°, 180°) on peanut leaves, restricting leaflet movement and measured residual conductance. We limited the transpiration from either the abaxial or adaxial leaf surfaces, to evaluate their relative contribution to water loss. We made anatomical cross-sections of the leaves and pulvini (organs controlling these movements) to relate their structure to plant movement. Finally, we made impressions of the stomata on the abaxial and adaxial sides of the leaves and quantified the number and size of the stomata. Eliminating light and temperature cycles (day/night patterns) did not stop movement. However, the timing of leaf opening and closing changed. Adjusting the leaf angle to 0° significantly reduced water loss compared to 180°. Limiting transpiration from the adaxial surface reduces the residual conductance of the leaves. In cross-sections, we observed parenchyma cells specialized for water storage on the abaxial side of the leaf. Further, the adaxial side of the leaves showed fewer stomata than the abaxial side. Plants present an internal circadian rhythm that dictates these movements; however, these internal signals can be modified by external cues. The angle of the leaflets decreases when they experience low water potential. Together, our findings highlight the potential of nastic movements to improve tolerance to climate stress.

Evaluation of Crop Water Stress Index for Irrigation Scheduling in Peanut Production in Alabama

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Precision irrigation in peanut (*Arachis hypogaea* L.) production has become essential for efficient use of water resources while maximizing yield and quality. Efficient water use depends heavily on the right timing and amount through good irrigation scheduling. Plant-based irrigation scheduling approaches have been explored and proven effective. In this study, a plant-based approach, the Crop Water Stress Index (CWSI), has been evaluated for irrigation scheduling for peanut production in Alabama. The study evaluated the relationship between CWSI and Soil Water Depletion (SWD) across different growth stages and the impact of this relationship on final yield. On-field trials were conducted in two farmers' fields over two peanut growing seasons (2024 & 2025). Three deficit irrigation treatments were imposed: 100% irrigated to field capacity, and 66% and 33% of the fully irrigated plot. On each plot, infrared canopy temperature (IRT) sensors and soil moisture sensors are used. A well-wetted baseline and a stress baseline were estimated using microclimatic and canopy temperature data for CWSI calculations. In both years, CWSI responded to changes in SWD with non-irrigation, and 33% the highest CWSI values compared to 100% and 66%. The fully irrigated (100%) plot and 66% had a low CSI. Plots with 100% and 66% gave the highest yield, with no significant difference between the two treatments. A very good correlation was observed between yield and CWSI. Preliminary findings indicate that CWSI responds sensitively to differences in water availability, suggesting its potential for real-time irrigation scheduling.

Characterizing Rootworm Feeding and its Impact on Peanut Pod Yield

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Two rootworm species are commonly associated with peanut production in Georgia: the southern corn rootworm, *Diabrotica undecimpunctata*, and the banded cucumber beetle, *Diabrotica balteata*. While SCR is a well-established economic pest, the pest status of BCB is less well defined. Recent observations indicate that BCB populations frequently exceed SCR densities and are now present in areas with no prior history of rootworm infestation, suggesting a shift in pest dynamics within Georgia peanut production systems. The objectives of this study were to (1) characterize rootworm feeding behavior, including feeding site preference on peanut fruiting structures and timing of injury, and (2) quantify the impact of feeding on pod yield and quality. Replicated small-plot field trials were conducted in 2023 at the University of Georgia Southwest Research and Education Center in Plains, GA, and in 2024 and 2025 at both the Plains location and the UGA Tifton Campus. An insecticide was used to create plots to with different rootworm pressure. Non-treated plots consistently exhibited a greater number of smaller fruiting structures relative to treated plots, indicating a compensatory response following rootworm injury. Although treatment effects on yield and quality were observed, statistical significance was inconsistent across years due to variability in *D. balteata* infestation levels. Despite this variability, non-treated plants generally produced lower total pod weight, indicating that compensatory growth did not fully offset yield losses. These findings demonstrate that BCB is an economically important pest of peanut in Georgia and highlight the need for refined economic thresholds and integrated management strategies.

Dissecting an Introgression – Locating Wild PRKN Resistance in Peanut

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Peanut root knot nematode (PRKN) (*Meloidogyne arenaria*) is a parasitic roundworm that affects many crops, especially cultivated peanut. In a field infested with this parasite, without mitigation, a grower can experience devastating yield losses. In peanut, mitigation can include the use of toxic nematicides, crop rotation, and peanut varieties that have PRKN-resistance (a preferred option). Currently, only *Arachis cardenasii*-derived PRKN-R peanut varieties are readily available to growers. The genetics of this resistance locates it to an introgressed segment on chromosome 9, subgenome A, spanning ~92% of the chromosome. While this large introgression provides a strong mitigation strategy for growers, potentially unfavorable “wild” alleles in this region that are not needed for PRKN-R could impede peanut improvement. The objective of this research is to discover which portion of this wild introgression, and the genes within it, are essential for the PRKN-R response. This is being accomplished through identification of recombinants by genotyping followed by phenotyping for PRKN infection response. Fine mapping with recombinants has narrowed the region of interest to less than 1 Mb.

‘TxAG-6’-Derived Peanut Breeding Lines for Resistance to Late Leaf Spot

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In 2023, the Georgia farmgate value of cultivated peanut (*Arachis hypogaea* L.) totaled \$915 million, and losses to disease were estimated to be \$231.0 million, of which about \$50.4 million was to leaf spot diseases alone. Cultivars resistant to leaf spot diseases have been developed, such as ‘TifCB-7’ and ‘GP-NC WS 16,’ but continued incorporation of robust resistance with high yield and quality is still desired. The University of Georgia Peanut Breeding Program has developed a set of late leaf spot (*Nothopassalora personata*; LLS) resistant breeding lines with putative novel resistance genes sourced from ‘TxAG-6,’ a wild-derived, tri-species, synthetic allotetraploid. The breeding populations were begun from 2018/2019 winter crosses of ‘TxAG-6’ to ‘Georgia-16HO’ and ‘Georgia-12Y’ and were selected for resistance to LLS in fungicide-free nurseries in F₃ and F₄ generations. In 2024 and 2025, selected lines were evaluated in fungicide-free, multi-state yield trials for disease resistance – based on visual ratings of defoliation – and for yield. Thus, multiple breeding lines have been identified with resistance to LLS and yield comparable to top-performing resistant checks but with significant genotype-by-environment interactions. Through sequence analysis, introgressions from ‘TxAG-6’ have been located on chromosomes A04, A05, A07, A08, and A10 in lines with increased resistance. These results and continued trialing in 2026 will support future release and will aid in development of molecular markers for continued breeding efforts.

Effects of Seed and Foliar Micronutrient Applications on Peanut Yield

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Micronutrient fertilization applied to peanut is often limited to foliar applications of boron. However, peanuts are cultivated on sandy low organic matter soils that commonly test low in micronutrients other than boron. The objective of this study is to evaluate seed and foliar micronutrient products and their effects on peanut yield and quality. Treatments included single and broad spectrum micronutrient including; i) non-treated control, ii) Seed Flow Micro (3.0% Zn, 1.5% Fe, 1.5% Mn, 0.25% B, 0.25% Cu, 0.5% Mo), iii) Seed Flow Nutra (3.0% Mn, 3.0% Mo, 2.0% Fe, 0.25% B, 0.25% Cu), iv) Brandt 10B (10% B), v) Brandt 10B (10% B) + Brandt Mn 52 (2% S, 5% Mn), vi) Smart Quatro Plus (5% N, 2% S, 0.5% B, 2% Mn, 0.05% Mo, 2% Zn), vii) Seed Flow Micro + Brandt 10B, viii) Seed Flow Micro + Brandt 10B + Brandt Mn 52, ix) Seed Flow Micro + Smart Quatro, x) Seed Flow Nutra + Brandt 10B, xi) Seed Flow Nutra + Brandt 10B + Brandt Mn 52, xii) Seed Flow Nutra + Smart Quatro. In 2025, pod yield for all treatments was greater than the non-treated control with the exception of treatment v. All treatments that received micronutrients were similar to each other. This suggests pod yield increases from micronutrients was attributed to boron and there was no additive effect from other micronutrients.

Assessing Sulfur and Copper Fungicide Programs for Early and Late Leaf Spot Suppression as Regulatory Pressure Reduces Chlorothalonil Use

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Increasing regulatory restrictions on chlorothalonil use by the U.S. EPA and international agencies have intensified the need for effective, non-chlorothalonil management options for early (*Passalora arachidicola*) and late (*Nothopassalora personata*) leaf spot in peanut production. Hence, field trials were established in 2024 and 2025 at the Wiregrass Research and Extension Center in Headland, Alabama to evaluate alternatives to chlorothalonil, with emphasis on sulfur-based (Microthiol Disperss) and copper-based (CuproFix Ultra) programs. Across both years, Microthiol Disperss applied alone at 3.0 or 5.0 lb/A or in combination with CuproFix Ultra consistently and significantly reduced leaf spot severity relative to the nontreated control. In 2024, late-season ratings ranged from 2.0–2.4 compared with 2.9–6.3 in the control, and defoliation was reduced from 55% in the control to 3–12% in treated plots. In 2025, Microthiol Disperss alone at 1.5, 3.0, or 5.0 lb/A significantly reduced leaf spot severity (18.7–26.4% defoliation) compared with 55.6% in the nontreated control, while combinations with CuproFix Ultra achieved the lowest disease levels (14.4–18.7%). Yield responses varied by year, but several Microthiol Disperss + CuproFix Ultra programs performed comparably to or exceeded the chlorothalonil standards, including 2024 yields up to 5,356 lb/A and 2025 yields up to 3,267 lb/A. These results indicate that sulfur- and copper-based protectants, particularly when combined, can provide effective leaf spot suppression and maintain yield potential as viable chlorothalonil alternatives in southeastern Alabama peanut production systems.

Temporal Infection Profiling Pertaining to Fungicide Sensitivities for Use in Late Leaf Spot Management Programs

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Late leaf spot (LLS), caused by *Nothopassalora personata*, is a major disease affecting peanut in the southeastern and Virginia-Carolina regions of the United States, causing yield losses up to 70%. Current recommendations for integrated management of LLS include five to seven fungicide applications each season. Recent research has reported *N. personata* populations with varying levels of insensitivity against specific fungicide active ingredients to be present in commercial peanut fields in South Carolina and nearby regions. However, it is unclear whether pathogen sensitivity to these fungicides changes during the growing season (i.e., through mechanisms such as varying initiation of spore production). Understanding this is important for potentially improving the robustness of fungicide programs and maintaining the sustainability of production. This study aims to evaluate how exhibited fungicide sensitivities vary in field populations over time. To investigate this, naturally infected leaves were collected weekly from four fields at the Edisto Research and Education Center in Blackville, SC, from which multi-isolate spore suspensions were used in detached leaf assays to evaluate lesion incidence in response to fungicide treatments. Active ingredients tested included tebuconazole, tebuconazole plus prothioconazole, azoxystrobin, benzovindiflupyr plus azoxystrobin, pydiflumetofen, and bixafen plus flutriafol (i.e., estimated baseline incidences of approximately 25 to 62%), with non-treated and chlorothalonil checks for comparison. By linking infection patterns to fungicide sensitivity, results are anticipated to support recommendations that help farmers select fungicides and application strategies that optimize disease control, protect yield, and improve fungicide stewardship.

Screening for Succinate Dehydrogenase Mutations Associated with Resistance in the Early and Late Leaf Spot Pathogens of Peanut

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Two of the most devastating foliar pathogens of peanuts are *Passalora arachidicola* (PA), causing early leaf spot, and *Nothopassalora personata* (NP), causing late leaf spot. Both are managed with frequent applications of fungicides. Some of these fungicides, including penthiopyrad, a succinate dehydrogenase inhibitor (SDHI), have become less effective over time. While phenotypic resistance to penthiopyrad has previously been reported, the genes associated with resistance have yet to be identified. This study screened isolates to see if mutations to the SDHI target genes, SdhB, C, and D, were present. Two field sites in Tifton, GA, one with extensive SDHI exposure and one with limited exposure, were studied. Each Sdh gene was identified using homology to published genes of related species and amplified with PCR. Mutations were identified following Sanger Sequencing. A missense mutation in the SdhB gene associated with resistance to SDHIs in other fungi (H267L) was detected in 73.5% of PA isolates and 3% of the NP isolates. A preliminary sensitivity screening of our PA population against penthiopyrad failed to find a significant relationship between the mutation and resistance, suggesting other mutations may also be involved. However, the wild-type SdhB isolates had a significantly lower inhibition concentration for pydiflumetofen than the mutated isolates ($p=0.04$). SdhC and D gene analyses are still in progress.

Can Controlled-Release Potassium Replace Conventional Potassium Fertilization in Peanut Production in Sandy Soils?

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Peanut (*Arachis hypogaea* L.) production in the southeastern United States is often limited by coarse-textured sandy soils, where rapid potassium (K) leaching reduces nutrient retention and fertilizer-use efficiency. Controlled-release potassium (CRK) fertilizers may improve K availability by reducing early-season losses and providing a more sustained nutrient supply. This study evaluated the effects of CRK, conventional muriate of potash (MOP), and their blends applied at two agronomic rates on peanut yield, kernel quality, and seasonal soil and plant nutrient dynamics under Florida sandy soil conditions. Field experiments were conducted across four site-years in 2022, 2023, 2024, and 2025 using randomized complete block designs with four replications. Across all environments, pod yield and total sound mature kernels were not significantly affected by K source or rate, indicating that CRK-based programs performed comparably to conventional fertilization. Kernel quality differences were driven mainly by seasonal conditions rather than fertilizer treatment. Soil and tissue nutrient dynamics were influenced primarily by sampling time, although CRK-based treatments generally maintained more stable soil K availability during the growing season than conventional MOP, which produced sharper early-season peaks. Across seasons, tissue K declined as tissue Ca increased, indicating a consistent antagonistic relationship during crop development. In 2025, nutrient content in aboveground biomass and pods at mid-season did not differ among treatments, further supporting similar biomass accumulation and nutrient partitioning across K strategies. Overall, CRK matched conventional K fertilization in sustaining peanut yield and quality while moderating seasonal soil K fluctuations, suggesting potential to improve K-use efficiency in sandy soils.

Viability of Peanut Seed Under Variable Storage Conditions

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In 2024, peanut seed was the most expensive crop input cost at \$319 per ha⁻¹. Peanut (*Arachis hypogea* L.) seed quality is critical for successful stand establishment and crop performance. Seed vigor and germination, key determinants of uniform establishment, are strongly influenced by storage environment and seed moisture. However, limited research exists on their combined effects across cultivars. Therefore, research was conducted to evaluate the effects of normal- and high-oleic cultivars to differing seed moisture contents and storage regimes.

Experiments were conducted from 2023 to 2025 using the cultivars, Georgia-06G, Georgia-16HO, Georgia-21GR, TifNV-HG, and TifNV-High O/L, and Tif-CB7. Experimental design was a RCBD with a factorial arrangement of cultivar, seed moisture (6 or 9%), storage temperature (cold 10°C; warm 35°C/ambient), and storage duration (0-12 months). Seed were shelled, dried to the target moistures, and stored, with subsampling occurring monthly. Germination was evaluated at 5 and 10 days following Association of Official Seed Analysts (AOSA) procedures. Data were analyzed using ANOVA in PROC GLIMMIX, with means separated using Tukey's HSD at $\alpha \leq 0.05$.

Seed vigor and germination were consistently influenced by storage environment, with significant moisture x temperature x time interaction observed under controlled conditions. Cold storage at 6% moisture maintained the highest seed quality across cultivars. In contrast, warm or ambient conditions at 9% moisture accelerated deterioration, with complete germination loss seen in some treatments by month 2. These findings indicate temperature as the primary driver of seed longevity, with moisture influencing the rate of deterioration under suboptimal storage.

Repurposing Established Fungicides for Management of Aflatoxin Contamination on Peanuts in South Georgia

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Aflatoxin contamination remains a significant threat to the Georgia peanut industry as the toxin remains unnoticed for a period of time before reappearing in sporadic outbreaks that result in substantial losses for growers, with some seasons seeing a rejection rate of 30% at shelling points. Management remains a complex problem as mycotoxin production is largely dictated by volatile weather patterns and highly specific microclimate conditions. Heavy rainfall followed by prolonged and intense drought can facilitate the spread of the causative agent, *Aspergillus flavus*, and promote subsequent mycotoxin production. Historically, management has been limited to mitigation of heat and water stress, making a more direct and consistent strategy essential. This study examines soil-level mitigation practices using different fungicides, biocontrol agents, and application methods. Evaluation of Georgia-06G peanuts was conducted across four locations in southern Georgia: Atapulgus, Camilla, Plains, and Tifton. Two fungicides, Miravis (pydiflumetofen) and Propulse (fluopyram + prothioconazole), were assessed in combination with three delivery methods: day spray, night spray, and chemigation. A biocontrol agent, AflaGuard, was also included to form a three-factorial randomized complete block design. Results suggest that location significantly influences the effectiveness of fungicide, application method, and biocontrol efficacy in locations with high aflatoxin contamination. No single treatment combination consistently outperformed others across locations. Incorporating soil characteristics and microclimate conditions into performance models may increase effectiveness of site-specific management strategies. Optimization of delivery methods for established fungicides can provide growers with new management options without a major overhaul of existing production practices.

Transcriptomic Analysis of *Arachis hypogaea* L. to Identify Genes Conferring Resistance to *Meloidogyne arenaria* (Neal) Chitwood With Wild Introgression

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The peanut root-knot nematode (*Meloidogyne arenaria*) causes significant yield losses in cultivated peanut (*Arachis hypogaea* L.), making it essential to identify genetic mechanisms of resistance. This transcriptomic study was conducted to identify root-knot nematode (RKN) resistance genes and defense mechanisms in five BC₃ breeding lines, including the resistant check NemaTAM and the susceptible check Florunner. These BC₃ lines carry genetic introgression from TxAG-6, with resistance derived from wild *Arachis* species (*Arachis cardenasii*, *A. diogeni*, and *A. batizocoi*). Samples inoculated with 4,000 eggs of *Meloidogyne arenaria* were collected at degree-day intervals corresponding to nematode developmental stages, including six timepoints (baseline, 10, 17, 21, 31, and 45 days after inoculation, DAI). Nematode development and resistance levels were assessed through counts of vermiform juveniles, galls, females, and eggs. NemaTAM and lines G3 and G4 restricted early infection and reduced female development and egg production, whereas G5 showed partial resistance. Florunner and G2 supported rapid nematode development. Differential expression analysis using DESeq2 (Wald and LRT tests; padj < 0.05, |log₂ fold change| ≥ 0.6) showed that gene expression changes were driven by timepoint, genotype, and genotype × timepoint interactions. Transcriptomic analysis identified thousands of differentially expressed genes associated with diverse resistance mechanisms and pathways. Rate-reducing resistance lines (G1, G4, G5) activated salicylic acid signaling, ethylene, nitric oxide responses, coumarin biosynthesis, and protease inhibitors early after infection. In contrast, NemaTAM exhibited a hypersensitive-like response involving programmed cell death, redox regulation, and nitric oxide detoxification. Additionally, several uncharacterized genes and a genotype-specific long non-coding RNA were identified as potential resistance candidates.

The Wiregrass Peanut Project: Applying Genomics to Peanut Breeding and High School STEM Education

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The Wiregrass Peanut Project was established in 2022 as part of a partnership between the HudsonAlpha Institute for Biotechnology and the City of Dothan, Alabama. It aims to integrate genomics into peanut breeding and STEM education for local high school students in South Alabama. In its fourth year, the project continues to advance both goals, producing impactful outcomes in research and education. It utilizes an 8-way MAGIC (Multiparent Advanced Generation InterCross) peanut population derived from eight elite parental lines to develop improved varieties with enhanced resistance to drought and multiple diseases. Genomic tools are applied to efficiently identify and track desirable trait loci inherited from these parents, significantly accelerating the breeding process. To date, several lines have been developed that carry three loci associated with drought resistance, along with additional loci contributing to disease resistance. In parallel, this real-world breeding effort is incorporated into local high school STEM education, where students learn key concepts in genomics and plant breeding while gaining hands-on experience in peanut cultivation, DNA extraction, and breeding line selection, fostering both crop improvement and scientific engagement among the next generation.

Peanut Biotechnology: Past, Present, and Future

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The Convention on Biological Diversity defines biotechnology as “any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use.” For the purpose of this presentation, the definition is confined to the more narrow FAO definition as “a range of different molecular technologies such as gene manipulation and gene transfer, DNA typing and cloning of plants and animals.” Peanut biotechnology research, particularly with regard to gene manipulation and gene transfer, has spanned four decades but has had limited tangible impact on the industry due to reluctance of certain markets to accept genetically engineered crops and the cost to bring a product to market. Nevertheless, the tools of biotechnology have provided proof of concept for novel approaches to understand and mitigate disease and improve product safety of peanut. With rapid advances in new breeding technologies such as gene editing, and their expanding application in major and minor crops, the time is ripe to recognize and act on opportunities for peanut. A timeline of significant peanut biotechnology events will be presented.

Collaborative Peanut Improvement

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The Peanut Genome Initiative had a goal to use a physical map of the peanut genome to accelerate peanut improvement for the next generation. We present a model for the translation of genomics into peanut improvement. This model is built on collaboration and trust. The advent of peanut smut provides a framework for demonstrating this model because the nature of the pathogen necessitates international collaboration. Populations were phenotyped in Argentina for smut resistance and genetic resistance was mapped in the USA. After discovery, a collaborative selection network was created where breeding programs made informed crosses, resistance was selected for using genomics, and local genetic backgrounds were optimized. The result was advanced lines ready for release within a few years, and a pipeline full of germplasm enriched for smut resistance. This model is a building block for peanut improvement in the genomics age. With high-resolution genetic information, breeding has become so accessible that high school students are leading a new program in Dothan, AL. From this and other cases, it is clear that investment in genomic tools has been successful. Now, the organization of cooperative networks is essential to further translate these tools into tangible peanut improvement.

Collaborations for Peanut Through the USDA-ARS Digital Agricultural Systems Hub (DASH)

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Integrating AI solutions into actionable decisions for research programs has a large number of logistical considerations. The integration typically requires knowledge of both the AI algorithms developed for a use-case as well as constraints on data transfer and networking, computational requirements, and visualization requirements necessitating the field of Machine Learning Operations (MLOps). The new Digital Agricultural Systems Hub (DASH) supports specialists working in MLOps to enable enterprising of AI solutions and ability to leverage the powerful SCINet computational networks established for USDA-ARS and collaborating partners. We will share a few examples of the recent work and technologies through DASH enabling computer vision centered pipelines and the accompanying AgImageRepository. We are excited about expanding collaborations with the peanut industry and are here to discuss future opportunities.

Practical Ideas for the Pangenome and the Peanut

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Peanut has undergone a whirlwind of technological development over the past decade. The peanut community has moved from the availability of a single reference genome to multiple reference genomes, and now to a many-genome synthesis, the pan-genome. Despite significant strides, there remain many challenges. How do we smoothly transition plant breeding programs and their datasets between rapidly changing generations of genotyping technologies? What can we learn from other crop communities, and how can we apply these lessons to solve peanut-specific problems? In this presentation, we will provide a technical background on pan-genome concepts and software. We will also show how the pangenome framework can be used to solve genetic analysis problems specific to peanut. We hope it will spark discussion on the past, present, and future opportunities and limitations of pangenomes in peanut.

Low Altitude Waypoint Drone Flights for Improved Plant Phenotyping in Peanut (*A. hypogaea*)

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Phenotyping in peanut breeding trials traditionally relies on time-intensive manual scoring, limiting the number of traits practically evaluated across large nurseries. Unmanned aerial systems (UAS) offer a scalable alternative, but conventional high-altitude mapping flights sacrifice the spatial resolution needed for plot-level trait extraction. We present a low-altitude (<5m AGL) waypoint-based drone imaging pipeline using the DJI Mavic 3 Multispectral that addresses this resolution gap while maintaining automated flight throughput.

Flights use RTK GPS positioning with ellipsoidal height corrected against county-level DEMs and NOAA GEOID18 data for consistent above-ground height across variable terrain. A YOLOv11-OBb row detection model (mAP50 = 0.945) identifies crop row orientation, enabling automated rotation alignment and precise 12×12 ft plot cropping without ground control points. During 2025, the system imaged four trials weekly across sites in Bertie and Edgecombe counties, NC — up to 250 plots per trial at ~12 plots per minute.

Extracted traits include stand count, canopy greenness (VARI), NDVI, flower presence and density, defoliation tracking, and detection of virus-symptomatic plants. Early results demonstrate accurate plot isolation across varied canopy conditions, with the automated workflow reducing per-plot processing time relative to manual scoring and traditional high-altitude flights. Ongoing work targets semantic segmentation for leaf spot disease rating.

This system provides peanut breeders with a flexible, extensible platform for high-resolution plot-level phenotyping that scales to large multi-environment trials.

Cultivars, Pedigrees and Genetic Vulnerability

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The Association of Official Seed Certifying Agencies (AOSCA) report of certified seed acres in 2024 and 2025 listed about 50 cultivars in the different commercial seed production stages including Foundation, Registered and Certified. It is reasonable to assume that these cultivars will be in domestic production for the next 5 years and beyond. Although the number of cultivars is large, within each of the three main production regions, only a few cultivars are popular on commercial farms because of their superior industry standards. Additionally, the cultivars showed common genetic lineages based on their pedigrees within each production region. The predominance of a few popular cultivars with related pedigrees may expose the crop to future genetic vulnerabilities from pests and pathogens. Many of the cultivars in the southeastern (SE) production contained traces of PI 203396, PI 259785, and *Arachis cardenasii* via Coan. In the Virginia-Carolina (VC) region, *A. cardenasii* via Bailey and in the southwest (SW), PI 109839 lineages are more common. It is suggested that PIs from the USDA peanut collection must be evaluated for traits of interest and used in future cultivar development to diversify the genetic background from genetic vulnerability.

Examining the Utility of Early Applications of Prohexadione Calcium in Peanut (*Arachis hypogaea* L.)

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Prohexadione calcium is used in peanut (*Arachis hypogaea* L.) production to reduce vine growth and improve pod yield. Traditionally, it is applied twice: when approximately 50% of lateral vines are touching (~90% lapped) and again within 21 days. Recent studies indicate that reduced rates (0.5× to 0.75×) applied twice may improve yields compared to the standard rate (140 g ai/ha). This study evaluated reduced rates and earlier application timings of prohexadione calcium (Kudos OD) for vine management and yield response in on-farm trials conducted in Tift County (2024) and Berrien County (2025), Georgia. Treatments included: (1) non-treated control; (2) 40.1 g ai/ha at 45 DAP followed by 80.2 g ai/ha at 65 and 80 DAP; (3) 108.2 g ai/ha at 65 and 80 DAP; (4) 145 g ai/ha at 65 DAP followed by 80.2 g ai/ha at 80 DAP; and (5) 80.2 g ai/ha at 65, 80, and 95 DAP. Mainstem height was measured at 65 DAP and biweekly until 115 DAP, along with yield. All treatments significantly reduced mainstem height compared to the control. Several treatments increased yield, including early reduced-rate applications and standard-timing programs. Overall, reduced rates with earlier initiation effectively suppressed vine growth through 115 DAP and produced yields comparable to current Georgia recommendations.

Determining the Value of Cover Crops in a Peanut (*Arachis hypogaea* L.) Rotation Utilizing Variable Rate Irrigation

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This is an ongoing study conducted at the Wiregrass Research and Extension Center in Headland, AL, to determine what value, if any, cover crops provide in peanut production. This research is on Dothan sandy loam soil in the Coastal Plains region, where soils are sandy, acidic, and low in organic matter. Cover crops may improve row crop productivity by enhancing soil physical, chemical, and biological properties. This research data was collected from 2023-2025 to determine if peanut yield increased and if soil moisture content increased associated with cover crops with 100%, 50%, and 0% irrigation versus fallow with 100%, 50%, and 0% variable rate irrigation. This experiment consisted of a split-plot design with 100%, 50%, and 0% variable-rate irrigation as the main block and cover crops and fallow as the subplots, replicated 3 times. Cover crops consisted of 50lb oat (*Avena sativa* L.), 50lb rye (*Secale cereale* L.), and 8lb daikon radish (*Raphanus sativus* L.). Soil moisture readings were collected weekly using a CPN 503 Depth Moisture Gauge at depths of 0-100 cm in the furrow and in the row middles from planting to harvest. The peanut variety was AU NPL 17, which was harvested for yield and grade. Even though there was no statistical difference in yield each year, there was a numerical increase in yield each year from using cover crops compared to fallow.

Optimizing Peanut Irrigation: Evaluating Threshold Shifts on Yield and Profitability

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Roughly half of Georgia's peanut production is irrigated, and the increase in the use of soil moisture sensors has created a need to evaluate irrigation thresholds that optimize yield and profitability. The main objective of this study was to evaluate the effects of managed, dynamic soil water tension thresholds throughout the growing season. In 2020-2025 a randomized complete block split-plot design was implemented at the University of Georgia's Stripling Irrigation Research Park near Camilla, Georgia. The study was conducted by employing a variable-rate overhead lateral irrigation system to independently irrigate nine treatments with three replications. Irrigation treatments were based on eight different irrigation schedules and the final treatment was a rainfed control. Irrrometer Watermark soil water tension (SWT) sensors were integrated into a probe at three depths (10.16, 30.48, and 50.80 cm) and were coupled with Realm5 telemetry. The probes were installed randomly into two of the three replicates for SWT measurements and determining daily irrigation decisions. For each irrigated treatment, SWT thresholds were changed at 40 and 110 days after planting. Combinations of three thresholds were utilized to simulate dry, optimal, and wet conditions. Results showed little statistically significant differences among the treatments, indicating that an optimum static threshold is still the best production practice. However, numerical differences among treatments may lead to additional research to investigate reducing early-season irrigation events without yield penalty.

Research Addressing Production and Pest Management Issues in Peanut in Northern Ghana

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Research with innovative approaches to production and pest management is limited in northern Ghana. To address this limitation, research was conducted at three locations over two years (2023 and 2024) to determine pest reaction and peanut yield of two varieties; 1) digging date, 2) planting method, 3) number of fungicide applications, and 4) weed management. The digging date treatments were compared in 7 trials with the other 3 trials conducted 6 times. Two-way and three-way interactions were not significant for the trial that included varieties, planting methods, and plant spacings. Main effects for each treatment factor were significant. The variety Sarinut 2 yielded greater than Chitaochi, with peanut in broadcast plantings or with wider plant spacings yielding less than planting in rows and establishing plants at closer spacings. Yield was greater for Sarinut 2 than Chitaochi when dug at optimum maturity and for most other digging dates. Increasing the number of fungicide sprays increased yield with each successive addition of a spray. Hand weeding twice and hand weeding once after a postemergence spray results in the highest yields. Herbicide applied only at preemergence timing was the least effective approach other than the no-weed control. Including one hand weeding or preemergence herbicide followed by a single hand weeding resulting in similar yields.

Relationship of Peanut Pod Hull Strength to Harvest Yield and Grade Factors for Peanuts Exposed to Simulated Rainfall in Windrows

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The effect of simulated rainfall on windrowed peanuts pod hull strength, yield, and grade factors was investigated during the 2021-2023 harvests. Pod hull strength was measured by the stress on the pod sutures when compressed to rupture of the pod for 2,999 pods. Statistical analysis undertaken fitted a linear mixed-effects model to the hull strength, yield, and grade factors data. Test results indicated that one simulated rainfall event on the windrowed peanuts on average weakened the peanut hull suture by 154 kPa with increased loose shelled kernels (LSK) in the harvested peanuts by weight on average to 3.4% which was on average 1.4% greater than harvested peanuts that were not rained on. Reduced hull strength strongly correlated to increases in LSK. There was a moderately significant correlation to reduction in yield with weakening hulls. Total sound mature kernels had statistically significant correlation showing an increase with decreasing hull strength. The changes in yield and grade factors do not follow the large reduction in hull strength with first rainfall exposure but increases with each exposure. There was about a 20% reduction in yield for each rainfall event for the harvested peanuts that did not receive irrigation and 18% for those that received irrigation. This indicates another mechanism in addition to reduced hull strength is involved in final yield and grade factor reduction. Future investigation of the relation of hull strength to yield and grade factors will need to collect pods by hand to eliminate harvesting survivor bias in the tested pods.

Seasonal Trends in Aflatoxin Contamination of Peanut Across Commercial Fields in South Georgia

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Aflatoxin contamination in peanut (*Arachis hypogaea* L.) remains a major food safety and economic concern in the southeastern United States, particularly under nonirrigated production systems where environmental stress can increase contamination risk. Although contamination is commonly evaluated at harvest, less is known about how aflatoxin develops during the maturation. The study integrates field observations collected during the 2023 through 2025 growing seasons from 11 nonirrigated commercial peanut fields in Georgia. Fields were sampled repeatedly during the maturation period, beginning at approximately 80 days after planting (DAP) and continuing through harvest. At each sampling event, peanut pod samples were collected, oven-dried, shelled, and processed prior to aflatoxin quantification by ELISA. The dataset also includes associated field-level and plot-level environmental information, including soil properties, topographic characteristics, and weather conditions. The analysis focuses on evaluating general temporal trends in aflatoxin contamination across seasons, fields, and sampling periods, and on assessing the extent of field-to-field variability. Preliminary analyses are being used to examine whether contamination increases consistently during maturation and whether environmental conditions may help explain variation in contamination trajectories among fields and years. This work provides a multi-year field-scale perspective on preharvest aflatoxin development in peanut and contributes to a better understanding of contamination risk during the maturation period under rainfed conditions. The findings may support improved monitoring strategies and future efforts to identify drivers of aflatoxin risk in commercial peanut production systems.

Weed Control and Fluridone Use in the Virginia-Carolina Region

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A survey of practices associated with weeds and use of Brake (fluridone) herbicide was conducted in 2024 and 2025 in North Carolina, South Carolina, and Virginia. In 2024, the herbicide fluridone (Brake) was used by growers in North Carolina (13%) and Virginia (29%) but not by growers in South Carolina. In 2025, this herbicide was also not used by the growers surveyed in South Carolina. In 2025, Brake was used in North Carolina by 11% of growers and 41% of growers in Virginia. In 2024, growers were about equally split on whether Brake was more effective than other herbicides used previously. In 2025, 25% of growers using Brake indicated that Brake was more effective than other herbicides they had used previously in North Carolina. In contrast, this number rose to 75% in Virginia. In small-plot research conducted in North Carolina from 2023-2025, Dual Magnum plus Brake was no more effective than Dual Magnum plus Valor SX. The combination of Dual Magnum plus Brake plus Valor SX was no more effective than Dual Magnum plus Valor SX. The two-way and three-way mixtures of herbicides were more effective than Dual Magnum. Weed species across trials included Palmer amaranth, common ragweed, annual morningglory, broadleaf signalgrass, large crabgrass, and Texas panicum. Palmer amaranth and common ragweed populations were not resistant to PPO-inhibiting herbicides in these trials.

Peanut Weed Control with Residual Herbicide Programs

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Residual weed control is an important piece of any peanut weed control program. Herbicide-resistance, adverse weather, and limited postemergence herbicide options make postemergence weed control challenging. Residual herbicides provide a good foundation for a successful weed control program. Field studies were conducted in 2024 and 2025 at the Caddo Research Station near Fort Cobb, Oklahoma. Applications of residual herbicides were applied at-plant and at-crack. Herbicides applied included Prowl® H2O, Dual Magnum®, Valor® EZ, Outlook®, Warrant®, Zidua® SC, Brake®, Pursuit®, and Cadre®. Treatments were applied as tank-mixes. Palmer amaranth control eight weeks after plant was ≥89% for all treatments in 2024 and ≥69% for all treatments in 2025. Texas panicum control eight weeks after plant was ≥74% for all treatments in 2024 and ≥85% for all treatments except Valor® EZ plus Outlook® which was 66% in 2025. Ivyleaf morningglory control eight weeks after plant was ≥55% for all treatments in 2024 and ≥85% for all treatments in 2025. Residual herbicides provide a first line of defense against germinating weeds and are a good piece of a season-long weed control program.

Exploring the Usage of Irrigation to Recover from Early Season Flumioxazin (Valor) Injury

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A consistent factor most peanut producers in the State of Georgia contend with is the annual damage of their peanut crop due to Flumioxazin (Valor) injury. Generally, the peanut crop is able to recover with little to no impact on yield. However, untimely or misapplied applications may result in greater instances of injury and subsequent damage to crop yield. Therefore, the main objectives of this study were to determine the effect of both the rate of Valor and subsequent irrigation recovery applications played in injuring the peanuts as well as the influence of recovery. Three Valor rates (3, 6, & 9 oz) and an untreated control were blocked by irrigation recovery rate (0, 0.25, 0.5, 0.75, & 1 in) with treatments replicated four times across the field. Valor was applied at cracking to ensure that injury occurred in the newly emerged plants for both visual assessment and to monitor recovery. Visual injury ratings were performed along with UAS flights to quantify injury bi-weekly through the first month after Valor application. Visual assessments were based on a scale of 1-10 with one indicating no injury and 10 being fully dead plants. Results indicate that as the rate of Valor increased yield decreased. Additionally, as the rate of irrigation increased, the yield decreased both independently and in tandem with the Valor treatment except for the half-inch treatment.

Phenomic Prediction of Virginia Peanut Maturity from Aerial Imaging and Machine Learning Models

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Peanut pod maturity has traditionally been measured using the destructive and intensive method of pod blasting. In order for breeding programs to incorporate maturity into their selection process, we are building a phenomic model to predict pod maturity based on aerial drone imaging throughout the growing season. Ten Virginia-type peanut accessions representing early to late maturity were grown in 2024 and 2025 in two locations (Bailey, BaileyII, Comrade, Emery, NC20, NC21, Sullivan, Walton, N18039, and N19029). Weekly aerial drone imaging was taken starting from mid-June through the end of the season to measure flowering characteristics, Normalized Vegetation Index (NDVI) and Visible Atmospherically Resistant Index (VARI) using the DHI Zenmuse P1 RGB sensor and MicaSense RedEdge Multispectral camera or the DJI Mavic 3M. Post harvest traits were taken over five harvest dates ranging from 120 to 158 days after planting. Plots were manually pod blasted to estimate pod color characteristics and yield and grade samples were measured for each plot in 2025. Weekly time series traits, post-harvest statistics, and daily weather information are being used to create a phenomic prediction model to evaluate incoming breeding accessions' maturity. Heat units ($r = 0.691$), flowering characteristics ($r = -0.607$), and VARI scores ($r = 0.45$) at critical time periods are strongly correlated with maturity measures like pod color and fill. Plant accessions with early pod color are associated with yield and pod grade, suggesting the importance of pod maturity for growers and the need to select for early maturity in peanut breeding programs.

Genome Assembly of Florunner and TxAG-6 Coupled With Raman Spectroscopy-Based Selection for High-Oil Peanut Improvement for Renewable Fuel Markets

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Whole-genome sequencing and Hi-C scaffolding were performed on the elite peanut cultivar Florunner and TxAG-6, an amphidiploid, to generate genomic resources for breeding applications. Compared with the reference cultivar Tifrunner, both assemblies spanned approximately 2.6–2.7 Gb of the peanut genome with N50 values ranging from 130–145 Mb. Florunner and TxAG-6 produced 1,293 and 814 scaffolds, respectively. Additionally, a BC3F8 population comprising 318 individuals derived from Florunner × TxAG-6 was developed for QTL mapping of oil-related traits. A high-density linkage map consisting of 20 linkage groups was constructed using 47k SNP-Chip data. Composite Interval Mapping (CIM) identified major and repeated QTLs on both A- and B-subgenomes, including A03, A04, B02, and B04. A rapid and non-destructive single-seed oil prediction model was also developed using monochromatic laser-based Raman spectroscopy integrated with machine learning. Raman spectra associated with lipid backbone composition, unsaturated fatty acids, triacylglycerol accumulation, and C=C and CH₂ vibrational bonds were targeted to distinguish low- and high-oil seed classes. Based on Cohen's D effect size, Raman shifts between 1245–1285 cm⁻¹ and 1445–1471 cm⁻¹ were highly significant for oil prediction. The model was subsequently deployed in a new high-oil breeding population derived from BC3F8 lines crossed with a West African peanut line segregating for 40–58% oil content, as confirmed by TD-NMR. F3 single seeds predicted above 55% oil were selected, planted in the field, and later validated using TD-NMR to confirm Raman model prediction accuracy.

Improved Root Characteristics are the Key to the Drought Tolerance Response of Water Spender and Water Saver Peanut Cultivars

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Peanuts are a vital cash crop in semi-arid regions, particularly in the southeastern United States, where sandy soils and high temperatures increase drought risk. Although peanuts tolerate early-season drought, they are highly vulnerable during reproductive stages, making drought-resistant cultivars essential for sustainable production. Previous studies have shown contrasting drought strategies, with some cultivars maintaining higher stomatal conductance (water spenders) and others conserving water through lower conductance yet achieving similar yields (water savers). However, it remains unclear whether these differences occur only at the leaf level or extend to the canopy, and whether enhanced root systems enable greater water uptake in water spenders. To address this, field trials were conducted during 2024-2025 at the National Peanut Research Laboratory, Dawson, Georgia, using four cultivars with contrasting drought responses and one drought-sensitive line. Plants were subjected to five weeks of drought stress during pod filling. Leaf gas exchange was measured weekly, and root traits were assessed at the end of stress. Results showed that the water spender AU-NPL-17 had 47% higher stomatal conductance than the water saver AU16-28, yet canopy-level differences were not significant. Across all cultivars, lateral leaves exhibited lower photosynthesis and conductance than main stem leaves. Enhanced stomatal conductance in water spenders was associated with superior root traits, including greater root volume, surface area, total length, and root tips. Overall, water spenders had 54% higher root volume than water savers. These findings highlight the integrated role of root architecture and plant physiology in drought adaptation.

Drought Adaptation in Peanut: Linking Physiological Traits, Root System Architecture, and Yield Variation in a Water-Saver × Water-Spender RIL Population

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Drought is a major limitation to peanut productivity worldwide, necessitating the identification of adaptive traits that confer to water stress. Recently, our research group identified peanut cultivars with high water-use efficiency (WUE, water-saver: AU16-28) and efficient use of water (EUW, water-spender: AU-NPL-17). However, the genomic and physiological mechanisms behind these traits are yet unknown. This study aimed to elucidate the relationships between root system architecture, physiological responses, and yield performance in a bi-parental population of 199 F6 RILs, derived from AU16-28 and AU-NPL-17. Field experiments were conducted at EVS Research Center, Alabama, under rainfed and irrigated conditions, and at the National Peanut Lab, Georgia, under rainfed conditions, to phenotype the RIL population and parental lines. Net photosynthetic rate (A), stomatal conductance (g_{sw}), intrinsic water-use efficiency (WUE_i), and stomatal limitation (l_s) were evaluated at 50-60 and 90-100 days after planting (DAP), while root characteristics were evaluated at 50-60 DAP and pod yield after harvest. Results show significant correlations between A , g_{sw} , WUE_i , and l_s in all three environments. Genotypes like RIL 60, 88, and 134 ranked in the top 5% of highest g_{sw} -mean in at least two environments. The water-spender line consistently outperformed the water-saver line in root characteristics. However, the water spender line showed a lower yield than the water saver lines in the rainfed environment in EVS. The findings enhance our understanding of the complex genetic relationships between these traits, and QTL analysis will be performed in the future to identify the actual genomic regions linked to these traits.

Variation in Aflatoxin Contamination Among Wild and Wild-Derived *Arachis* Accessions Challenged with *Aspergillus flavus*

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Postharvest aflatoxin contamination in peanut caused by *Aspergillus flavus* is a threat to the US peanut industry and to global human health. Strong heritable resistance to aflatoxin contamination has not been identified in the primary gene pool of peanut (*Arachis hypogaea*). Wild *Arachis* species provide a diverse secondary gene pool with potential for defense traits. Here, a total of 15 interspecific allotetraploid hybrids and 15 wild diploids were screened via *in vitro* inoculation assays for differential aflatoxin accumulation. Aflatoxin content differed significantly by genotype in two trials comparing all hybrid lines and a subsection of wilds (trial 1 $p=7.57 \times 10^{-11}$, trial 2 $p<2.0 \times 10^{-16}$). Hybrids BatSten1, IpaDur2, and ValSten1 had significantly lower aflatoxin than controls Florida-07 and ICG 1471. BatSten1 and Valsten1 share parent *A. valida* V10309, indicating a possible genetic component to their low aflatoxin trait. Accessions of *A. batizocoi* (PI 468325 and 298639) had the lowest aflatoxin in these trials. An inoculation assay conducted using 14 wild accessions revealed significant variation in aflatoxin between diploids ($p=3.36 \times 10^{-10}$). Accessions *A. duranensis* PI 468319 and *A. glandulifera* PI 468343 had lowest aflatoxin, while *A. duranensis* PI 468200 and *A. hoehnei* PI 666086 had the highest. Several accessions including *A. batizocoi* genotypes contradicted previous observations by displaying high aflatoxin in this trial, potentially due to differences in time spent in storage between assays. Findings point towards BatSten1, ValSten1, and IpaDur2 as potential gene sources for improvement of cultivated peanut's defense against aflatoxin.

Development and Characterization of a 16-Way MAGIC Peanut Population Using High Throughput Phenotyping and Deep Learning

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Genetic improvement in peanut (*Arachis hypogaea* L.) is constrained by limited allelic diversity in biparental populations and the phenotyping bottleneck inherent in evaluating large breeding populations. To expand allelic diversity, a 16-way MAGIC population was developed using 18 founder parents carrying multiple traits of interests. High throughput phenotyping and deep learning were used to characterize plant architecture in this population. An initial random two-way pairing between parents followed by half diallel designs for four-, eight-, and 16-way crosses produced a total of 420 16-way F₁ lines of which 210 F₁s were used in this study. A subset of 245 F₆ lines tracing back to 153 F₁ lines and 18 parents were planted in 1.5 m long plots in two rows 91cm apart and replicated thrice. High throughput phenotyping data was collected using a DJI Matrice drone equipped with RGB camera at 6 and 8 weeks after planting (WAP). Manual data also were collected on the same day. The images were stitched together with Pix4D Mapper. Individual plots were automatically segmented using Segment Anything model (SAM). From the dense point clouds, the height of the plants and canopy architecture like mainstem prominence (MP) and growth habit (HP) were obtained using deep learning models. Convolutional neural network (CNN) model AlexNet was used for MP and GH. While the analysis is still in progress, the initial results are encouraging. This research provides support for the utility of high throughput phenotyping platforms and deep learning in phenotyping and characterization of MAGIC populations.

Bridging the Gap to Wild Species With High-Genome Coverage *A. valida* and *A. stenosperma* Introgression Lines

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Accessions of over twenty wild peanut species have been identified as sources of resistance to major peanut diseases and pests. However, the introgression of these traits into cultivated peanut (*Arachis hypogaea* L.) has been extremely limited. This is the result of the difficulties in making crosses with wild species, overcoming ploidy barriers, and integrating unadapted germplasm into breeding programs. To overcome these challenges, we introduce a curated set of introgression lines developed from *A. valida* GK30011, *A. stenosperma* V10309, and 'TifNV-High O/L.' These lines contain ~16% wild genetics on average, with combined coverage of ~96% of the *A. stenosperma* genome and ~98% of the *A. valida* genome. In field trials, lines within the set have shown increased resistances to leaf spots and southern stem rot compared to cultivated controls. Simultaneously, these lines show adequate agronomic performance, with 75% of lines having statistically equivalent yield to 'Georgia-06G.' The introgression lines will be made available as a resource for researchers to identify useful wild traits and quickly integrate them into their breeding programs.

Decoding the Peanut Pangenome: Utilizing Graph-Based Assemblies to Map Structural Variation Hotspots in *Arachis hypogaea*

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Cultivated peanut (*Arachis hypogaea*), tetraploid in nature, is considered important for oilseed and legume crops. However, the genetic improvement of peanuts is hindered by narrow genetic diversity and repeat-rich complex genome. A major bottleneck in peanut is the dependency in the single linear reference genomes, which doesn't account for the non-reference sequences and complex structural variations (SVs) such as insertion, deletion, inversion that plays key role in determining phenotypic diversity.

To overcome the limitations, we developed a high-resolution pan-genomic approach using PacBio HiFi sequencing (35x) for a de-novo genome assembly of diverse genotypes. The assembly's contiguity was validated via QUAST, for gene completeness BUSCO scores were generated with >97% completeness value, and for the synteny of assembly and visualization De-genies was used and further scaffolding was done using Pteranodon and manual curation using PAF file. The validated assemblies were integrated into a pangenome graph using Minigraph-Cactus pipeline.

Our analysis identified millions of SNPs and Indels showing the useful diversity present in the panel. Variant per kb window heatmap showed the variation positioned across the genome over the chromosome position. This helps us visualize the heterogeneity across the diverse genotype, suggesting the panel as a hotspot for the variation. Thus, this study demonstrates that pangenome graphs provide a coordinate system that allow us to transition from single, static reference to dynamic, population-level maps. Future work involves utilizing large-language model, collapsing millions of variants information into latent feature to further use in downstream analysis predicting phenotypic trait.

Targeted Capture Enhances SNP Discovery in an EMS-Mutagenized Peanut Population

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Capture panels selectively hybridize to specific genomic regions, which upon sequencing increases the sequence depth and enriches the targeted region relative to the whole genome. Low pass sequencing of enriched libraries is a cost-effective way to identify SNPs with high confidence and avoid imputation. Imputation is counterproductive in detecting unique nucleotide variants which are often the result of induced variations. To evaluate whether capture probes are effective for enriching targets with low-coverage sequencing, we compared unenriched and probe-enriched skim sequencing in an M3 generation of EMS-mutagenized peanut. A custom capture panel was developed using the Tifrunner reference genome. Only exon regions exceeding 500 bp were retained, repetitive sequences were eliminated using BLAST filtering and sequences with ≤ 2 hits and $\geq 99\%$ similarity were preserved. This resulted in 21,439 candidate regions (~ 19.4 Mb). From these, 120-bp probes targeting 21,266 regions, spanning 2.55 Mb were designed. Libraries were prepared and Illumina short read sequencing was conducted. Sequenced reads were mapped to the reference genome. SNPs were called using Khufu without imputation. Within target regions, unenriched libraries produced shallow coverage (1.20x-3.02x) and identified 80,700 SNPs across 760 lines. Probe-enriched libraries concentrated reads within target regions, increasing coverage from 1.05x- 53.38x identifying 437,344 SNPs across 763 lines, a >5-fold increase in observed variants. These results demonstrate that capture-assisted skim sequencing substantially improves variant detection in EMS populations and can provide an effective alternative to higher-depth whole-genome sequencing for large-scale genetic analysis.

Utilizing Cytometric and Spectroscopic Technologies to Further Characterize Wild *Arachis* Species

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Various cytological methods have been used to determine *Arachis* *sp.* genome composition and size. Older methods often lead to an overestimation of the peanut genome size. Flow cytometry with fluorescently stained DNA has since been found to be a much more accurate method. This method has been used to correctly estimate the genome size of several *Arachis* species including cultivated peanut (*Arachis hypogaea* L.). Although flow cytometry has been found to be more accurate than these older methods, only a portion of *Arachis* species genomes have been reported using this method. Along with this, the only species that have been analyzed using this method are from the *Arachis* section. While the *Arachis* section does include a large portion of *Arachis* species, there are eight other sections that still need to be covered. This project will be using flow cytometry to analyze the DNA content of peanut species from eight of the nine *Arachis* sections. We will utilize every species currently available in the collection in Stephenville, TX. This information will help fill a gap in the literature regarding the genome sizes of various wild *Arachis* species, which will benefit peanut breeders going forward. Along with this, a protocol to utilize handheld near-infrared spectroscopy techniques will be developed in order to supplement the current wild peanut breeding program in Stephenville. We hope that this technique will allow for further characterization of individual seeds and/or plants as a breeding program is followed.

Testing the Components of Agile Genetics for White Mold Resistance in Peanut MAGIC Populations

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Agile genetics is a conceptual gene discovery framework to achieve single-gene resolution by utilizing structured populations, large scale single-plant phenotyping, and exhaustive haplotype knowledge. We are testing the aggregate effect of this approach using a complex 18-parent Multi Parent Advanced Generation Inter Cross (MAGIC) population. These 18 founder lines exhibit genomic divergence and were selected due to their desirable traits ranging from disease resistance, drought tolerance, high yield and other agronomic qualities. The same lines were aligned to generate a pangenome graph as a reference for the identification of genetic variants present in the population. The 8-way MAGIC F₂ and F₄ progenies were evaluated for white mold resistance in 2023 and 2024. Individual peanuts were transplanted in a field within a canopy of resistant variety 'GA12Y'. The mycelium of fungus grown on potato dextrose agar (PDA) was inoculated in each experimental plant using agar plugs. A total of 740 and 580 plants were inoculated in 2023 and 2024, respectively, where 'GA12Y' canopy provided a conducive environment for disease proliferation. Disease occurrence in each plant was observed 3-6 times in the season and phenotyped for disease severity. All the F₂ and F₄ plants were also sequenced individually using short read illumina sequencing technology at a depth of 1x. Given the low sequencing depth, genotypes were imputed with the STICH program using the parental pangenome graph. Genetic association analysis was conducted to identify the genetic loci of white mold resistance, and several significant association peaks were detected.

Utilizing PACE Marker and Automated Egg Count Detection to Identify Candidate RKN-Resistance Gene Region on Chromosome 9A Introgressed from *Arachis cardenasii*

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The North Carolina State University Peanut Breeding Program is the primary supplier of Virginia-type peanut (*Arachis hypogaea*) cultivars for the Virginia-Carolina (VC) region. Root-knot nematode (RKN, *Meloidogyne spp.*) can significantly affect peanut production, with reported yield reductions of up to 50%. With RKN incidence in the VC region rising, farmers have few Virginia-type cultivars with known RKN resistance to choose from. Furthermore, phenotyping for RKN resistance has become increasingly difficult to manage by hand-counting egg samples. Therefore, this study aims to identify and transfer resistance from donor peanut germplasm into elite Virginia-type backgrounds for cultivar development and to replace labor-intensive hand counting with an automated egg-count detection model. The line GP-NC WS 06, developed from the wild peanut species *Arachis cardenasii*, demonstrates resistance to peanut root-knot nematode. Recent whole-genome sequencing revealed a 4Mb *A. cardenasii* introgression on Chr. A09, closely resembling known RKN resistance gene regions. Testing confirmed that GP-NC WS 06 and the industry standard for RKN resistance, TifNV H/O, both possessing *A. cardenasii* introgressions (4 Mb and 112 Mb, respectively), exhibited indistinguishable resistance, suggesting that the resistance could reside within the smaller 4 Mb block. Using PACE markers and the high-throughput egg-counting model, we identified five single recombinants and two double recombinants on the Chr. A09 introgression and narrowed the region to 1.8 Mb. The automated model achieved accuracy comparable to hand counting ($R^2 = 0.9843$, 49.39% exact matches, 82.05% within $1 \pm$ one egg) while substantially reducing processing time and physical labor.

Development and Evaluation of Runner Introgression Populations for High Oleic Oil Content, Early Leaf Spot Resistance, and Marker Validation in Peanut (*Arachis hypogaea* L.)

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Peanut (*Arachis hypogaea* L.) is cultivated in semiarid, tropical, and sub-tropical regions and serves as a major source of protein and oil worldwide. Foliar diseases, particularly early leaf spot (ELS) caused by *Passalora arachidicola*, (formerly *Cercospora arachidicola* S. Hori) significantly reduce yield and increase production costs. Under favorable environmental conditions, these diseases can result in severe defoliation and yield loss. Runner-type introgression populations were developed to combine high oleic oil content with resistance to ELS. Crosses were made between two leaf spot-resistant BC₃F₈ introgression lines derived from the TxAG-6 × *Florunner* population and two early-maturing, high oleic runner cultivars (Tamrun OL18L and OL19). Hybridity was confirmed using Kompetitive Allele-Specific PCR (KASP) markers targeting the high oleic trait. Field evaluations in Yoakum, TX identified significant variation among breeding lines for ELS response. In 2022, genotype means ranged from 1.0 to 4.33 on the Florida 1–10 scale. In 2025, area under the disease progress curve (AUDPC) ranged from 56.7 to 126.1 with highly significant genotype effects ($p < 0.001$). The most resistant progeny lines approached the resistance level of the parental check, demonstrating successful introgression of resistance alleles from wild *Arachis* species. Seven SNPs previously identified as QTLs for ELS resistance were tested, and lines carrying resistance-associated alleles at C06_c70190 had lower ELS ratings, reduced BLUE values, and decreased AUDPC across environments. These results demonstrate the development of high oleic introgression lines with improved ELS resistance and support the use of validated molecular markers to accelerate disease resistance breeding in peanut.

The Kingdom of Lost Resistance: Unlocking Wild Defenses Against Peanut Early Leaf Spot

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Early leaf spot, caused by the fungal pathogen *Passalora arachidicola*, is a major threat to peanut (*Arachis hypogaea*) production, leading to severe defoliation and significant yield losses. While fungicides are the main management method, their declining efficacy, high cost, and negative environmental concerns make the integration of genetic resistance into disease management strategies increasingly important. The cultivated peanut germplasm exhibits low genetic diversity and low levels of disease resistance. In contrast, wild relatives and their derived tetraploid hybrids are genetically diverse and can possess strong resistance. This study aims to identify genomic regions conferring resistance in a wild *Arachis* hybrid ValMicro1 population for introgression into cultivated peanut. An F₂ population of ValMicro1 × 13-1014 (a cultivated line) was phenotyped using *in-vitro* detached leaf bioassays by evaluating the number of lesions and sporulating lesions per leaf area over time. 68 out of 196 lines tested had lower lesion and sporulation development than both parents and controls. Integration of the phenotyping data with genotyping SNP data revealed two QTLs for resistance loci (reduced lesion development) on chromosomes A04 and A07. F₃ individuals carrying both loci were backcrossed into 13-1014 to create a population for QTL validation. A total of 130 BC₁ hybrids were produced and selfed to generate BC₁F₂ progeny, which will be evaluated to confirm resistance loci. Introgression of these resistance loci into cultivated peanut represents a robust and practical strategy for improving early leaf spot resistance, reducing yield losses and strengthening the sustainability of peanut production under diverse growing conditions.

Integrating Host Resistance and In-Furrow Fungicide Applications for Leaf Spot Management in Peanut Production

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Leaf spot diseases pose a significant threat to peanut production, often requiring intensive fungicide programs to prevent yield loss. This study evaluated host resistance derived from wild relatives and its interaction with early-season in-furrow fungicide applications as a strategy to reduce disease pressure and chemical dependency. In 2025, a field trial evaluated three peanut genotypes: TifCB-7 (resistant cultivar), Georgia-06G (commercial cultivar), and TUFRunner'511' (susceptible cultivar). Fungicide treatments consisted of an untreated control and an in-furrow application of fluopyram (Velum) at 0.24 kg a.i./ha. The experiment was conducted using Randomized Complete Block Design (RCBD) with a factorial arrangement of three genotypes and two fungicide treatments across four replications. Disease progression was assessed using eight ratings based on the Florida 1-10 severity scale and visually estimated percent defoliation. Area Under the Disease Progress Curve (AUDPC) values were calculated for disease severity and defoliation to quantify overall epidemic development. Data were analyzed using a Linear Mixed Model (LMM), where genotype, fungicide treatment, and their interaction were treated as fixed effects, while replications were treated as random effects. Results showed significant effects of genotype and fungicide treatment for both Florida rating AUDPC and defoliation AUDPC ($p < 0.05$). However, the genotype x fungicide interaction was not significant ($p > 0.05$). The susceptible cultivar TUFRunner'511' exhibited greater disease development than TifCB-7 and Georgia-06G, while fluopyram reduced disease progression across genotypes. These initial findings support the use of host resistance and fungicide applications as part of an integrated approach for managing peanut leaf spot diseases.

Genotypic Resistance Alters Fungicide Response and Yield Stability in Peanut Under Late Leaf Spot Pressure

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Late leaf spot (LLS) is a peanut yield limiting disease and requires intensive fungicide programs. However, new genotypes from UF/IFAS with resistance to LLS may reduce reliance on fungicides. **Objectives:** Evaluate fungicide rate/application interval requirements for LLS resistant genotypes. **Methods:** The experiment comprised a randomized complete block design with split-plot arrangement and three replications conducted over two years. Main plots were seven fungicide treatments; subplots were three LLS-resistant genotypes (UF14x054-8-6-1-1, Gorbet, Tif-CB7) and a susceptible control (FloRun™ ‘T61’). Biweekly disease severity assessments were used to calculate area under the disease progress curve (AUDPC), with yield measured at harvest. **Results:** Across years, genotype and fungicide treatment significantly affected yield. UF14x054-8-6-1-1 yielded highest across fungicide regimes, followed by UF-SSD-19 and Tif-CB7. The susceptible FloRun™ ‘T61’ had the lowest yields. Under no fungicide application, UF14x054-8-6-1-1 and Gorbet yielded up to 54% and 47% greater than T61, respectively. Genotype, fungicide treatment, and their interaction significantly affected AUDPC. UF14x054-8-6-1-1 and Gorbet reduced disease severity compared to FloRun™ ‘T61’ by 27% and 36% respectively. Tif-CB7 performed intermediately. Fungicide applications increased yield overall; however, reduced-input programs yielded comparably to standard programs for resistant genotypes. **Conclusions:** LLS-resistant genotypes demonstrated high yields and less disease under reduced fungicide inputs. Resistant genotypes increased yield up to 54% with no fungicide and reduced disease severity by as much as 36%, indicating that adopting resistant cultivars can allow less fungicide inputs while maintaining productivity. These findings support the integration of host resistance into peanut disease management systems to improve profitability and sustainability.

A Third Gene Needed for Genotyping Oleic Acid Content in Peanut

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Accumulating evidences have shown that the oleic acid content trait in peanuts cannot be explained by the traditional two-gene model involving AhFAD2A and AhFAD2B, but the underlying genetic mechanism remains unclear. Here, we present a population-specific pangenome using the eight founder genomes of the PeanutMAGIC population. This graph-based pangenome serves as a comprehensive reference, capturing all segregating haplotypes within the population. We conduct whole genome sequencing for the MAGIC Core, a subset of 310 RILs, for genotyping. Using pangenome-based genotypes, we trace recombination for detailed genomic analysis and phenotypic association. This investigation identifies a unique third gene, named AhFAD2C, near AhFAD2B. When recombination occurs, AhFAD2C segregates from AhFAD2B to reveal the mid-oleic fatty acid phenotype while appearing high-oleic using the traditional two-gene model. Our findings underscore the limitations of utilizing two of the three genes in marker assisted breeding, which leads to inaccurate genotyping and contamination classification. In contrast, utilizing all three genes in genotyping provides a more reliable framework for genotyping. This study reveals insights into the genetic mechanism of peanut oil quality and delivers a suitable marker for large scale genotyping to the community.

Genes Regulating Enhanced Sequestration of Polyunsaturated Fatty Acids Into Triacylglycerols and Sterol Esters Will Improve the Heat Tolerance of Peanuts

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Peanut productivity is threatened by high temperatures (HT) worldwide. Reducing membrane lipid unsaturation levels is a conserved mechanism for maintaining membrane stability under HT; however, the underlying pathways in peanut remain unclear. We hypothesized that the conditional expression of genes regulating sequestration of polyunsaturated fatty acids into triacylglycerols (TGs) and sterol esters (SEs) will improve heat tolerance in peanut. We tested this hypothesis on recombinant inbred lines (RILs) contrasting in heat tolerance using lipidomic and gene expression analyses. Heat-tolerant RILs decreased highly unsaturated membrane diacyl lipids (one or two 18:3, 18:2, or 16:3 acyl chains) and increased less unsaturated membrane diacyl lipids under HT. The heat-tolerant RILs also increased TGs with one, two, or three 18:3-acyl chains and 18:3- and 18:2-acyl containing SEs. Under HT (24–48 h), the heat-tolerant RILs showed higher expression of *DGAT1-2*, *DGAT3-3*, and *PDAT*, supporting acyl sequestration into TGs. Reduced *FAD3-2* expression occurred later (7 d), suggesting that suppression of desaturase activity is likely a downstream acclimatory response. Further, the heat-tolerant RILs exhibited elevated *ASAT* and *PSAT* expression, indicating acyl sequestration into SEs. Expression of *HIL1*, an MGDG lipase releasing 18:3 acyl chains, was also upregulated, consistent with active acyl turnover. Our results demonstrate that polyunsaturated-acyl sequestration into TGs and SEs is a heat-adaptive mechanism in peanut that lowers membrane unsaturation levels and stabilizes membranes. The genes *DGAT1-2*, *DGAT3-3*, *PDAT*, *HIL-1*, *ASAT*, and *PSAT* that regulate acyl recycling mechanisms and the RILs that overexpress them will assist breeding programs in developing heat-tolerant peanut varieties.

HSP70: A Heat Shock Protein Marker Associated With Flavor and Maturity

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Peanut flavor is a complex quality attribute impacted by physiological, environmental, and processing variables including seed maturity, growing region, soil nutrition, storage conditions, moisture content, roasting time, and roasting temperature. Previous experiments have identified volatile and semi-volatile compounds produced during roasting, described sensory analysis of a collection of diverse samples, and proteomic analyses of the samples throughout the roasting process. Analysis of the proteomic data identified potential markers which were sequenced. Full-length gene sequences were obtained for 30 samples using next-generation sequencing by Rapid Genomics of Biosearch Technologies™, and SNPs were identified by Solis Agrosiences. KASP assays were used to select presence or absence of target markers and compared to sensory and maturity data from the flavor collection and samples obtained from Germplasm Resource Information Network (GRIN) collections. Preliminary results indicate that the presence of the SNP upstream of the Heat Shock Protein (HSP70) has a negative influence on flavor.

Drought Response in Peanut: Physiological and Transcriptomic Differences Between Water Savers and Water Spenders

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To dissect contrasting drought-tolerance strategies in peanut (*Arachis hypogaea*), we evaluated physiological traits and leaf transcriptomes from 120 samples representing five genotypes (AU16, line8, AU17, PI50, PI39) across progressive drought stages. Differential expression analysis and weighted gene co-expression network analysis (WGCNA) revealed that drought progression was the dominant source of transcriptomic variation. Focusing WGCNA on drought-stage samples (C1, C3, C5; 45 samples) using the 6,000 most variable genes generated 22 non-grey modules. Module–trait analysis confirmed a strong temporal drought axis (for example, ME_{pink}, $r = 0.979$ with stage/time). Importantly, two modules associated specifically with the water-spender phenotype (AU-NPL-17) but not with drought stage unveiled a second, orthogonal axis linked to drought-response strategy: ME_{cyan} (negatively associated with the water-spender) and ME_{tan} (positively associated). Functional enrichment of ME_{cyan} highlighted ribosome/translation and aminoacyl-tRNA biosynthesis, consistent with translational maintenance in water-savers (AU16-28). ME_{tan} was enriched for cysteine-type peptidase activity and stress-associated pathways—including proline metabolism and MAPK signaling—consistent with enhanced protein turnover, osmotic adjustment, and stress signaling in water-spenders. Integrating module membership and strategy association prioritized candidate hub genes in both modules for downstream validation. Together, these results support a two-axis model of the peanut drought transcriptome: a dominant, time-driven core response plus a distinct, strategy-linked program. The identified modules and hub genes provide mechanistic hypotheses and breeding targets to improve drought resilience in peanut. Future work will experimentally test prioritized hubs and assess their contribution to WUE and EUW across diverse germplasm, accelerating incorporation of strategy-specific alleles into breeding programs for sustainable production systems.

Mapping Resistance to Aflatoxin Contamination in Recombinant Inbred Line Populations of Peanut (*Arachis hypogaea* L.)

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Aflatoxin, a carcinogenic mycotoxin, is a significant concern for all sectors of the peanut industry. Peanuts with varying genetic backgrounds can exhibit differing degrees of susceptibility to contamination. To explore the genetic mechanisms causing this variation, reciprocal crosses between a susceptible peanut genotype, Florida-07, and a resistant peanut genotype, ICG 1471, were made to develop a recombinant inbred line (RIL) population (IF population). Advanced RILs from this population were screened for aflatoxin contamination using a novel in vitro seed colonization technique involving inoculation with *A. flavus*. DNA was extracted from lines which were identified as the most susceptible and the most resistant. Samples from each group were bulked for whole genome sequencing. A quantitative trait locus (QTL) mapping approach was employed to identify regions contributing to resistance. Four different putative QTL regions were identified using the Khufu var program. Subsequent experiments using two nested populations derived from crosses between a resistant IF line and two chromosome segment substitution lines, CSSL84 and CSSL100, demonstrated that one of the regions, identified on Arah20, could be validated for aflatoxin contamination resistance. Variant analysis within this region revealed two genes which may contribute to resistance mechanisms.

A Pangenome Study of an 8-Way MAGIC Population for Aflatoxin Resistance in Peanut

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Aflatoxin, produced by *Aspergillus flavus* and *A. parasiticus*, presents a substantial threat to global food safety. Peanuts can become contaminated with aflatoxin at two main stages: during the late maturation stages in the field (pre-harvest), or during storage (post-harvest). Research has shown that in peanuts, the absence of stress conditions, specifically drought stress, and optimal storage conditions can reduce contamination levels. Despite these mitigation efforts, contamination remains an industry-wide issue. To enhance genetic resources for reduced aflatoxin contamination, an 8-way Multi-parent Advanced Generation Inter-Cross (MAGIC) population has been developed. The parents (CSSL100, CSSL84, CS210, CS229, Carolina Black 10, ICG 14360, C431-1-7 and C76-16) for this population combine three key traits: drought tolerance, resistance to aflatoxin contamination (field and/or in vitro), and reduced *A. flavus* growth (in vitro). To further investigate variation in genomic structure across all the parents and explore markers associated with aflatoxin resistance, we generated a pangenome graph from the whole genome sequence of each parent. The structural variation across these genomes, associated with their specific traits, will allow the development of new markers to select lines that may combine all traits into one line, and contribute to release of aflatoxin resistant germplasm and potentially cultivars. To explore the extent of recombination, we genotyped the F₁s from 2-way, 4-way, and 8-way crosses using the pangenome graph as reference. Population advancement to recombinant inbred lines will provide the opportunity to select for enhanced resistance to aflatoxin contamination.

Identification of a Large Effect QTL for Peanut Stem Rot Resistance

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Peanut stem rot, caused by the soilborne fungus *Agroathelia rolfsii*, accounts for annual losses of \$60–80 million for Georgia farmers including the cost to control. Considering the steady increase in pesticide application cost and their environmental effect, development of resistant cultivars is recommended to bring higher profit for peanut growers. Accordingly, a cross was made between two high-yielding runner type cultivars Marc I and Georgia-12Y (GA-12Y) to develop enhanced stem rot resistant lines with medium maturity. Selected lines will also inherit Tomato Spotted Wilt Virus (TSWV) resistance from GA-12Y. In 2024, a total of 192 F₃ lines were screened against a highly virulent stem rot fungus isolate, and seventy lines were identified with superior resistance. Through whole genome sequencing and pan-genome analysis, a genomic region or quantitative trait locus (QTL) was identified on chromosome A09 of GA-12Y, explaining 37.9% of the phenotypic variation. Subsequent small-plot level screening of derived F₅ lines in 2025 confirmed high resistance, although the population remained segregating. While preliminary data indicated a late maturity pattern for these lines, further analysis is required to identify medium maturity lines. Current efforts involve fine mapping of the QTL by genotyping F₅ population using molecular markers and seed multiplication of the resistant F₆ lines in the Puerto Rico winter nursery. Lines with strong resistance and medium maturity will be selected for developing SR resistant varieties. Future work will focus on screening selected lines for TSWV resistance and integrating other agronomic traits to ensure the commercial viability of resistant varieties.

An Analysis of the “Assistance” Needed to Optimize the Performance of Cultivar Resistance to Major Peanut Diseases

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Application of fungicides and/or implementation of other mitigation factors required to minimize disease risk could be termed as the ‘assistance’ required by a genotype or cultivar to minimize disease risk. An evaluative question becomes “How much assistance does a cultivar or more broadly, a resistance source, require to minimize disease?”. In the case of tomato spotted wilt (TSW), the resistance derived from NC94022 requires little to no assistance, allowing cultivars containing that resistance source to effectively minimize risk of TSW. This is in contrast to other moderately TSW resistant cultivars which require later planting, twin rows, and phorate to minimize TSW risk. New resistance to late leaf spot (LLS) is good, but the resistant cultivar ‘Gorbet’, for example, requires fungicides to minimize risk of LLS. The assistance load required to minimize LLS risk in ‘Gorbet’ is being evaluated, but results suggest that risk can be minimized with about half of the number of sprays per season compared to the typical 14-day fungicide interval with six to seven applications per season. Breeding for resistance to southern stem rot/white mold (WM) has been the most difficult of the three major diseases (LLS, TSW, WM). Resistance has been found and incorporated into cultivars, but we are not confident about the level of fungicidal assistance needed to minimize risk of WM with new, more resistant cultivars. This presentation will outline new levels of WM resistance found in UF cultivars and breeding lines and postulate fungicidal assistance needed by them to minimize WM risk.

Cross-Continental Discovery and Deployment of a Smut Disease Resistance Locus

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Peanut smut significantly hinders global peanut production and disrupts major supply chains. Caused by the soil-borne pathogen *Thecaphora frezzii*, smut disease has spread to all peanut growing regions in Argentina and can result in extreme yield loss, as high as 51%. To uncover the genetic basis of smut resistance and accelerate breeding, we first built a population-specific pangenome graph and used scaled skim sequencing on mapping and validation populations over two seasons. This approach, married with comparative genomics of long-read sequences for 26 diverse accessions, identified a major QTL on chromosome 12 harboring functional variation for smut resistance. This locus was rapidly incorporated into cross-continental breeding programs. Graph-selected smut resistant lines retained elite agronomic backgrounds while showing strong field resistance under severe disease pressure. Within four years, this framework enabled the discovery, validation, and deployment of genetic resistance and the creation of adapted, resistant cultivars ready to protect growers. Our results highlight how targeted pangenomic approaches, coupled with coordinated international breeding efforts, can deliver rapid breeding solutions to emerging global crop diseases.

Variability in Expression of Resistance to Leaf Spot

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‘TifCB-7’ was released because of its resistance to late leaf spot. The resistance is due to introgressions from *Arachis cardenasii*. TifCB-7 exhibited excellent resistance to leaf spot in several tests over several years in Tift County Georgia. However, it did not exhibit resistance to leaf spot when tested in South Carolina in 2023 and 2024. The objective of the present study was to evaluate TifCB-7 and other lines which have different sources of genetic resistance to leaf spot in several locations throughout the Southeast peanut production area. Eleven lines with resistance to leaf spot, along with three susceptible checks were evaluated in trials in Georgia, South Carolina, Florida and Mississippi. No fungicides were used for leaf spot control, and leaf spot severity was rated late in the season. Some lines varied in their expression of resistance based on location. Other lines were identified that had more consistent expression of resistance over locations. Implications on breeding for leaf spot resistance will be discussed.

Peanut Advisor: A Support Tool for Peanut Production

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Peanut decision tools can help growers make informed decisions that are fundamental to increasing yield and profits. Over the years, researchers have developed models to predict harvest timing, irrigation recommendations, and disease risk. Nevertheless, some of these models are not readily available for end users or are dispersed across many hosting platforms. Therefore, there was a need to create a common platform where all these models are easily available to end users. Peanut Advisor utilizes temperature, rainfall, and irrigation to calculate adjusted growing degree days, soil water balance, and a new aflatoxin risk assessment. It also triggers alerts, so users can act based on the models' calculations and recommendations. This tool is designed to facilitate rapid visualization and interpretation of model outputs through intuitive graphs and summaries. Peanut Advisor aims to be a one-stop access to these models for end users. Lastly, it aims to reduce the gap between research models and practical field applications by providing a portable and user-friendly tool for growers, consultants, and extension agents across the Southeast US. This tool is in beta testing, and we aim to release it in 2027.

Improving the Checkbook Method of Irrigation Scheduling Via Utilization of the Smart Irrigation CropFit App (SICropFit) in Peanut

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Multiple options are available to monitor irrigation scheduling for peanuts and other crops. Levels of irrigation scheduling range from visual stress, checkbook method, computer models/apps, and soil moisture sensors. Visible stress is not effective. The checkbook method logs data daily in a spreadsheet to track rainfall and irrigation following the crop water use curve based on historical evapotranspiration. Recording multiple fields is difficult and time consuming. The checkbook method tends to overwater as referenced in multiple trials. The next level and science based is the Smart Irrigation CropFit (SI CropFit), a smartphone-based irrigation scheduling platform for peanut and other crops. SI CropFit automates recordkeeping, tracks and records rain and/or irrigation events, incorporates soil data, estimates daily evapotranspiration, and sends irrigation notifications. It is similar to the checkbook method with less effort and more accuracy. The app is free to download and utilize. Rainfall will need to be recorded either manually (free) or automatically (minimal cost). The last level, soil moisture sensors are an accurate way to know exactly what your soil moisture level is in the specific location of the sensor. Drawbacks include cost, subscriptions, and installation. SI CropFit is a viable alternative to irrigation scheduling. Based on evaluations conducted at Auburn, Mississippi State, University of Florida, University of Georgia, and the National Peanut Research Lab, scheduling irrigation with SI CropFit results in water savings of up to 40% and yield increases of up to 15% when compared to the traditional University of Georgia (UGA) Extension Checkbook method.

Results from Grower Meeting Surveys in the Virginia-Carolina Region for the 2025 and 2026 Cropping Cycles

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A survey of practices associated with planting dates, insect damage, tillage systems, fungicide programs, and use of the leaf spot and Sclerotinia blight advisories was conducted for the 2024 and 2025 cropping cycles in North Carolina (105 respondents during both years representing 30 to 31% of acreage), Virginia (14 respondents in 2024 and 30 respondents in 2025 representing 10% to 25% of acreage, respectively), and South Carolina (5 to 14 respondents representing less than 5% of acreage). In these respective states, 21%, 60%, and 100% (2024) and 14%, 66%, and 73% (2025) of growers planted in a reduced or minimum tillage system. Planting dates varied from early April through June. In North Carolina, 2%, 21%, 79%, 24%, and 4% (2024) and 2%, 29%, 64%, 37%, and 8% (2025) of growers planted peanuts in April 1-15, April 16-31, May 1-15, May 16-31, and June 1 or later, respectively. In Virginia, 21% of growers reported planting at least some peanuts in late April with the balance planted in early and late May (2024). In 2025, 90% of growers in this state planted in early May with 13% and 20% planted in late April and late May, respectively. In South Carolina, growers reported that all peanuts were planted in early May (2024) with 14%, 86%, and 21% planted in late April, early May, and late-May, respectively (2025). Burrower bug was not listed as an issue in Virginia or South Carolina in 2024. In North Carolina, this insect affected 2% and 5% of growers responding to survey questions in the 2024 and 2025 cropping cycles, respectively. This was significant decrease from reports in 2022 (9%) and 2023 (19%) cropping cycles in North Carolina. While burrower bug did not affect growers completing the survey in South Carolina in 2025, 4% of growers surveyed were affected in Virginia in 2025. Southern corn rootworm damage was not observed in South Carolina (only five farmers reported) in 2024 with 7% affected in 2025. In 2024, 19% and 21% of growers reported at least some damage from this insect in North Carolina and Virginia, respectively. In 2025, 21% and 37% of growers were affected by this insect in these respective states. Although not asked on surveys, many of the growers made a note indicated that damage was either minor or not yield limiting for southern corn rootworm. Leaf spot and Sclerotinia blight advisories are used in North Carolina and Virginia. In North Carolina, 49% of growers and 42% of growers in Virginia used the leaf spot advisory in 2024. In 2025, 34% and 63% of growers used the leaf spot advisory in these respective states. The Sclerotinia blight advisory was used in 2024 by 39% and 33% of growers in North Carolina and Virginia, respectively. In these respective states in 2025, 52% and 30% of growers used the Sclerotinia blight advisory.

Peanut Yield, Market Grade Characteristics, Financial Return, and Leaf Spot Reaction in Large-Plot Variety Trials in North Carolina in the 2025 Growing Season

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Thirteen large-plot trials were conducted in North Carolina in 2025 to compare disease reaction, pod yield, market grade characteristics, and economic value of the Virginia market type varieties Bailey II, Emery, NC 20, and NC 21. Leaf spot incidence was similar for Emery and NC 21 and greater than incidence for Bailey II and NC 20. NC 20 often expressed lower incidence than Bailey II. When pooled over trials, pod yield was similar for all four varieties. However, financial return at the loan rate was lower for NC 20 than Bailey II when pooled over 13 trials; financial return of Emery and NC 21 was intermediate between Bailey II and NC 20. Seed quality from 2024 production was lower for NC 20 than other varieties, and this may explain in part the lower financial value for this variety associated primarily with lower sound mature kernels, lower extra large kernels, and higher sound splits. Additional research will be conducted in 2026 to compare these varieties at multiple locations across North Carolina.

Optimal Timing and Applicate Rates of Plant Growth Regulator Kudos

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A research study evaluated multiple application timings and rates of prohexadione calcium (Kudos OD) on Georgia-12Y. This study evaluated three application treatments: An early treatment of 5.4 oz/A applied 45 Days After Planting (DAP), a lower rate beginning earlier of 2 oz/A applied 45 DAP fb 4 oz/A at 65 and 80 DAP, and the standard extension recommendation of 5.4 oz/A applied at 65 and 80 DAP. Results indicated that while PGR applications helped manage vegetative growth and improved harvest efficiency, altering rates or applying earlier did not improve yield beyond the standard extension recommendation. These findings confirm that the standard two-application program remains an effective and practical strategy for managing excessive vine growth in newer peanut varieties grown in southeastern Georgia.

Evaluation of High-yielding Runner-type Peanut Varieties and the Effects of a Plant Growth Regulator (PGR) on a New Peanut Variety in Southwest Georgia

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With Georgia quickly approaching 1,000,000 planted acres of peanuts annually, growers often inquire about varietal performance of runner-type peanuts. With so many high-yielding varieties on the market, the appropriate selection of peanut varieties can be the difference between a grower breaking even, losing money, or amassing a profit in the realm of peanut production. Local data regarding varietal performance is of paramount importance to growers, so they can make informed decisions on which varieties to plant on their own farms. In this experiment, 6-row plots of 10 high-yielding runner-type varieties (Georgia 24NHO, Georgia 22-MPR, TifNV-HG, Georgia 06-G, Georgia 21-GR, Georgia 23-RKN, FloRun 52N, Arnie, IPG-913, and Georgia 14N) were planted in a single row pattern into 3 replicates with an area of approximately 1 acre each on May 15th, 2025. In terms of yield, TifNV-HG yielded the highest at 5351 lbs/acre, although it was not statistically greater than the yields of 5 other varieties (21-GR, 22-MPR, 23-RKN, FloRun 52N, and 14N). Measurements on TSWV, white mold, grade, and leaf spot were recorded. This data provides growers with local yield data that enables them to make informed future planting decisions. Out of 10 high-yielding varieties, 5 of them were statistically no different from each other in terms of yield. Additionally, the data also suggests that applications of the PGR product Kudos® is not necessary on the 24NHO variety as a yield loss was recorded. This information will be helpful for growers as we gain more experience with this new variety.

Valuation of RTK-GNSS Outage Nowcasts: Assessing Peanut (*Arachis hypogaea*) Production Vulnerability From Threats to the A-B Line

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Recent global navigation satellite system (GNSS) signal degradation events—stemming from both natural phenomena, such as space weather and solar cycles, and artificial sources, including jamming and spoofing—have exposed critical vulnerabilities in food and fiber production. To evaluate the utility of GNSS outage duration nowcasts, this study utilized linear programming to assess the value of these forecasts for peanut (*Arachis hypogaea*) production in the southeastern United States. Peanut growers reliant on real-time kinematic (RTK) automated guidance face a difficult operational trade-off: continue field operations and risk an 11% yield penalty, or postpone planting and incur potentially greater delay penalties from suboptimal timing. While a season-long outage across the U.S. puts over \$100 million of peanut production at risk, shorter-duration outages also drive substantial economic losses. We estimate the value of a reliable nowcast at \$20 million for Georgia peanut production and \$33 million for the Southeast, representing 5% of total regional farm-gate value, more than twice the proportion attributed to standard terrestrial weather forecasts. Expected values vary by week of year with outage and default response: weeks 18–22 benefit most when "continuing" is the default strategy, whereas weeks 20–26 benefit when "waiting" is the default. These findings have significant implications for agricultural researchers, crop consultants, producers, and the GNSS industry. Policymakers supporting the development of regional GNSS outage nowcasts as a public good may strengthen agricultural resilience and protect supply chains critical to food security, with disruptions currently putting at risk nearly 262 kilotons of peanuts for human consumption.

PeanutLink: A Mobile Reporting Platform Connecting Extension, Research, and Technology to Strengthen Peanut IPM in the Southeast

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Peanut production in the Southeastern U.S. is threatened by a variety of pests and diseases. Informed management strategies are essential to protect yields and profits but depend on knowledge of current and historical pest and disease issues and communication of these observations among Extension personnel and researchers. Currently, no standardized regional system exists for documenting, tracking, and sharing this data, leaving valuable observations isolated and limiting the efficiency of peanut research and Extension efforts. To address this, the University of Florida, with support from the Southern IPM Center, has established a multi-state working group of peanut Extension specialists and researchers from Florida, Virginia, North Carolina, South Carolina, Georgia, and Alabama. This group is developing a mobile reporting platform using the EDDMapS Pro framework, enabling Extension agents and researchers to document field production issues in real time within a shared regional database. Interactive maps and charts generated from reported data will allow users to track pests and diseases across time and space, detect patterns in their incidence, and identify potentially emerging issues. Extension agents are the primary target users and will benefit directly from simplified field data recording, reduced reporting burden, and real-time regional pest and disease information to support evidence-based management recommendations. A dedicated Extension Agent Advisory Panel will guide app development and training throughout the project. When finished, the reporting framework can serve as a scalable model for technology-enabled data collection expandable to other crops and regions.

25 Years Large-Plot of On-Farm Fungicide Trials for UGA Extension

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Peanut (*Arachis hypogaea*) growers in Georgia receive research-based disease management information through the University of Georgia Extension specialists and county agents. To provide updated and essential management recommendations and promote professional development for county agents, ongoing field research trials are being conducted in collaboration with industry. A program to coordinate large-plot, on-farm fungicide studies among county agents in Georgia was initiated in 2001. This initiative evaluates full-season fungicide programs across the peanut production regions in the state. These regions may vary in diseases, weather, and soil types affecting the performance of fungicides. For 25 years, industry partners such as Syngenta, BASF, Bayer CropScience, FMC, VALENT, CORTEVA, ADAMA, and NICHINO America have participated. Prescribed programs and fungicides supplied by industry representatives are distributed to county agents for comparison against a traditional program of chlorothalonil and tebuconazole. There are typically 8-12 treatments in a study with plot size ranging from 6-18 rows across the length of the field. Each plot is rated for early and late leaf spots (*Passalora arachidicola* and *Nothopassalora personata*) using the Florida 1-10 scale and Southern blight (*Agroathelia rolfsii*) based on “hits”. Results from these studies consistently demonstrated the benefits of newer fungicide programs both in terms of leaf spot control, southern blight control, and yield. Results are presented at grower meetings and used by county agents at professional meetings on the regional, state, and national levels for professional development. This information is used to develop research-based, non-biased management recommendations.

Evaluating Peanut Fungicide Programs in Berrien County, Georgia: A 2-Year Summary

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Disease management is critical in Georgia peanut production. There are several yield limiting diseases that affect grower decisions regarding crop rotation, tillage, and fungicides. The three most common are leaf spots, *Nothopassalora personata* and *Passalora arachidicola*, and white mold, *Sclerotium rolfsii*. Managing these diseases is done preventatively by applying bi-weekly fungicides throughout the growing season. The necessity of these fungicides has resulted in the development of several quality peanut fungicides in recent years. However, growers are often unsure which ones are best for their farm. Berrien County Extension evaluated 12 fungicide programs between 2024 and 2025. White mold incidence, leaf spot severity, and yield were evaluated each year. These programs were compared to an older, traditional program using only tebuconazole and chlorothalonil. In 2024, no statistical differences were found in yield or white mold incidence. Regarding leaf spot, the Syngenta program was statistically higher than all other programs. In 2025, the tebuconazole and chlorothalonil program yielded the lowest and was statistically similar to the Corteva, FMC, Nichino, and Valent programs. Additionally, the tebuconazole and chlorothalonil program had statistically higher white mold incidence than all other programs. Lastly, leaf spot in 2025 was low overall, but the Bayer program had statistically higher incidence than all other programs. These results indicate that leaf spot incidence was not high enough to affect yield in either year. Additionally, white mold pressure was low in 2024. However, in 2025 the pressure was higher and proved beneficial to invest in a more robust fungicide program.

Evaluating White-Tailed Deer Injury in Florida Peanut

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Whitetail deer herbivory in crops has been a growing concern among producers in Florida. There have been no formal studies quantifying the impact of deer in peanut. This dearth of information has caused problems obtaining funding for research related to deterrents and other management strategies. It also makes it difficult to communicate the severity of this issue to lawmakers. The primary objective was to quantify the impact of herbivory on peanut yield. Data relating to plant height and stem count were also collected. At planting, two specially designed exclusion cages (30' x 7.5' and 3' tall) were constructed in each peanut field. Year one had six field sites and year two eight. Cages were constructed of t-posts and wire panels with a wire top. They excluded deer but allowed for the effective application of crop protection products. Season long, caged areas were managed like the rest of the field. Cages were removed immediately prior to harvest. Yield was measured in caged and immediately adjacent uncaged areas of the same size. High yield variability was found across fields, but overall, yield was lower when plants were exposed to deer herbivory. Yield loss ranged 0 to 87% in 2024, the 2025 data is being processed but will be available by time of conference. Plant height and stem count were also lower outside the cages. These findings confirm that deer herbivory can result in appreciable yield loss in peanut. Further research is underway to further validate these findings and test chemical deterrent efficacy.

Multi-Location/Year Evaluation of Fungicide Program Performance in Florida Peanut Production Systems

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From 2022-2025, a multi-year, multi-location (PSREU-Citra, NFREC-Suwannee Valley, NFREC-Marianna) small-plot peanut fungicide trial evaluated program performance and disease metrics. Across nine site-years, 9–12 fungicide regimens were tested per trial, yielding 4,936 observations by Extension agents, students, and researchers. Final foliar disease was scored on the Florida 1–10 scale (FL10), percent severity and defoliation by multiple raters. NFREC-Suwannee Valley had the highest final disease (FL10 5.16, severity 35.1 %, defoliation 41.7 %); PSREU (4.50, 25.4 %, 37.6 %) and NFREC-Marianna (3.89, 20.0 %, 26.7 %) followed. Severity and defoliation correlated strongly with FL10 ($r = 0.967$ and 0.939), validating FL10 as a rapid field metric and enabling conversion among data types. ANOVA detected FL10 treatment effects in four of six analyzable non-PSREU years, while PSREU severity and defoliation responded significantly every year; yield effects appeared in five of nine site-years. Meta-analysis grouped by product/company revealed consistent yield gains (~500–2,000 lb/acre) and FL10 reductions (1–2 points) versus untreated, with Provysol, Provost, Elatus, Lucento, and Chloro among the top performers. Disease environment markedly influenced treatment separation. All fungicide programs produced yield benefits over untreated controls. The lack of detectable impact from southern stem rot and rust suggests further study of their timing, spatial distribution, and interaction with foliar disease is needed.

A Flexible Framework for Figuring Fungicide Field Efficacy Against Late Leaf Spot in Peanut

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Advanced infections due to late leaf spot as incited by *Nothopassalora personata* are capable of causing defoliation and economic pod loss that can exceed 50% when insufficiently managed. Targeted use of preventative fungicide protection during the growing season is an important component of effective commercial management of late leaf spot on peanut. Comparisons of fungicide efficacy have traditionally balanced treatment schedule uniformity, trial size, and treatment placement to improve effect isolation and determination. Within the context of a multi-treatment environment, these effects can be further confounded by a combination of the magnitude and duration of individual treatment contributions. Model specification presents an avenue of assessing treatment effects under increased flexibility of application timings and combinations. Results will be presented from experiments conducted in South Carolina where varying treatment schedules were employed.

Correlating Fungicide Sensitivity Assays to Field Performance for the Early and Late Leaf Spot Pathogens of Peanut

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For some new chemistries, reduced fungicidal efficacies within 10 years of product release have occurred. While genetic resistance is suspected, little confirmation exists because reliable *in vitro* methods for these fungi are still in development. Last year we reported that fungicide tolerances were greater for *in vitro* measures of mycelial growth and conidial metabolism than germination and conidial growth. In this study, the capabilities of different assays to detect reduced field performance are compared. Two fungicides, one effective and one ineffective, from FRAC groups 3, 7, and 11 were evaluated using technical grade active ingredients. The assays measured germination, metabolism, or growth, with the latter being tested separately on solid and liquid medium with conidial or mycelial inoculum. For FRAC group 3, only two assays, metabolism and mycelial growth in liquid media, detected significantly lower IC50s for prothiconazole (effective) than tebuconazole (ineffective) ($P < 0.001$). For FRAC group 7, the metabolism assay and both mycelial growth assays detected significantly lower IC50s for pydifumetofen (effective) than penthiopyrad (ineffective) ($P < 0.001$). The germination and the conidial growth were either less significantly different ($P < 0.05$) or not different ($P > 0.05$) for one or the other pathogen. For FRAC group 11, all assays detected lower IC50s for pyraclostrobin (effective) than azoxystrobin (ineffective) ($p < 0.001$). These results show that assay selection can affect fungicide sensitivity conclusions, and that the conidial metabolism and mycelial growth in liquid medium were best at detecting subtle phenotypic shifts in tolerance across the FRAC groups for these populations. Assay limitations will be discussed.

Comparison of Phosphonate Products for Leaf Spot Control in Peanut

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Field experiments were conducted in Tifton, GA in 2024-2025 to compare the efficacy of three phosphonate fungicides (FRAC Group P 07) on early leaf spot (*Passalora arachidicola*) and late leaf spot (*Nothopassalora personata*) of peanut (*Arachis hypogaea*). In both years treatments consisted of K-PHITE (Plant Food Systems), ProPhyt (Luxembourg-Pamol Inc.) and Phiticide (Drexel Chemical Company) each applied at (2 kg a.i./ha alone and in tank-mix combinations with micronized elemental sulfur (Suffa 6F, Drexel Chemical Company) (2.7 kg a.i. ha), compared to the protectant fungicide chlorothalonil (Bravo WeatherStik, ADAMA) (1.26 kg a.i./ha) and a non-treated control. All treatments were applied full-season at approximately 14-day intervals resulting in seven total applications per season. Across both years, final leaf spot severity and standardized area under the disease progress curve (sAUDPC) were lower for all phosphonate products alone and sulfur alone treatments than for the nontreated control but were higher than for the chlorothalonil standard. There were no differences among the phosphonate products applied alone. Final leaf spot severity ratings and sAUDPC were lower for all three phosphonate + sulfur mixtures treatments than for the chlorothalonil standard. There were no differences among the three phosphonate treatments. These results indicate that none of the phosphonate products evaluated were as effective as chlorothalonil standard when applied alone. However, the combination of any of these three phosphonate fungicides with micronized elemental sulfur can be an effective treatment for management of leaf spot and has potential as an alternative to chlorothalonil for leaf spot control.

Foliar Fungicide Trial Reveals Contrasting Leaf Spot and Southern Blight Pressure From Two Locations in Georgia

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Three prevalent diseases of peanut in Georgia include southern blight (*Agroathelium rolfisii*) and early and late leaf spot (*Passalora arachidicola* and *Nothopassalora personata*), which can reduce yield by up to 10%-25% and 70%, respectively. To evaluate fungicide efficacy primarily against foliar diseases, a trial planted to 'Georgia-06G' was conducted at two locations over two years and was arranged in a RCBD with four replications. Full-season fungicide treatment combinations of chlorothalonil, tebuconazole, cyproconazole, ben-zovindiflupyr, azoxystrobin, and prothioconazole were assessed. These programs were applied specifically for leaf spot management over extended intervals alongside two "cover sprays" of flutololanil to minimize incidence of southern blight. Leaf spot ratings were collected several times at each location, and southern blight was assessed immediately after peanuts were inverted. Leaf spot pressure was more severe in Attapulgus but was nearly absent in Midville. Conversely, there was significant incidence of southern blight at the Midville location. In Attapulgus, leaf spot severity ranged from 1.4-5.9 in 2024 and 2-4.6 in 2025 on the Florida 1-10 scale. At Midville, incidence of southern blight ranged between 10.6%-39% in 2024 and 6%-50.6% in 2025. No significant yield differences were observed in Attapulgus for 2024, but significant differences were observed in 2025 and both years in Midville. Crop rotation and environmental factors such as temperature, humidity, and rainfall have been shown to affect disease pressure, which impacts yields and profits for growers.

Translating the Florida 1 to 10 Scale Into Severity and Defoliation Ratings Improves Biological Interpretation of Disease Data

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The Florida 1–10 scale (FL10) is widely used in peanut disease trials because it provides a rapid, practical assessment of disease impact under field conditions. Unlike severity or defoliation ratings, FL10 integrates multiple disease symptoms into a single score, making it useful for comparing treatments but potentially limiting biological interpretation. We evaluated whether translating FL10 into severity and defoliation ratings could improve disease-response analyses while preserving biological conclusions. Using 4,936 plot-level observations collected from peanut fungicide and variety trials conducted from 2022–2025 at three Florida locations, we developed empirical relationships between FL10, severity, and defoliation from observed datasets and used these relationships to estimate missing values where only FL10 ratings were available. The empirical model was compared with a published conversion equation and evaluated across varieties, fungicides, environments, and disease progress over time. The Florida-derived model reduced defoliation prediction error and more accurately reflected observed canopy decline. Across all analyses, FL10, severity, and defoliation generally preserved the same treatment and variety rankings. However, translated severity and defoliation expanded the disease-response signal, improving interpretation of lesion development, canopy loss, temporal disease progression, and treatment responses across environments. These results suggest that FL10 is a robust, biologically integrated disease rating that effectively summarizes disease impact in the field, and that translation to severity and defoliation can enhance interpretation of disease processes without altering the underlying biological or management conclusions when direct measurements are unavailable.

Leveraging UAV-Based Imagery and Machine Learning for Precision Prediction of Sclerotinia Blight in Peanut

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Sclerotinia blight, caused by the soilborne fungus *Sclerotinia minor* (Jagger), is a destructive mid- to late-season disease that can have a severe economic impact on peanut (*Arachis hypogaea* L.) production and pod quality. Traditional field scouting is labor-intensive and frequently fails to capture the spatial heterogeneity of the disease outbreaks. This study used Unmanned Aerial Vehicle (UAV)-based imagery, coupled with Machine Learning (ML) algorithms, to evaluate their efficiency in automating and improving the accuracy of disease incidence (DI) estimation. Field trials were conducted to collect ground-truth DI data alongside high-resolution UAV imagery. Preliminary analysis revealed a consistent negative correlation between DI and Vegetative Indices (VIs), indicating fungal colonization disrupts the canopy architecture and chlorophyll content. Using the peanut canopy's reflectance signatures as input features, supervised machine learning algorithms transform descriptive spectral correlations into predictive models that quantify disease intensity across the landscape. This research provides a framework for integrating remote sensing into integrated pest management (IPM) strategies, potentially reducing chemical inputs while maximizing peanut yield stability.

The 1,000 *A. flavus* Genomes Initiative: From Genomic Diversity to Phenotypic Characterization

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Aspergillus flavus continues to be a costly challenge in Southeast peanut production, even with current management practices. In response, our group established the 1,000 *A. flavus* Genomes Initiative to examine patterns of genetic diversity in *A. flavus* populations from Georgia peanut-production systems, identify genes associated with traits of interest (e.g., aflatoxin regulation, morphological development, fungicide resistance), and how these genetic factors translate to phenotypic variation. Since initiating in 2023, the collection currently totals to 1,051 isolates: 795 from buying points (643 from Georgia and 152 from Alabama, Florida, and South Carolina), 41 from peanut field soils, 78 from peanut seed lots, and 139 from corn. Additional corn isolates are being collected from counties overlapping with peanut production to investigate population structure with respect to host specificity. To date, all isolates have been sent for whole-genome sequencing. Preliminary bioinformatic analyses including variant calling against the *A. flavus* AF13 reference (GCA_014117485) and population analyses have revealed two distinct populations in the Southeastern US. Markers for QoI fungicide resistance were found to be associated with population structure with cytochrome B mutations limited to one population corresponding to historically high peanut and corn production regions of Georgia, Florida, and Alabama. The prevalence of resistance markers and sensitivities to other fungicides are also being examined along with variation in mating type and aflatoxin production. Current phenotyping efforts include aflatoxin quantification using HPLC to further link genomic variation and functional traits.

Development of Aflatoxin Risk Maps to Support Precision Management in Peanut

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Aflatoxin contamination in peanut (*Arachis hypogaea* L.) poses significant challenges to producer profitability, crop quality, and public health. Environmental stressors such as high soil temperatures and low soil moisture are known to increase the risk of aflatoxin contamination. Therefore, understanding the relationship between these stress-inducing factors and aflatoxin occurrence is essential for developing effective management strategies. This study uses the DSSAT CSM-CROPGRO-Peanut-Aflatoxin model to identify plant and soil stress factors associated with aflatoxin contamination in peanut fields. Accurate calibration of soil-related model parameters is critical for reliable simulation outputs, highlighting the importance of high-quality field data. The overall objective of this project is to use the model to identify within-field areas that are more likely to become aflatoxin hotspots. Such information could support differential harvesting to reduce cross-contamination and enable shellers to segregate peanuts from high-risk zones for additional testing prior to storage. During three years of the project, field data were collected annually from three rainfed producer fields and one research field in southern Georgia, USA. These data were used to calibrate the CSM-CROPGRO-Peanut model. Following calibration, plant stress factors were quantified and evaluated in relation to measured aflatoxin contamination levels. The calibrated model was then used to simulate the spatial distribution of aflatoxin risk across management zones within fields. The resulting aflatoxin risk maps provide a framework for site-specific management practices that may improve food safety, reduce economic losses, and support more precise peanut production systems.

The Genetic Structure of the Causal Agent of Peanut Smut, *Thecaphora Frezzii*, and Potential Impacts on the Durability of Host Resistance

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Peanut smut, caused by the fungal pathogen *Thecaphora frezzii*, poses a global threat to peanut production. While the pathogen is only known from Argentina, peanut growers and industry stakeholders are concerned about an incursion into the United States. To help manage the disease, highly resistant peanut genotypes have been identified and deployed throughout Argentina. However, the durability of this sole source of resistance remains unknown, due in large part to unknowns about the biology and genetic structure of *T. frezzii*. Herein, we re-sequenced the genomes of over 120 *T. frezzii* isolates collected from peanut-growing regions in Argentina by scientists at the Foundation for the Study of Invasive Species and Maniagro. By employing a population genomics approach, we identified 34,000 single nucleotide polymorphisms in this collection of isolates relative to the recently completed reference genome. Herein, we will discuss the results of genetic diversity, population structure, index of association and linkage disequilibrium analyses and consider what we can infer about the biology and life cycle of *T. frezzii*, as well as the durability of host resistance, based on these.

How Robert K. Merton Captured the Dysfunction of the Convention on Biological Diversity in a Nutshell

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The Convention on Biological Diversity has three objectives: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits from the utilization of genetic resources. After thirty years, none has been adequately achieved. This presentation examines the Convention through the work of the foundational sociologist of science Robert K. Merton. When applied to the Convention, Merton's framework provides a precise diagnosis of its dysfunction.

Merton identified an institutional pathology he called 'goal displacement' — the process by which the original objectives of an institution are forgotten, and the bureaucratic provisions originally designed to achieve them become ends in themselves. The institutional actor who perfects this displacement Merton called the 'Ritualist': someone who follows procedure with scrupulous exactness while completely losing sight of their original purpose. The most powerful Legal Provisions — sovereign control, prior informed consent, and bilateral benefit-sharing — became, in Merton's terminology, 'sanctified'. They acquired such moral and political resonance that questioning their effectiveness became socially costly, regardless of outcomes. As a result, these provisions were insulated from empirical evaluation, even though their restrictive nature almost extinguished the benefits that were supposed to be equitably shared.

The result is a governance system that has succeeded perfectly in its sanctified provisions. Sovereignty over genetic resources is perfectly respected when germplasm stops moving. Consent is perfectly preserved when so many parties have power of veto that nothing happens. Equity is perfectly realized when all have an equal share of nothing. When judged only on these provisions, the Convention has succeeded to a remarkable degree, but in doing so, it has failed its Objectives almost completely.

Updating the Wild Allotetraploid Portfolio: From Genetic Diversity to Breeding Deployment in Peanut

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The narrow genetic base of cultivated peanut continues to constrain progress in disease resistance and yield stability. To address this limitation, we are developing and deploying a structured portfolio of wild-derived allotetraploids to enable efficient introgression of novel alleles into breeding programs. We have expanded this portfolio through new interspecific crosses and the creation of additional allotetraploids, further increasing coverage of genetic diversity within section *Arachis*. Extensive efforts in chromosome doubling and seed multiplication have strengthened the pipeline and increased the availability of breeding-ready materials. These allotetraploids were evaluated for resistance to key foliar and soil-borne diseases, confirming their value as sources of multiple disease resistances. To ensure deployment, crosses between allotetraploids and cultivated peanut were continued and expanded. In parallel, germplasm dissemination progressed substantially: wild-derived materials were shared with breeding programs in five African countries, supporting global peanut improvement efforts, and 37 new wild-derived lines are currently being prepared for deposition in the USDA National Plant Germplasm System. Together, these advances move the effort from germplasm development toward active utilization, providing breeders with diverse, characterized, and accessible materials. This growing allotetraploid portfolio represents a strategic resource to broaden the genetic base of peanut, accelerate breeding gains, and ultimately contribute to more resilient and cost-effective production systems.

Wild *Arachis* Species Genome Assemblies to Improve our Understanding of Genomic Diversity Outside of *Arachis hypogaea*

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The severe genetic bottleneck caused by the speciation event of *Arachis hypogaea* limits the current genetic resources for long term sustainability of this row crop species. Efforts have been made to evaluate the relationship between other *Arachis* species using karyotyping and marker based analysis. With the advancements made in genome sequencing and comparative genomics, synthesizing genome assemblies and analysis of wild *Arachis* species are obtainable. Here we present genome assemblies for *A. benthamii*, *A. dardani*, *A. glabrata*, *A. prostrata*, *A. repens*, *A. rigonii*, and *A. triseminata*. These accessions represent nearly all sections of the *Arachis* genus including the *Erectoides*, *Heteranthae*, *Rhizomatosae*, *Extranervosae*, *Caulorrhizae*, *Procumbentes*, and *Triseminatae* sections, respectively. These genomic resources will improve our understanding of the genetic diversity within the *Arachis* species and their relatedness to cultivated peanut.

Genome Annotation of *Arachis cardenasii* at PeanutBase

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Arachis cardenasii, a wild peanut relative from Bolivia, has played a major role in diversifying the cultivated peanut's genetic base. By utilizing both hexaploid and tetraploid hybridization strategies, breeders have successfully introgressed resistance to late leaf spot, rust, and root-knot nematodes from *A. cardenasii* into cultivated peanut. Key resistance loci are located on chromosomes A02 and A03, housing numerous NB-LRR genes. These introgressions, found in cultivars like 'Bailey' and 'GPBD-4', significantly reduce pesticide dependency while increasing yields. Consequently, *A. cardenasii* serves as a vital genetic resource for sustainable peanut breeding and global food security. The genome sequence of *A. cardenasii* is available at PeanutBase and is increasingly being used in peanut breeding projects. However, the genome has remained unannotated until now. We report here an annotation of the *A. cardenasii* genome. We have used the BRAKER pipeline with full-length cDNA sequencing (Iso-Seq), together with homology to a large collection of *Arachis* and other legume protein sequences, as well as ab initio annotations from Helixer. The final result has yielded over 40k gene models with approximately 98% BUSCO completeness. The genome annotation work will help to identify key trait-linked genes, accelerating precision breeding, MAS, genome editing, and the discovery of superior variants.

Advancement, Characterization, and Utilization of Wild-Species Introgression Lines for Resistance to Multiple Pathogens

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Peanut wild species are a reservoir of relatively-untapped genetic variation, and additional effort is needed to transfer useful alleles to the cultivated species to develop improved cultivars. We are using marker-assisted backcrossing to develop near-isogenic introgression lines, using the synthetic amphidiploid TxAG-6 as donor parent and a Florunner component line as recurrent parent. The BC₃-derived population has been phenotyped for resistance to root-knot nematodes, early and late leaf spots, and resistance to *A. flavus* colonization, resistance to all four pathogens discovered and QTLs for resistance identified. Introgression lines with different mechanisms of resistance to root-knot nematode have been identified, and differences found in transcriptomic responses. Linkage maps of the BC₁ population and BC₃F₈ generation have been made using KASP markers and SNPs from the Affymetrix Arachis_array2 SNP chip for introgression analyses and QTL analysis. We have made crosses to develop BC₄ lines. Progeny have been genotyped by low-density resequencing, and selections are being increased to release as a chromosome substitution line population. Crosses by selected BC₃-derived lines to runner and Spanish cultivars have developed populations for selection of resistance to leaf spots in desirable genetic runner and Spanish backgrounds. Phenotypic characterization has indicated that alleles from wild species for leaf spot resistance have been introduced and are being expressed in these populations, and markers for resistance in the BC₃F₈ population have been validated. Resistance to *A. flavus* colonization has also been transferred to Spanish backgrounds.

Early Leaf Spot Resistance in a Spanish-Type Groundnut Breeding Population: Field Evaluation and Marker Validation

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Early Leaf Spot (ELS), caused by *Passalora arachidicola*, is a major constraint to groundnut production, causing yield losses of up to 70% under favorable conditions. Developing ELS-resistant varieties remains the most effective and sustainable management strategy. This study evaluated a Spanish-type groundnut breeding population for ELS resistance and validated previously identified markers associated with resistance. A total of 81 genotypes derived from the cross BC₃-60-02-03-02 × Schubert were evaluated under field conditions in a Randomized Complete Block Design (RCBD) with three replications in 2021. Eleven genotypes were subsequently selected and evaluated in 2024 and 2025 using RCBD with four and three replications respectively. Disease severity was assessed using a modified Florida rating scale. Genomic DNA was extracted from 52 lines from the 2021 trial, and genotyping was performed using 17 SNP and 11 SSR markers. Analysis of variance was performed on the phenotypic data, and marker-trait associations were determined using single-marker and combined-marker analyses. Significant genotypic variation for ELS was observed in the 2021 and 2024 trials, with three lines (TxL190126-13-02, TxL190131-08-03, and TxL190128-06-02) outperforming the resistant check, Bailey II. A moderately positive correlation between 2024 and 2025 ratings indicated reasonable consistency in genotype performance across environments. Seven markers (PMc348, Ara_Ksp_IDT_093, C01_c6335, C08_c69989, B10_c76487, C06_c70190, and Ara_Ksp_IDT_085) were significantly associated with ELS resistance. Combined multi-locus marker analyses explained up to 26.59% of phenotypic variance, highlighting the potential of marker-assisted selection for improving ELS resistance in Spanish-type groundnut.

Molecular Characters of Peanut in Responding to Heat Stress at Reproductive Stage

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Although peanuts grow widely in semi-arid tropical regions, most cultivated varieties exhibit limited tolerance to temperatures above 33 °C, leading to significant productivity losses, specifically during the reproductive stage. Diploid wild relatives show enhanced thermotolerance, evolved under naturally stressful environments. To exploit the genetic potential of utilizing wild species for heat stress tolerance improvement, wild-derived synthetic allotetraploid lines were developed and their transcriptome profiles were assessed in comparison with cultivated varieties across three time points: before stress (BS), last day of stress (LDS), and recovery (Re). Gene (DEGs) and transcript (DETs) level differential expression analyses revealed that high temperature induces extensive isoform/transcript diversity, providing additional biological insights beyond gene level changes. According to the function of DEGs between LDS vs. BS in the significantly enriched pathways, the examined lines were classified as tolerant, moderately tolerant, and susceptible categories. Fifty candidate genes contributing to thermotolerance were identified, including 11 previously validated and 39 novel ones consistently upregulated only in tolerant genotypes. These findings expand understanding of peanut's transcriptomic changes under heat stress and provide key candidate genes and pathways for breeding thermotolerant peanut cultivars.

Wild-derived Structural-Variant Haplotypes Disrupting Auxin and Root-Development Genes Confer Resistance to Root-Knot Nematode in Peanut

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Root-knot nematode (RKN, *Meloidogyne arenaria*) remains a major limitation to peanut production worldwide. More than three decades ago, Dr. Charles Simpson introgressed RKN resistance from the wild *Arachis cardenasii* into cultivated peanut. This near-immunity resistance was used in all RKN-resistant commercial cultivars grown today. However, identifying the mechanisms underlying this resistance has been challenging due to suppressed recombination and structural complexity within the introgressed segment. Here, we dissect the genetic structural basis of RKN-resistance in the PeanutMAGIC population by integrating pangenome-based genome-wide association mapping, short-read haplotype analysis, long-read sequencing, and pangenome-graph visualization. We evaluated RKN resistance in 310 MAGIC Core lines and eight parents in two greenhouse assays and conducted whole genome sequencing for pangenome-based genotyping. Genome-wide association mapping identified a single resistance locus on chromosome A09. Short-read haplotype analysis identified an aligned 1.6-Mb locus showing limited recombination within the resistance-associated haplotype. Long-read fine mapping resolved this into discrete, parent-specific structural variants (SVs), identifying eight Tift-NV-specific regions (R1 to R8) and ten Tifrunner-specific regions (S1 to S10), defined by presence-absence variation. There are three gene families likely responsible for the durable RKN resistance, IAA-3-amino acid hydrolases located in R1 and S1, F-box/RNI-like superfamily proteins in R3, and protein Root Hair Defective 3 in S7. The resistant haplotype contains extensive SVs that disrupt many or all these genes, whereas susceptible lines maintain intact versions. These genes are related to giant cell formation, which are the specialized feeding sites of RKN. The disruption of these genes suggests that the resistance is based on loss of susceptibility, potentially through coordinated suppression of auxin signaling and root endomembrane remodeling required for giant cell formation, which warrants further investigation.

Optimizing Planting Date and Variety Selection for Insect Pest Management in Virginia Peanut

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Thrips and southern corn rootworm are major insect pests of peanut in Virginia. Increases in input costs and the development of insecticide resistance necessitate the development of alternative strategies to supplement chemical management. Both planting date and peanut variety have the potential to impact the population densities and injury potentials of major pests. In 2025 and 2026, small replicated experiments were conducted at the Tidewater AREC in Suffolk, VA to assess the effect of four planting dates (late-April, early-May, mid-May, and early-June) and three varieties (Bailey II, Emory, and NC-20) on thrips density, thrips injury, tomato spotted wilt virus incidence, and southern corn rootworm injury. Planting date had a significant impact on thrips density, injury, and the incidence of tomato spotted wilt virus, with the earliest planting date being the most susceptible. We also identified a significant negative relationship between stand and thrips density, indicating a strong early stand limits thrips injury potential. Planting date had no impact on southern corn rootworm injury, but there was a varietal difference, with NC-20 sustaining more injury than the other varieties tested. Peanut yield was the highest in the early-May plant date, which parallels differences in thrips injury and virus incidence between plant dates. The results of these studies will help develop integrated recommendations for growers that support strong early stand establishment and yield potential as well as minimize the potential risk for insect injury.

Tracking Tomato Spotted Wilt: A Six Year Survey of Disease Incidence in Georgia

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Tomato spotted wilt (TSW) disease can be a major limiting factor for peanut production in Georgia, but with no systematic, statewide assessment of incidence, the economic impact of the disease was difficult to quantify. A collaborative effort between the University of Georgia Peanut Team and county Extension agents led to the development of an annual field survey of spotted wilt disease incidence in commercial peanut in Georgia. Beginning in 2020, ten peanut fields were randomly surveyed in each participating county. Within a survey field, TSW disease incidence was quantified by visual assessment at three locations (50 row feet each) and reported as a percentage of symptomatic row feet. In addition to TSW incidence, row pattern was documented, and plant stand within each field was characterized as “skippy” or “uniform”. Additional data related to TSW risk including cultivar, plant date, and at-plant insecticide use were collected from individual growers. Data were combined, tabulated and summarized by year. 1851 fields were surveyed from 2020 to 2025, and the six-year average incidence of the disease was 9.04%. When compared individually, factors (e.g. plant date, cultivar, etc.) with higher Peanut Rx risk point values resulted in higher observed TSW incidence for all factors except row pattern. These data provide a valuable multi-year record of TSW incidence in Georgia peanut and further validate the Peanut Rx risk assessment tool.

Cover Crop Influence on Herbicide Interception in Peanut Systems: A Novel UPLC Approach

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Cover crops are used in peanut production for weed control; however, adoption remains limited. Cover crops suppress weeds and influence residual herbicides fates, but their interactions remain poorly understood in Georgia peanuts. Field trials at Midville and Tifton, Georgia, in 2023 and 2024, evaluated the fate of pre-emergence herbicides (flumioxazin @ 108 g ai ha⁻¹ + diclosulam @ 12 g ai ha⁻¹, fluridone @ 126 g ai ha⁻¹ + diclosulam, and a non-treated) affected by cover crop (cereal grain and bare soil) and planting arrangement (twin and single row). Cover crop samples were taken 1 h after herbicide application (0 DAA) and 1 DAA. Soil cores were collected at 0, 1, 3, 7, 14, 28, 56, 90, and 120 DAA between peanut rows. Microwave-assisted extraction and UPLC-MS were used to quantify ppb. Flumioxazin concentrations of 562 ppb were detected on cover crop residue 0 DAA, with 22% washing off 1 DAA. Soil concentrations at 0 and 1 DAA decreased in cover crop plots by 47 and 70%, respectively, compared to bare soil. Fluridone concentrations of 373 ppb at 0 DAA were detected on cover crop residue with ~53% washing off 1 DAA. Cover crops lowered fluridone concentrations in the soil by 55 to 74% from 0 to 7 DAA compared to bare soil. Overall, cereal grain cover crops influenced flumioxazin and fluridone subsequent movement into the soil immediately following application. Cover crops intercepted applied herbicides, reduce early soil exposure, and prolonging persistence, influencing herbicide fate outcomes and potential carryover risk.

Impacts of Winter Cover Crops on Soil Properties, Root Development, and Crop Performance in Peanut-Cotton Rotations

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Cover crops are increasingly recognized as a key management strategy to improve soil health and enhance sustainability in southeastern U.S. cropping systems. However, their effects on soil-plant interactions and subsequent crop performance remain variable and not fully understood. This study evaluated the impact of winter cover crops on soil physical properties, root development, plant physiological responses, and yield in peanut cotton rotation systems in Alabama.

A four-year field experiment was conducted using a randomized complete block design with four winter treatments (crimson clover, rye, forage radish, and fallow) under irrigated and rainfed conditions at one location in Alabama. Measurements included soil compaction, gravimetric soil moisture, root architectural traits, gas exchange parameters, and crop yield.

In cotton systems, cover crops influenced soil physical conditions, particularly soil strength, and affected root development. Rye frequently reduced soil compaction and promoted greater root growth under certain conditions, although yield responses were generally limited. In peanut, cover crops modified soil moisture dynamics and influenced root traits and physiological responses, including stomatal conductance. Overall, the results demonstrate that cover crop effects are crop-specific and depend on their influence on soil physical and hydrological processes. These findings highlight the importance of selecting cover crop species based on the functional traits that best align with the requirements of the subsequent cash crop and specific environment, contributing to improved soil management and resilience in southeastern cropping systems.

Associations of Seed Physical and Compositional Traits With Seedling Emergence and Vigor in Peanut

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Rapid and uniform stand establishment is critical for maximizing peanut yield, making seedling vigor a key trait for improvement. Studies on other crop species have documented that seed composition influences early seedling growth; however, the relationships between seed composition traits and early seedling vigor remain poorly defined for peanut. In this study, 10 peanut genotypes with differing vigor levels were evaluated to determine association of seed physical and compositional traits with seedling emergence and vigor. Before planting, seed physical traits including seed weight, length, and width and seed composition traits including moisture, oleic acid, protein, and oil concentrations were non-destructively analyzed using a QSorter system equipped with visible and near-infrared (VIS-NIR) imaging. Regarding physiological contributors to seedling vigor, time required to reach 90% of final cumulative seedling emergence (T90), canopy size at emergence, and canopy growth rate together accounted for 83% of the variation in seedling biomass. Among seed traits, weight, moisture content, and protein content were significantly associated with seedling vigor, explaining 64% of the variation in seedling biomass under greenhouse conditions and 71% of the variation in canopy cover under field conditions. However, these seed traits explained only 18–24% of the variation in T90. Overall, our findings indicate that seed weight, protein content, and moisture content are important seed traits associated with seedling vigor in peanut, while emergence timing and canopy development are key physiological drivers of seedling biomass accumulation. These findings provide insights for peanut breeding and seed management strategies aimed at improving early stand establishment.

A Quantitative Approach to Assessing Heat Stress Resilience in Peanut

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Peanut (*Arachis hypogaea* L.) is a globally important crop whose productivity is increasingly constrained by high temperature stress. This study integrated complementary photosynthetic thermotolerance techniques to evaluate heat resilience among 25 peanut genotypes, including 18 wild-derived lines and 7 cultivated varieties, and to identify key physiological traits underlying recovery. Plants were grown under controlled growth-chamber conditions and exposed to a 7-day heat episode (35/22 °C, day/night), followed by a recovery phase under optimal temperature. Gas-exchange and chlorophyll *a* fluorescence were measured before stress, at the end of stress, and after recovery to capture dynamic responses in photosynthetic efficiency, stomatal conductance (g_{sw}), and net assimilation (A_N). A Bayesian hierarchical model estimated the temperature causing a 15% decline (T_{15}) in photosynthetic traits and classified genotypic performance through an automated Peanut-ThermoTool ranking system. The analysis revealed substantial genotypic variation in thermotolerance. Genotypes, such as ValSten1 and IpaCor1, showed superior recovery of A_N and g_{sw} and achieved the highest biomass, whereas MagSten3 and GA-06G were more heat-sensitive and failed to recover photosystem II (PSII) efficiency (ϕ_{Po} , ϕ_{Eo}). Principal component analysis further identified chlorophyll fluorescence traits during stress and recovery, together with g_{sw} under heat, as the strongest predictors of overall thermotolerance. These findings highlight the physiological coordination between PSII stability, gas exchange and biomass performance to provide a robust framework for rapid phenotyping and selection of heat-resilient peanut germplasm under climate-change conditions.

Analysis of Polyphenol Content in Blanched and Redskin Roasted Peanuts

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The defense system of the human body benefits from consuming antioxidants contained in peanuts, but the impact of roasting with seed coats versus roasting blanched kernels is unclear. Previous studies demonstrated that seed kernels provide a significant portion of antioxidant capacity. In this study, the variable of roasting with and without the seed coat was investigated. Samples were dried at 80°C for 75 minutes and half were blanched. Triplicate samples from each subset, blanched vs. redskin, were roasted for different time points at 177°C, and seed kernels extracted with 80% ethanol in water. Extracts were analyzed and quantified by LCMS-MS using pure standards of specific antioxidant components. Results demonstrated that some antioxidant compounds were degraded during roasting while others increased as roasting time increased. Samples roasted with seed coats yielded increased quantities of ferulic and p-coumaric acids as compared to blanched kernels. Principal Component Analysis suggests shorter roasting times are correlated with higher quercetin and procyanidin levels, while longer roasting times may be correlated with p-coumaric and ferulic acids concentration. Despite changes in relative concentrations of specific antioxidants, total antioxidant capacity remained stable for the samples overall. Both blanched and redskin roasted samples are sources of these important nutritive compounds, but the physiological mechanisms by which antioxidants are stored and released during times of abiotic and biotic stress are ongoing questions to be answered.

Optimized Sample Shelling for Breeders

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In the research world, tens of thousands of peanut samples are shelled annually using small-scale shelling equipment. In the peanut breeding arena, samples may range in size from a few grams to several kilograms. One of the goals of shelling these samples is to preserve as much of the sample in the form of whole seed as possible. Many samples are too large to hand shell. Therefore, researchers use mechanical shellers. The correct size shelling grates must be selected to optimize throughput (kgh) and maximize whole kernel output. A procedure for determining the optimum sized shelling grates will be presented. This procedure may be used for sample or commercial shellers. The method for selecting openings in the first, second, and third stage shelling grates or screens are presented. As an example, in a study from 2016 – 2018 to evaluate agronomic practices on the shelling rate of peanuts, this procedure was used to size the shelling grates for all samples processed. A total of 382 samples were shelled, requiring approximately 3 minutes to shell each 1.5 – 2 kg sample. During shelling, 84% of the sample was shelled in the first stage, 12% in the second stage, and 4% in the third and final stage. Approximately 0.1% of the sample remained unshelled after three stages of shelling.

Peanut (*Arachis hypogaea* L.) Flavor Response to Drought Stress

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Drought during the growing season is a concern for peanut growers as lack of sufficient rainfall results in decreased yields and increased production costs when irrigation is necessary. The certainty of water available for irrigation can also be an issue. The suitability of certain peanut cultivars to produce acceptable yields in areas where water availability is uncertain was studied. The maintenance and acceptability of characteristic peanut flavors was evaluated. Thirteen peanut cultivars were planted in the 2023 and 2024 growing seasons. The varieties, Ga06G, Tifrunner, Line-8, AU18-35, AT3085RO, AU-NPL 17, AP-3, 587, PI502120, PI493329, AU 16-28, Ga Green, and C76-16 were evaluated with dryland (no irrigation) and full irrigation treatments with four replications. The peanuts were harvested 148 days after planting, cured, shelled and sized. Medium and jumbo seeds were dry roasted to produce pastes with Hunter L values of 50 and evaluated by a trained descriptive panel. The intensities of the characteristic peanut flavor notes were scored using the Spectrum® method. Roast peanutty attribute scores in the 2023 crop were not significantly different between the cultivars regardless of treatment with several exceptions. The 2024 crop showed more variation with higher values in the irrigated mediums and with the cultivars, PI502120 and AU-NPL 17 having higher scores for the dryland mediums. Other flavor attributes, sweet aromatics, dark roast flavor, sweet flavor and bitterness also showed more variation in the 2024 crop. Although yields are reduced, some degree of drought stress may prove advantageous in increasing certain flavor attributes.

Partial Replacement of Soybean Meal With High-Oleic Peanuts in the Diets of Domesticated Striped Bass (*Morone Saxatilis*) Enriches the Fillets with Linoleic Acid

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A fish feeding trial was conducted to examine the effects of varying levels of blanched high-oleic peanuts (HOPN) in the diets of striped bass. Nine hundred fingerlings were randomly assigned to 4 HOPN isocaloric, isonitrogenous treatments (0%, 5%, 10%, 15%), with 12 replicate tanks of 75 fish each. Fish were fed to satiation and reared in a recirculating aquaculture system. Body weights (BW) and body lengths (BL) were collected every 4 weeks, and feed intake (FI) was calculated weekly. At termination (16 week), fillets were collected and analyzed for proximate and fatty acid composition. All data were analyzed for variance at $P < 0.05$ level. There were no significant differences in the FI between the treatment groups with similar BW between all treatments at week 4, 9 and 16 ($P > 0.05$). Average BW and BL were similar to the control group ($P > 0.05$), with exception of BW in fish fed the 5% treatment at week 12 ($P \leq 0.01$) and BL of fish fed the 10% treatment at week 16 ($P \leq 0.01$). Saturated fatty acid levels were reduced in fillets with increasing levels of HOPN in the diet ($P < 0.0001$). Conversely, oleic, palmitoleic, and linolenic acid levels decreased in fillets with increasing levels of HOPN in the diet. However, linoleic acid levels increased in fillets from fish fed increasing levels of HOPN in the diet ($P < 0.0001$). This study demonstrated that HOPN may serve as suitable alternate ingredients in striped bass aquaculture.

Effect of Peanut Following Peanut After Completion of Various Cotton and Corn Rotations

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Peanut (*Arachis hypogaea* L.) thrives with longer rotations and crops that don't host pests that negatively impact yield. However, when cotton (*Gossypium hirsutum* L.) prices are suppressed and input costs for corn (*Zea mays* L.) are high, farmers may plant peanut in shorter rotations, sometimes growing subsequent peanut crops. Knowing the risks of increased pests and expected production reductions can help a farmer determine whether maintaining a rotation might offset the short-term benefit of capitalizing on a better commodity price. At the completion of a staggered-cycle peanut rotation experiment in Tifton, GA in 2018, peanut was planted for a second consecutive year in treatments that had completed their cycle in the preceding year. These subsequent plantings of peanut made it possible to compare peanut following peanut after completing 2-year and 4-year cotton and/or corn rotations to the same rotations concluding the full cycle the same year. Pooled over all rotation sequences, growing peanut after peanut reduced yield by almost 8% compared to peanut coming immediately out of the same rotations. In addition, there was 5% more root gall by the Peanut Root-Knot Nematode (PRKN) (*Meloidogyne arenaria*) and more than double the quantity of PRKN in the subsequent peanut plantings. If a farmer considers planting peanut after peanut, the impact on yield and pest incidence is an immediately important consideration. The benefits from a 4-year rotation the previous year did not carryover to a second consecutive year, resulting in equal production to a 2-year rotation in the subsequent planting.

Evaluating Adjuvant and Agrichemical Mixtures With a Liquid Formulation of Prohexadione Calcium in Peanut

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Prohexadione calcium minimizes internode elongation, improves row visibility, and can increase pod yield in peanuts. A new liquid oil dispersion formulation, Kudos OD, is labeled for use in peanuts. The objective of this study was to determine tank-mix partners and adjuvants that are compatible and effective with this new growth regulator formulation. In 2024 and 2025, research was conducted in Virginia and North Carolina to study the influence of spray adjuvants and agrichemical mixtures on the new formulation of prohexadione calcium. In one set of experiments, the liquid formulation of prohexadione calcium increased row visibility equally when applied with spray grade ammonium sulfate only or with nonionic surfactant or crop oil concentrate were included. Prohexadione calcium was less effective when applied with nonionic surfactant and crop oil concentrate in absence of ammonium sulfate. In another set of experiments, significant differences in visual injury were observed when applying the liquid formulation of prohexadione calcium with various pesticides labeled for use in peanuts including chlorothalonil; chlorothalonil + cyproconazole; pydiflumetofen + azoxystrobin + benzovindiflupyr; prothioconazole + tebuconazole; boron; manganese; and 2,4-DB. Adding crop oil concentrate to Kudos OD tank-mixes increased peanut visual injury across many agrichemical mixtures, however, no significant differences in yield were noted. These results demonstrate that the oil dispersion formulation of prohexadione calcium can be utilized within the peanut production system. However, a water conditioner such as spray grade ammonium sulfate is required, and growers should avoid mixtures with certain agrichemicals.

Influence of Fertilizer Source on Soil Test Values and Peanut Productivity

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Peanut has a deep taproot system that is effective at scavenging soil nutrients to satisfy its relatively low nutrient demand. However, studies have documented peanut yield response to increased residual fertility. The objective of this research was to compare soil fertility build up and yield responses of both peanut and cotton to poultry litter and similar conventional fertilizer applications with matching amounts of N-P-K. A cotton-peanut rotation was established in 2022 and two rotation cycles were completed to provide two site years of data for both cotton and peanut. Treatments that received poultry litter had an average seed cotton yield increase of 763 lbs ac⁻¹ when compared to matching fertilizer treatments using conventional fertilizer. The only fertility treatment that increased peanut pod yield when compared to the non-treated control was the treatment that received poultry litter prior to planting both peanut and cotton. Data analysis examining soil test correlations with relative yield are currently being completed to better understand crop response to specific soil nutrients. These results demonstrate that poultry litter can be a useful fertility amendment with potential to increase both peanut and cotton yields.

Optimizing Row Crop Planter Settings, Specifically Ground Speed and Vacuum Level to Maximize Peanut Seed Placement, Emergence, and Yield

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Row crop planters have been and are currently optimized to primarily plant crops such as corn and soybean, but are utilized for many other crops, such as cotton and peanut. Due to planter design, fundamental differences in seed size and weight and seeding rate, peanut can be one of the most challenging crops to accurately plant. Thus, the main goal of this project was to determine the effects of row crop metering system, ground speed, and vacuum level on seed placement, germination, and crop yield to develop recommendations for growers to increase seed placement accuracy. Four commonly implemented peanut planters with different drive systems were utilized at Tifton and Midville, GA during 2024 and 2025. Three vacuum levels per planter were selected based on the manufacturers' recommended vacuum setting. The recommended vacuum level, approximately 50% of the recommended level and approximately 150% of the recommended level were used for each planter in combination with a 3 and 5 mph ground speed. Results indicate that ground speeds over 3 mph for all planters show degradation in seed placement and emergence, especially with lower than recommended vacuum. However, when higher vacuum levels were utilized both seed placement and emergence were significantly increased. The value of these data, have an instant and substantial impact for peanut growers, because these are data that can be implemented immediately on the farm to increase accuracy of seed placement and emergence which directly translates to better utilization of seed and increases in yield in most cases.

Peanut Cultivars: Where Do the New Traits Come From?

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Germplasm collections are essential for crop improvement and cultivar development. They contain genetic variability for economically important traits for the development of productive and resilient cultivars. The U.S. National peanut germplasm collection consists of about 9,000 accessions and is maintained in the USDA managed genebank in Griffin, GA. These accessions were acquired from all over the world and display significant genetic variability in plant, pod and seed traits. They provide sources of high yield, disease resistance, drought tolerance and early maturity. Additionally, the pod and seed variability offers opportunities for improving their size, shape, flavor, seed oil content and quality, nutritional quality, especially seed protein content and other biological compounds including antioxidants for a healthy diet. Thus, the germplasm collection likely contains every trait for peanut improvement and is utilized by breeders and other researchers to develop new cultivars. For example, resistance to the Tomato spotted wilt virus (TSWV) in the currently grown cultivars traces to PI 203396. Leafspot resistance germplasm includes PI 109839, PI 259785 and the diploid wild species, *Arachis cardenasii*. Recently, several accessions were identified as resistant to Peanut smut disease. Safeguarding the peanut germplasm collection is essential for the sustenance of the U.S. peanut industry.

Integrating Cover Crops Alone or in Mixture With Herbicides for Weed Control in Peanut Grown with Regenerative Agriculture Practices

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In Alabama, peanut production faces challenges like soil erosion, declining soil quality, and weed competition from herbicide-resistant and troublesome weeds. A field study conducted in summer 2023 and repeated at two locations in summer 2024 evaluated the herbicide and cover crop residue effects on weed control and peanut yield. The split plot design included six cover crop treatments (cereal rye, wheat, radish, mixture, disk + cultivator, and winter fallow) followed by strip-tilled peanut. Subplots consisted of four herbicide treatments: Preemergence (PRE) herbicide (flumioxazin + diclosulam), Postemergence (POST) application of ammonium salt of imazapic, PRE followed by POST, and non-treated check (NT). Four weeks after planting, no interaction was observed between cover crops and herbicide for weed biomass; however, main effects of both cover crops and herbicide treatment were significant. Across cover crops, NT treatment produced more than three times greater weed biomass (651 kg ha^{-1}) than PRE alone (192 kg ha^{-1}), and visual control ratings reflected trends. Among cover crops without herbicide, cereal rye provided the greatest weed suppression, followed by the mixture, radish, wheat, and winter fallow. Eight weeks after peanut planting, cereal rye continued to reduce weed density compared to other treatments without herbicides. No significant effect of cover crops or herbicide interaction was seen on weed biomass or peanut yield. Plots receiving both PRE and POST herbicides yielded the most, showing moderate cover crop biomass alone provided only moderate weed suppression. Herbicide integrated with cover crops offers an effective strategy for weed management and sustaining peanut yield.

Relationship Between Ca Concentration, Germination, and Growth of Hypocotyl and Primary Root Driven by the Effect of Gypsum Application

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Calcium is an essential nutrient for plant growth and seed development in peanut, making it important to evaluate calcium fertilization needs. The objectives of this study were to understand how seed calcium content and cultivar affect the growth of vital seedling organs and to explore nutrient concentration as a tool for predicting field emergence. Therefore, this study investigated the effects of gypsum application on seed quality in peanut production. A preliminary experiment was conducted in 2024 using a Randomized Complete Block Design with two peanut cultivars. Results indicated that hypocotyl and root length (HL and RL, respectively) were influenced more by genotype than by calcium applications alone. In 2025, more genotypes were evaluated, and the same trend was observed, where germination was not affected by gypsum application ($p > 0.05$), likely due to sufficient calcium levels in the pegging zone. HL and RL differed among genotypes ($p < 0.05$), regardless of calcium application. However, gypsum applications increased seed calcium concentration ($p < 0.05$), as expected. Correlation analyses showed a strong relationship between seed Ca concentration and HL and RL, with higher seed Ca concentration associated with longer HL and RL ($p < .001$). Based on these results, one impact of Ca accumulation in seeds from gypsum application could be improved root and hypocotyl elongation. It is especially interesting since Ca did not affect germination and Ca was adequate in the soil. It is expected that Ca concentration could be related to field emergence even if seed Ca variation is insufficient to affect germination.

Dual-Trait Selection in Peanut: Combining Drought Tolerance With *A. flavus* Resistance

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Arachis hypogaea L. (peanut) is a globally significant oilseed crop central to food security and nutrition. Production sustainability is increasingly threatened by drought and elevated temperatures, which predispose crops to *Aspergillus flavus* infection and subsequent aflatoxin contamination. Conventional agronomic mitigation strategies are becoming less reliable in West Texas, driven by declining water availability from the Ogallala Aquifer and the growing unpredictability of regional climate patterns. Developing peanut cultivars that combine drought tolerance with inherent aflatoxin resistance is therefore a critical breeding priority. This study evaluated a peanut breeding population derived from Schubert × 55-437 for pod yield and grade quality across five environments. Experiments were conducted between 2024 and 2025 at the Texas AgriLife Research Center (TALR) and USDA-ARS (ARS) in Lubbock, Texas, using a randomized complete block design with two to three replications per environment, comprising four water-deficit (25% ET) and one full-irrigated (75% ET) environment (Irrigation-Location-Year combination). Resistance to *A. flavus* was assessed using an in vitro seed colonization assay. Results show that pod yield did not differ significantly among genotypes across environments; however, grade quality traits varied significantly, and several lines consistently outranked others across multiple environments for %SMK and 100-seed weight. Top-performing lines under water-deficit conditions were not always the most resistant to *A. flavus* colonization, underscoring the complexity of selecting for both traits simultaneously. A selection index integrating pod yield, grade characteristics, and *A. flavus* response was established, and the ten highest-scoring lines were selected from the initial 41 for further evaluation toward cultivar release.

Implementing Genomic Selection Through Predictive Modeling of High-Value Breeding Traits in Peanuts

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Advancing numerous breeding lines efficiently through a multi-generation pipeline remains a challenge in peanut variety improvement. The North Carolina State University Peanut Breeding and Genetics (NCSU-PBG) Program advances Virginia-type peanuts through a speed-breeding pipeline with 90-day generation intervals, beginning with F1 crossing blocks and culminating in advanced line evaluation. F1 plants are genotyped using PCR Allele Competitive Extension (PACE) markers to confirm putative crosses, and marker-assisted selection drives rapid generation advancement through F2–F4. At the F5 stage, lines are genotyped using a custom AgriSeq amplicon platform capturing approximately 2,000 program-specific loci. While this system enables accelerated generation advancement, the volume of lines reaching the F5 stage creates a bottleneck prior to entry into resource-intensive field trials. To address this, we are implementing a genomic selection framework applied at the F5 genotyping step to predict performance for high-value traits. Target traits include yield, maturity (measured indirectly through pod fill), leaf spot resistance, and to-mato spotted wilt virus resistance. Predictive models will be trained on multi-year Preliminary and Advanced Trial phenotypic data combined with AgriSeq marker profiles and validated using leave-one-year-out cross-validation to assess stability across environments and seasons. Genomic estimated breeding values will prioritize F5 advancement to Preliminary Yield Trials, concentrating field resources on the highest-potential lines. This approach is expected to improve selection accuracy, reduce lines requiring full field evaluation, and shorten the overall breeding cycle for the NCSU-PBG program.

Evaluating Photosystem II Efficiency as an Indicator of Resistance to Late Leaf Spot (*Nothopassalora personata*) in Peanut

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A previous study evaluating photosynthetic efficiency responses following the induction of late leaf spot disease reported that photosystem II efficiencies (Q_{ymax}) declined more quickly and to a greater degree in the late leaf spot susceptible peanut cultivar Georgia-13M than the resistant cultivar TifCB-7. This study repeats the original experiment and tests a detached leaf bioassay to see if the Q_{ymax} patterns could be used as a large-scale phenotype. For the repeated experiment, late leaf spot infections were initiated on greenhouse-grown plants of Georgia-13M, TifCB-7. Five trials were conducted. For the detached leaf bioassay, leaves of three susceptible, three moderately resistant, and four resistant cultivars were detached from greenhouse-grown plants and inoculated. Three replications were conducted. A PAM fluorometer was used to measure Q_{ymax} every other day between 5 and 19 days after inoculation. Genotype effects were analyzed for each assessment date using t-tests or analyses of variance. No differences were observed between the inoculated and control treatments ($P > 0.05$). Genotype differences were also insignificant ($P > 0.05$), with few exceptions unrelated to the hypothesis. These results suggest that photosynthetic efficiency is not a reliable indicator of host resistance to the late leaf spot pathogen.

Integrated Transcriptome Meta-Analysis and Machine Learning Identify Core Drought-Responsive Genes in Cultivated Peanut

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Drought threatens productivity in cultivated peanut (*Arachis hypogaea* L.) across major production regions and increases the need for molecular targets to support drought-resilient cultivar development. However, stable drought-responsive genes are often difficult to identify across independent transcriptomic studies. In this study, we integrated transcriptomic meta-analysis and machine learning to identify conserved drought-responsive genes in cultivated peanut. Publicly available RNA-seq datasets were retrieved from the NCBI Sequence Read Archive using the following criteria: drought-treated and well-watered plants, soil-imposed drought stress, leaf tissue sampled at the reproductive stage, and availability of raw FASTQ files. Three independent experiments were processed through a standardized differential expression pipeline and integrated using a consensus framework. Genes were retained if they were significant in at least two datasets, significant after Fisher's combined p-value meta-analysis, and showed consistent expression direction across studies. This approach identified 276 core drought-responsive genes for downstream analysis. Machine learning was applied to a ComBat-seq batch-corrected, variance-stabilized expression matrix comprising 42 samples. Four classifiers were evaluated using nested stratified cross-validation with fold-specific feature selection. Logistic Regression showed the best performance, with a mean outer balanced accuracy of 0.9355, F1-score of 0.9347, Matthews correlation coefficient of 0.8801, and ROC-AUC of 0.9827. Recurrence analysis identified a stable 10-gene signature selected in 48–50 of 50 outer resampling runs. These findings highlight promising candidate genes for future marker development and breeding efforts for drought resilience in peanut.

Impact of Winter Cover Crops on the Critical Period for Weed Control in Peanut

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Herbicide-resistant weeds threaten sustainable peanut (*Arachis hypogaea*) production, necessitating integrated weed management (IWM) strategies. Winter cover crops may suppress early-season weeds and reduce reliance on herbicides, but their impact on the critical period for weed control (CPWC) in peanut, a prostrate-growing legume, needs further investigation in strip-tilled systems. We conducted a split-plot field experiment across three Alabama site-years (2023–2025). We randomly assigned main plots to one of six regimes: cereal rye (*Secale cereale*), wheat (*Triticum aestivum*), lupin (*Lupinus* spp.), daikon radish (*Raphanus sativus*), a four-species mixture, and a winter fallow control. Subplots tested six durations of weed interference and weed-free periods spanning 0 to 10 weeks after planting. We estimated the CPWC at a 5% acceptable yield loss using nonlinear curve-fitting models. Winter fallow systems required immediate intervention after planting; predictive models estimated an intervention start time of zero weeks and a CPWC extending up to ten weeks. Conversely, high-residue cereal rye ($>4,600 \text{ kg ha}^{-1}$) fundamentally shifted these emergence timelines, delaying the onset of required control and narrowing the total CPWC to between 3.2 and 5.8 weeks. The wheat and multi-species mixture provided intermediate suppression, driven by longer persistence and higher ground biomass rather than by species diversity, whereas planting lupin and radish resulted in the longest CPWC among all cover crop treatments. Consequently, integrating high-biomass cereals substantially reduces the required weed-free duration, affording growers much greater operational flexibility for early-season management.

Leveraging Multispectral Imagery and Machine Learning to Assess Peanut Leaf Wilting under Water Stress in Rainfed Environments

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Heat-exacerbated drought stress is increasingly common in rainfed peanut (*Arachis hypogaea* L.) production systems, limiting both yield and productivity. Leaf wilting is a visible indicator of plant water stress, but traditional field assessments are often time-consuming, subjective, and difficult to scale. This study aimed to integrate high-throughput phenotyping, remote sensing, and machine learning (ML) to efficiently predict leaf wilting and assess stress conditions in peanut-producing regions. Drone-based multispectral imagery was used to develop ML models for predicting leaf wilting. Data were collected from four field locations under rainfed, heat, and drought stress conditions during the 2023, 2024, and 2025 growing seasons. Three groups of predictor variables, accumulated growing degree days (AGDD), spectral bands, and vegetation indices, were used for model development. Approximately 5,400 data points were divided into training and testing sets using 70:30, 80:20, and 90:10 ratios. Four ML algorithms, K-Nearest Neighbors (KNN), Random Forest (RF), Neural Networks (NN), and Extreme Gradient Boosting (XGBoost), were evaluated. AGDD contributed significantly to model performance, explaining 23–24% of the variation. Among all models, XGBoost achieved the highest accuracy, with R^2 values of 0.86 (RMSE = 0.32), 0.87 (RMSE = 0.31), and 0.82 (RMSE = 0.37) across the three data splits. These results demonstrate that combining remote sensing and ML provides an accurate and scalable approach for monitoring leaf wilting and identifying stress conditions in peanut-growing regions, supporting better-informed management decisions under changing climate conditions.

Evaluating Efficacy of Several Peanut Fungicides Against *Sclerotinia minor* Using a Detached Stem Bioassay

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Sclerotinia blight, caused by the fungus *Sclerotia minor* Jagger, represents an economically important disease for peanut production. In 2025, a field site at Tidewater AREC in Suffolk, VA was chosen to evaluate efficacy of the current fungicide options for Sclerotinia blight management. Treatments consisted of pydiflumetofen; azoxystrobin + benzovindiflupyr; fluazinam; inpyrfluxam; pen thiopyrad; prothioconazole + tebuconazole. All treatments were applied at standard field rates with a CO₂ backpack sprayer calibrated for 187 L Ha⁻¹ at 90 days after planting (DAP). Plots were sprayed with chlorothalonil on a 14-day schedule starting at 60 DAP to manage foliar diseases. Treatments were arranged in a randomized complete block design with four replications. Three primary lateral stems were collected per plot weekly for five weeks, split into upper and lower stem sections and inoculated at the lower end of each stem with an agar plug from an actively growing *Sclerotinia minor* Jagger population. The length of infection on each stem was measured, and % inhibition was calculated compared to lesions from untreated stems. Data were analyzed using ANOVA and means were separated using Fisher's Protected LSD at a p-value of 0.05. As observed from previous research, younger tissue was more susceptible to *S. minor* compared to older tissue. All fungicides inhibited lesion expansion compared to non-treated stems. Fluazinam showed significantly higher % inhibition compared to other treatments across multiple sampling dates. Fluazinam's % inhibition remained over 50% until 3 weeks after application. This study provides evidence of efficacy against *S. minor* for several fungicides that are not generally used to reduce losses to Sclerotinia blight.

Evaluating Peanut Genotypes for Resistance to Injury From Peanut Burrower Bug (*Pan- gaeus bilineatus*)

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Insect pests of peanut which compromise peanut hull and skin integrity pose some of the greatest threats to quality along the supply chain. The peanut burrower bug (PBB) can cause significant damage to a peanut crop in the field causing downstream quality losses through storage, handling, shelling, and manufacturing. Growers can incur penalties of up to 50% the value of their farmers' stock peanuts if 3.5% damage or greater is found on kernel samples at buying points. Peanut loads with this level of damage are denoted as 'Seg II' peanuts, and USDA guidelines require them to be handled and stored separately from other peanut loads. Damaged hulls and kernels also pose a risk in warehouse storage as they are more susceptible to fungal colonization and aflatoxin proliferation prior to shelling. Research regarding these pests is becoming more critical as regulations on crop protectants become more stringent. Here we examine the feeding preferences of PBB on various peanut genotypes in naturally infested fields. Samples were collected over multiple years and locations. Harvested kernels were evaluated for damage using a small batch blancher and visual assessment. Genotypes with the lowest relative amounts of feeding injury are additionally assessed using a greenhouse bioassay procedure developed for PBB. Identifying genotypic preferences for PBB feeding may allow breeders to integrate feeding resistance into new peanut varieties which would allow for the development of stronger integrative pest management programs for this insect.

Adjusting NDVI-Derived Crop Coefficient Curves for Precision Irrigation in Peanuts Across Southern Georgia, USA

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Crop water use in irrigation scheduling is commonly estimated using the FAO crop coefficient (K_c) approach. In this method, tabulated growth-stage coefficients are multiplied by reference evapotranspiration and applied uniformly at the field scale. Although the K_c method provides robust estimates of crop evapotranspiration, its use as a spatially uniform coefficient overlooks within-field differences in canopy development and water demand. This study focused on adjusting NDVI-derived K_c curves for peanuts using multi-year on-farm data from southern Georgia, USA. Normalized Difference Vegetation Index (NDVI) obtained from PlanetScope imagery was related to K_c values from the SmartIrrigation Crop Fit app to develop season-long NDVI- K_c relationships. Two separate models were fitted for the periods before and after canopy closure to account for the change in crop growth development. From the data in 2024 with two peanut fields, linear regression during early growth produced an R^2 of 0.9, while multiple regression with growing degree days after canopy closure resulted in an R^2 of 0.71. These relationships were used to guide irrigation scheduling in the 2025 growing season. Additional data will be used to further adjust and stabilize the NDVI- K_c curves across years. This methodology and results demonstrate that NDVI holds potential to provide a practical framework for effectively capturing the spatial and temporal dynamics of water use in peanuts, and refining K_c curves for precision irrigation management.

Genetic Improvement of Spanish Peanut (*Arachis hypogaea*) Cultivars in the Texas A&M AgriLife Breeding Program

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Spanish peanuts (*Arachis hypogaea* var. *fastigiata*) are an important market type known for high oil content and strong performance in Texas. Improvement of these cultivars has relied on long-term selection, hybridization, and modern breeding tools to enhance yield, grade, maturity, and stress tolerance. The Texas A&M AgriLife Research peanut breeding program, established in 1939, has released seven Spanish cultivars and one hybrid, beginning with Spantex. To evaluate genetic improvement, all program releases and selected cultivars were tested in 2024 and 2025 at Stephenville, Texas. Trials were conducted using a randomized complete block design with four replications and managed under standard production practices. Results from two years of data showed clear differences among cultivars, with newer releases generally outperforming older varieties in yield and grade. These results indicate steady genetic improvement within the breeding program and continued progress in developing adapted Spanish peanut cultivars for Texas production.

High-Accuracy SNP Markers for Peanut Smut Resistance Identified by GWAS in *Arachis hypogaea*

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In this study, 223 *Arachis hypogaea* lines were evaluated for resistance to peanut smut in field trials conducted during the 2024 and 2025 growing seasons. Two-row plots per genotype (5 m in length) were established in soils artificially infested with an average of 3,600 *Thecaphora frezii* teliospores g⁻¹ of soil, along with commercial field conditions, to compare genotype performance. Genotyping was performed using low-coverage sequencing at HudsonAlpha Institute for Biotechnology, followed by the Khufu pipeline SNP detection platform. After quality filtering, genome-wide association analysis (GWAS) was conducted by integrating phenotypic and genotypic data. A total of 89 SNPs significantly associated with peanut smut resistance were identified. From these, 22 SNPs were selected based on LOD score and discriminative performance. These markers were distributed across chromosomes A2, A4, A7, A9, B1, B4, B5, B7, B8, B9, and B10. Four sets of allele-specific primers were designed, of which two demonstrated high efficiency in distinguishing resistant and susceptible genotypes and were mapped to chromosomes B1 and B4, achieving 90% accuracy in classifying resistant and susceptible plants in an initial (preliminary) validation panel (n = 20). These results provide valuable molecular tools for marker-assisted selection and contribute to the development of peanut cultivars with improved resistance to smut disease, and further validation in larger and independent populations is currently underway.

Improving the Nutritional Profile of Peanut Meal Through Amino Acid Enhancement

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U.S. agriculture faces increasing pressure from declining profitability and environmental constraints, creating a need to develop value-added markets beyond traditional commodity systems. The emerging peanut oil sector—serving both food and renewable fuel industries—represents a promising opportunity. However, the economic viability of this market is closely tied to the value of its primary co-product, peanut meal. Although peanut meal is rich in protein, its broader utilization in animal feed is limited by deficiencies in essential amino acids, particularly lysine and methionine. Enhancing these amino acids offers a direct pathway to increase the nutritional and economic value of peanut meal while improving overall resource efficiency within the production system. This project seeks to leverage natural variation in amino acid composition across wild and cultivated peanut germplasm to improve meal quality. Essential amino acid content, specifically lysine and methionine, has been quantified using Liquid Chromatography–Mass Spectrometry (LC-MS) to establish baseline variation across diverse genetic materials. To enable high-throughput screening, Near-Infrared Reflectance (NIR) and Raman spectroscopy models are being developed and validated against LC-MS data, providing a rapid and scalable phenotyping approach. In parallel, a Genome-Wide Association Study (GWAS) is being conducted to identify genetic loci associated with amino acid content, facilitating the development of SNP markers for marker-assisted selection. Variation in essential amino acid content for Lysine and Methionine has been identified in both cultivated and wild germplasm and results will be presented.

USDA ARS Myers' Matador: A New High-Oleic Spanish Peanut Cultivar for Production in the Southwestern U.S.

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USDA ARS Myers' Matador' is a high-oleic spanish-type peanut (*Arachis hypogaea* L. subsp. *fastigiata* var. *vulgaris*) that has enhanced yield and grade potential when compared to the cultivar Schubert. 'USDA ARS Myers' Matador' (experimental designation ARSOK S104-2E) is the result of a cross between cultivars Pronto and OLé. Advanced line disease trials indicated that ARSOK S104-2E averaged a 10% increase in yield and a 3 point grade increase when compared to Schubert in advanced performance trials. Furthermore, ARSOK S104-2E had a significantly higher oleic to linoleic acid ratio than Schubert (23:1 compared to 17.5:1) and an enhanced percent total protein (25.8%) compared to spanish-type cultivars currently produced in the Southwestern U.S. Production of 'USDA ARS Myers' Matador' will increase profits for the U.S. peanut producer by \$250-\$350/A. The purpose for releasing 'USDA ARS Myers' Matador' is to provide peanut producers with a high-oleic spanish-type cultivar with enhanced yield and grade that will increase producers' profits.

Development and Evaluation of a PCR-Based Diagnostic Method to Detect the Presence of the Causal Agent of Peanut Smut (*Thecaphora frezzii*)

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Peanut smut is a soilborne fungal disease caused by *Thecaphora frezzii* (Tf) that can destroy seeds by replacing them with a spore mass. Currently, peanut smut is present in virtually all commercial peanut fields in Argentina, and the disease poses a threat to global peanut production. Development and utilization of a PCR-based diagnostic method to detect the presence of peanut smut is a necessary detection system to implement control strategies for limiting disease spread. To achieve this goal, standard and quantitative (q)PCR primer pairs were designed and tested for a panel of 12 Tf gene candidates from the nuclear and mitochondrial genomes. Genomic DNA was isolated from a Tf isolate (provided by M. Maestro and G.C. Walsh (FuEDEI), Argentina) at the USDA-ARS BSL-3 lab in Fort Detrick, MD, and used as DNA template to evaluate PCR primers. From 12 candidate genes tested, four consistently detected only positive samples and were negative for no-DNA control samples. To further test the primer sets, DNA was extracted from soil and peanut pods that were 'spiked' with Tf spores. Samples with 'spiked' teliospores produced PCR bands of the correct size and the non-spiked samples and water controls did not produce PCR bands. These four Tf candidate genes will be further validated against inclusivity and exclusivity panels, as well as tested for user variability. Markers that pass validation will be used to detect peanut smut. Research will benefit the peanut industry to monitor the presence of peanut smut, mitigate pathogen spread, and minimize production losses.

Inhibiting Aflatoxin Production Through RNA Interference

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Aflatoxin contamination caused by *Aspergillus flavus* remains a major constraint in peanut production, with serious implications for food safety and marketability. Although RNA interference (RNAi)-based host-induced gene silencing has shown promise for suppressing aflatoxin biosynthesis, its use in transgenic peanut is limited by industry concerns related to GMO acceptance, consumer perception, and export restrictions. This study therefore investigated an externally applied, non-GMO RNAi strategy to reduce aflatoxin production in *A. flavus*. Preliminary assays were used to characterize the timing of aflatoxin accumulation and to evaluate fungal uptake of fluorescently labeled RNA molecules across different concentrations. Based on these optimization studies, six short hairpin RNAs (shRNAs) were developed to target separate regions of *aflR*, a major transcriptional regulator, and *aflC*, the polyketide synthase that functions early in the biosynthetic pathway. Treating *A. flavus* AF13, a highly aflatoxigenic strain, with 100 nM shRNA treatments (individually and in combination) revealed a maximum of 57-64% reduction in aflatoxin accumulation after 48 h of incubation. The effect of nanoparticle encapsulation on the shRNA-mediated silencing was investigated using chitosan, a biodegradable carrier with some known antifungal properties. Chitosan encapsulation was found to compound an additional 32% decrease in aflatoxin production compared to the naked shRNAs. Future work will focus on optimizing the ratio of chitosan to the shRNA cocktail to enhance shRNA persistence and delivery, followed by evaluation of treatment performance in peanut seed-based assays.

A Novel Cross Between *Arachis vallsii* and a *Procumbentes* Hybrid for Cultivated Peanut (*A. hypogaea* L.) Improvement

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The need to improve food security and adapt to changing environmental conditions drives cultivated peanut (*Arachis hypogaea* L.) selective breeding. Wild relatives provide an invaluable source of genetic diversity to support these improvements. Traits such as increased oil content, enhanced pest resistance, and adaptation to rising temperatures can help maintain profitable yields and meet emerging market demands. However, postzygotic reproductive barriers between peanut and its wild relatives, as well as prezygotic barriers between taxonomic sections, often hinder introgression. Our project aims to expand ongoing research with wild *Arachis* species by exploring an intersectional crossing scheme to create a tri-species hybrid between *A. vallsii* Krapov. & W.C. Greg. (accession VSW 9902-1) and a *Procumbentes* hybrid of *A. jacobinensis* Valls et al. (accession VSGr 6340) and *A. subcoriaca* Krapov. & W.C. Greg. (accession KG 30037). We will assess successful hybridization using taxonomic characteristics, pollen viability, and chemometric analysis of Raman spectral data, including PCA and PLS-DA classification models. Next, hybrid vegetative cuttings and germinated seedlings will be treated with a 0.2% (5 mM) and 0.02% (0.5 mM) colchicine solution, respectively, for 8 h to induce chromosome doubling. Resulting amphidiploids will be verified by pollen viability, then crossed with elite cultivars to evaluate cross-compatibility.

Citizen Scientists Crowdsourcing GNSS Outage Data in Agricultural Production

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Space weather events, including the historic geomagnetic disturbance in May 2024 known as the Gannon Storm, have demonstrated the vulnerability of agricultural precision technology to ionospheric disruption even at mid latitudes in the Southeastern USA. Specifically, these disturbances degrade the sub-inch GNSS positioning accuracy required for peanut digging, imposing harvest penalties, interfering with equipment guidance; disable automated section control; interrupt variable-rate application; and preclude georeferencing of sensor data. GNSS signal degradation and outages during critical field operations for peanuts such as peanut planting, digging, and inverting result in measurable production and economic losses. Systematic documentation of these outages at the field level has been limited by the absence of accessible producer-facing reporting infrastructure. To address this gap, an ArcGIS Survey123 instrument was developed to enable crowdsourced reporting of GNSS outage events by agriculturalists and other end users in real time. Respondents record the date and geolocated position of the outage, the field operation affected, time of day and duration of the disruption, and the differential correction source in use (e.g., RTK or satellite subscription). Crop type is also captured, enabling commodity-specific analysis including peanut production systems. Submitted reports are aggregated in a publicly accessible ArcGIS web experience dashboard, providing spatial and temporal visualization of outage frequency and distribution across the U.S. This citizen science infrastructure extends the reach of university Extension and research beyond traditional experimental networks and creates a persistent, georeferenced record linking space weather activity to field-level precision agriculture disruption.

Genetic Manipulation of Peanut Catalase Gene Expression to Enhance Drought Tolerance and Mitigate Aflatoxin Contamination

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Reactive oxygen species (ROS) play a crucial role in aflatoxin biosynthesis in *Aspergillus* species, and their accumulation under drought stress may intensify aflatoxin production in peanut. Enhancing the antioxidant capacity of peanut lines to limit ROS accumulation may therefore reduce aflatoxin contamination. This study aims to evaluate this hypothesis by developing catalase overexpression and knockout lines in peanut. Catalase, an antioxidant enzyme, decomposes the ROS hydrogen peroxide into water and oxygen. Catalase overexpression lines were developed with the coding sequence of catalase2 gene (*Ah08g028000*) driven by the *Arabidopsis* actin2 promoter and terminated with the NOS terminator. Catalase knockout lines were developed using a CRISPR/Cas9 construct with two single guide RNAs targeting conserved regions in both catalase2 genes, *Ah08g028000* and *Ah17g341300*. Transgenic plants were produced via biolistic bombardment of embryogenic callus followed by regeneration under selection. GFP-positive T₁ seeds from overexpression lines and Cas9-positive T₁ seeds from knockout lines were advanced to the T₂ generation. Three independent homozygous gene-edited T₂ lines carrying non-synonymous mutations have been confirmed through Sanger sequencing and are being advanced. For overexpression lines, gene expression and copy number analyses are underway. Catalase activity will be quantified in homozygous knockout and overexpression lines, and selected lines with contrasting catalase activity will be evaluated for their response to aflatoxin contamination. Successful completion of this study will also provide evidence supporting development of high-antioxidant peanut lines through conventional breeding.

Expanded Disease Resistance Potential in Transgenic Peanuts Expressing Oxalate Oxidase

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Stem rot is the costliest peanut (*Arachis hypogaea* L.) disease in Georgia, but progress in finding strong sources of resistance has lagged behind other major diseases. The soilborne fungus *Agroathelia rolfsii* causes stem rot by producing oxalic acid to kill plant cells, which is why breeding for resistance has had little success: most dicots, including peanut, do not produce oxalate oxidase, the necessary enzyme to break down oxalic acid. Previously, three peanut cultivars were transformed with a barley oxalate oxidase gene. These transgenic lines showed a high-level of field resistance to Sclerotinia blight, another common peanut disease caused by a fungus that infects using oxalic acid. The objective of this research is to determine if the lines transformed with the oxalate oxidase gene also show improved resistance to stem rot. The three transformed lines, the non-transformed parent cultivars, and resistant ('Georgia-12Y') and susceptible ('Georgia-09B,' 'Georgia-06G') controls were phenotyped for stem rot resistance in a greenhouse evaluation, consisting of three bioassays. Two of the transformed lines showed significantly lower disease progress than their respective non-transformed parent, and one could not be differentiated. All three transformed lines showed significantly higher oxalate oxidase activity than their respective non-transformed parents in a fluorescence assay. These results indicate that stem rot resistance can be conferred by oxalate oxidase production, showing the potential of transgenic lines to produce stem rot resistant cultivars.

Evaluation of Advanced Peanut Breeding Lines in the Southwest Uniform Peanut Performance Test in Central Texas

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The Southwestern U.S. peanut production region presents distinct environmental challenges for peanut (*Arachis hypogaea* L.) production, including highly variable temperatures, variable precipitation, and region-specific disease pressures. To improve cultivar selection for these conditions, public breeding programs from the region submit advanced peanut breeding lines for evaluation as part of the Southwest Uniform Peanut Performance Test (SWUPPT). The SWUPPT is conducted across five locations representing key Southwestern production environments. Although the test spans multiple sites, this study focuses on data collected from the Erath County, Texas location to provide a site-specific evaluation of genotype performance in all four market types under local soil, climate, and management conditions. Advanced breeding lines from each breeding program are compared in replicated field testing with regionally relevant check cultivars for a minimum of 3 years. Data collected includes yield, quality characteristics, disease response, and other agronomic traits associated with field performance. Data will support selection decisions within each breeding program and contribute to the development of peanut cultivars optimized for Southwestern production systems. Results from the 2024 and 2025 season are complete and data will be presented.

Cross-Generational Validation of SNP Markers Linked to Leafspot Resistance in Peanut Breeding Populations

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This study assesses the validation performance of previously identified SNP markers linked to leafspot resistance in peanut by testing their stability and predictive value in independent breeding populations. The markers evaluated here were derived from a KASP-based BC₁ genetic linkage map and associated with stable QTLs identified across multiple environments in earlier work. Using two resistant BC₃ donor lines (43-09-03-02 and 60-02-03-02), we generated segregating populations and examined marker–trait associations across successive generations (F₃–F₆) under natural disease pressure. By relating early-generation genotypes to phenotypes measured in later generations, this study evaluates the consistency of marker effects across genetic backgrounds and generations. The results provide an empirical basis for selecting a subset of SNP markers with demonstrated robustness for marker-assisted selection in peanut improvement programs.

Evaluating Peanut White Mold Fungicide Programs in Georgia in 2025

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White Mold (*Agroathelia rolfsii*) is one of the most destructive diseases in peanut production in Georgia. In 2025, Atkinson and Berrien County Extension evaluated 8 programs in Berrien County for white mold, and leaf spot diseases, (*Nothopassalora personata*) and (*Passalora arachidicola*). The objective was to compare a lower cost, traditional fungicide program, (tebuconazole and chlorothalonil), to other more recent programs. In 2025, the field was established and sprayed every 14 days with programs that were recommended by industry representatives. In 2025, severity of leaf spot was low across all programs, as dry weather was not favorable for disease development. However, disease assessments found significantly greater incidence of white mold in the tebuconazole/chlorothalonil program than in all the other programs. While there were significant differences in white mold incidence among the fungicide programs, there was not a statistical difference in yield between the tebuconazole/chlorothalonil and the other fungicide programs. If white mold developed earlier in the season, we would have expected significant yield loss in the tebuconazole/chlorothalonil program. This study will be repeated in 2026. Data from 2025 documented the value in industry fungicide programs when conditions are favorable for white mold.

In-Furrow Fungicide Applications Reduce Northern Root-Knot Nematode in Peanuts

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Plant-parasitic nematodes are widespread in Virginia soils and cause significant crop losses when unmanaged. Peanuts are susceptible to *Meloidogyne arenaria*, *M. incognita*, and *M. hapla* (northern root-knot nematode, NRKN), being the predominant species in Virginia affecting peanuts. Field trials were conducted at the Tidewater Research Station in Suffolk, VA, to evaluate in-furrow nematicide treatments for managing NRKN in peanuts. Two trials were established in a randomized complete block design with six replications. Plots consisted of two 35-ft rows spaced 36 in. apart with 8-ft alleys between blocks. Liquid in-furrow treatments were applied at planting at 5 gal/A using a microtube directed into the seed furrow. Cultivar Bailey II was planted on May 6 (trial 1) and May 14 (trial 2). Trial 1 included Velum (6.5 fl oz/A), Minuet (5.35 fl oz/A), Velum + Minuet, and an untreated check. NRKN does not produce conspicuous root galls, therefore, egg counts per g of root were used to estimate nematode reproduction at harvest. No significant differences in egg counts per gram of root were detected; however, plots treated with Minuet showed an approximately fourfold numerical reduction in nematode populations and a significant yield increase of 500 lb/A. Trial 2 evaluated Outreach SC (8 fl oz/A), Velum (6.5 fl oz/A), an experimental compound (8 fl oz/A), and an untreated check. Although no significant differences in egg counts were observed, the experimental compound reduced NRKN populations approximately threefold, with no corresponding yield effect. Overall, Minuet showed promising potential for managing NRKN in peanut production systems.

Effects of Cotton and Corn Rotations and Cover Crops on Peanut Pod Rot and Nematodes in Oklahoma

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In the Southwest, pod rot remains a significant, if sporadic, problem in peanut production. Multiple pathogens can discolor pods, but two major causal agents of pod rot in Oklahoma and Texas are *Pythium myriotylum* and *Rhizoctonia solani*. Strict residue limits for phosphite fungicides in exports to the European Union resulted in no economical and effective chemical options for managing *Pythium* pod rot. In addition, there are no commercial cultivars with demonstrated strong resistance to pod rot, so alternative approaches to managing pod rot are urgently needed. Previous studies showed some potential for rotation and cover crops to suppress pathogenic *Pythium* spp. To this end, we conducted a four-year experiment from 2020-2023 to evaluate the effects of two summer rotation crops, cotton and corn, in combination with three winter cover crops treatments (cereal rye, fallow, oat-triticale-brassica mix), for reducing *Pythium* pod rot. Populations of pathogenic nematodes were also sampled in the last year from peanut. Preliminary analyses indicated no significant differences were found among the treatments for pod rot, yield, or pathogenic nematodes (root-knot, lesion, sheath, stunt, spiral, and ring) in the final peanut crop. Significant differences were not observed in corn yield in 2021, but the winter fallow treatment resulted in less cotton yield than the cereal rye and mixed cover crop treatments. These results indicate that more work is needed on identifying effective rotation crops for managing peanut pod rot.

Impact of Cultivar Selection on Diseases of Peanuts in Alabama

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Peanuts (*Arachis hypogaea*) grown in Alabama are affected by several diseases including early and late leaf spot (caused by *Cercospora arachidicola* and *Phaeoisariopsis personata*, *Nothopassalora persoanta* respectively), stem rot (caused by *Sclerotium rolfsii*) and tomato spotted wilt [TSW] (caused by tomato spotted wilt virus). While the list of available varieties is constantly changing, the goal of this study was to assess the impact of these diseases on variety performance. In 2024 and 2025, 24 peanut varieties were planted in small plot research trials at research units located across central and southern Alabama and rated for disease throughout the growing season. For both 2024 and 2025, top yielding varieties included TifTB, FloRun™ 52N, FloRun™ 331 and Georgia- 16HO each of which generally showed reduced incidence of stem rot. Georgia-16HO, FloRun™ 331 and TifTB had moderate ratings for leaf spot while FloRun™ 52N was much lower. Within these four varieties, TSW incidence was higher in FloRun™ 331 and FloRun™ 52N than in Georgia-16HO, and TifTB had lowest incidence of TSW. Across the four locations, varieties with the lowest yields included ACI 222, ACI N104 and ACI 212. ACI 222 had higher incidence of TSW than ACI N104 or ACI 212. Each showed intermediate levels of tolerance to leaf spot diseases but were more susceptible to stem rot, although incidence of leaf spot tended to be low. This research demonstrated the importance of selecting varieties based on pest pressure to maintain yields.

Evaluation of Reglone (Diquat) as an Alternative to Gramoxone (Paraquat) for Postemergence Use in Peanut

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Gramoxone (paraquat) has long been a critical tool for postemergence weed control in peanut production; however, increasing regulatory pressure and safety concerns have created a need for effective and practical alternatives. Reglone (diquat), a herbicide with a similar mode of action, has potential to replace Gramoxone in peanut weed management systems. A field experiment was conducted in 2025 at the Cotton Research Station in Marianna, Arkansas to compare peanut crop response and weed control following postemergence applications of Reglone and Gramoxone. All treatments were applied at 21 days after planting. Treatments included Gramoxone (11 oz/A) or Reglone (12 or 16 oz/A) applied in tank-mixture combinations with Storm (bentazon + acifluorfen) at 16 oz/A + Dual Magnum (S-metolachlor) at 16 oz/A or Ultra Blazer (acifluorfen) at 16 oz/A + Broadloom (bentazon) at 8 oz/A + Dual Magnum at 16 oz/A. Visual crop injury was recorded 5 days after application (DAA), and weed control was assessed at 14 DAA. Treatments containing Gramoxone provided the greatest control of Palmer amaranth (*Amaranthus palmeri*) (99%) and barnyardgrass (*Echinochloa crus-galli*) ($\geq 91\%$). Among the Reglone treatments, the highest Palmer amaranth control (86%) was observed when Reglone was applied at 16 oz/A in combination with Storm + Dual Magnum. Reglone at 12 oz/A in combination with Ultra Blazer + Broadloom + Dual Magnum produced the least crop response (13%). The results of this test indicated that while Reglone did not consistently match the level of weed control provided by Gramoxone, it shows potential as a component of weed management in peanut.

Peanut Response to Fluridone

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Peanut (*Arachis hypogaea* L.) producers rely on herbicides to manage weeds. There are a number of effective preemergence (PRE) herbicides, but crop response is common, especially in coarse soils. Fluridone, a HRAC Group 12 herbicide, is active against problematic weeds; however, increased crop response may occur in coarse-textured soils. Research trials were conducted in 2025 in Seminole (Patricia fine sand) and Yoakum, TX (Denhawken–Elmendorf complex) to examine fluridone rates applied alone and in combination with traditional PRE herbicides used in peanut. Treatments evaluated were fluridone at 0.084 kg ai ha⁻¹ (low) or 0.126 kg ai ha⁻¹ (moderate) alone or tank-mixed with pendimethalin (1.13 kg ai ha⁻¹), flumioxazin (0.107 kg ai ha⁻¹), or S-metolachlor (1.4 kg ai ha⁻¹). Herbicides were activated one day after application with 1.9 cm of overhead irrigation (Seminole) or 1.1 cm of rainfall (Yoakum). Trials were kept weed-free throughout the experiment. In Seminole, 14 days after application (DAA), S-metolachlor + fluridone (moderate and low rates) caused 23% injury, which was a combination of peanut stunt and albino symptomology. At Yoakum, the greatest injury (11%) was observed following S-metolachlor + fluridone (moderate rate) and pendamethalin + fluridone (moderate rate). By 77 DAA, peanut injury at both locations was less than 3% and no crop response was observed at harvest. No treatment adversely affected yield at either location. Overall, fluridone tank-mixed with other peanut herbicides may cause visible but transient peanut response. Fluridone, at a reduced rate, may be a viable option for peanut producers on coarse-textured soils.

Sensitivity of *Aspergillus flavus* Isolates from Peanut Seeds in Oklahoma to Quinone Outside Inhibitor (Qol) Fungicide

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In 2025, several peanut fields in Oklahoma had poor stands, particularly in fields treated with Dynasty PD. In the laboratory, 29 isolates were obtained from affected fields and identified as *Aspergillus flavus* based on morphology. The goal of this study was to assess the sensitivity of 29 *A. flavus* isolates to Quinone outside inhibitor (Qol) fungicides and characterize *CYTb* mutations, if any, associated with less sensitivity phenotypes. Fourteen-day-old cultures were used for a fungicide sensitivity test using mycelial growth inhibition assays, with a spore suspension of 10^5 spores/mL. Petri dishes (60 mm) were poured with a mixture of PDA (7 mL) + discriminatory dose tested (2.5 µg/mL azoxystrobin) + Salicylhydroxamic acid (SA) (100 µg/mL). Control treatment consists of PDA + SA without azoxystrobin. A 5-µL spore suspension was applied to the center of PDA plates and incubated for 5 days at 22 °C. Mycelial growth was measured by averaging two perpendicular colony diameters with a digital caliper. Growth inhibition was calculated and isolates were classified as resistant, moderately resistant, reduced sensitive or sensitive as previously described. Thirteen isolates were classified as moderately resistant, and 16 as resistant. To further assess resistance, molecular analysis was performed by extracting DNA and amplifying a fragment of the cytochrome B (*cytb*) gene with the primer pair ASP_Lt-RSCBF1/ASP_CtyBGSP_R2. To date, 23 PCR products have been sequenced, and single nucleotide mutations were detected in the F129L region, suggesting moderate resistance to Qol-fungicide. This study provides a foundation for characterizing Qol-resistant *A. flavus* strains infecting peanuts in Oklahoma.

Variability of Aflatoxin Levels in Irrigated Peanut Fields With Rainfed Edges

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Aflatoxin in peanut is a potential concern for farmers and poses a significant risk to the entire peanut industry. In most instances, but not consistently, dryland fields have a greater potential incidence of aflatoxin. From 2022 to 2025, 18 irrigated peanut fields with dryland corners across Georgia were selected. At each location, six soil moisture sensors were installed with three located in the dryland corners and three were located under center pivot irrigation. Each soil moisture sensor installed contained two watermark sensors with two depths, 15 and 30 cm. The sensors were installed by using an auger drill bit attached to a cordless drill and drilling a 5-cm diameter hole 30 cm into the soil and making a slurry mix to install each sensor. Sensor locations were carefully selected to represent the various soil types of the field. Automated rain gauges collected rainfall across the field, and irrigation amounts in the irrigated areas. Four 2-m² peanut samples were collected in a 10-m radius of each sensor location on the day the peanuts were inverted to assess aflatoxin levels. Aflatoxin levels were below 4 ppb for most of the situations. However, in Irwin in 2023 and 2025, aflatoxin levels reached 32.9 and 271 ppb in samples from irrigated areas, respectively, while the dryland corners had 50.3 and 2.5 ppb in 2023 and 2025, respectively. These results suggest that not only lack of irrigation, but high temperatures can contribute to aflatoxin production in years with limited or poorly distributed rainfall events.

Peanut Response to Biological Products Applied in North Carolina

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Research was conducted in separate trials to determine peanut response to in-furrow treatments at planting that could be considered biological. In one trial conducted in 2024 and 2025, a grower standard program [Imidacloprid (11 oz/acre) plus Catapult Inoculant plus Challenge (16 oz/acre)] was compared to an enhanced program [Imidacloprid (11 oz/acre) plus Catapult Inoculant plus Premium x-tra (24 oz/acre) plus Challenge (32 oz/acre) plus Establish (32 oz) plus Boron x-tra (5 oz/acre)]. There was no difference in pod yield for these treatments in both years. Hydra-Hume (1% soluble potash) at 1 gal/acre applied in-furrow at planting was compared with non-treated peanut at two locations in 2024. Peanut yield was greater at one location when Hydra-Hume was applied; no difference was observed at the second location.

Peanut Cultivar Response to Three Rates of Prohexadione Calcium

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Plant growth regulators (PGR) are used to reduce vegetative biomass in peanuts. A field study was conducted to evaluate three cultivars – Arnie, Gorbet, and FloRun 52N – under three dosage treatments: none, a full rate (7.25 oz/acre), a three-quarter rate (5.43 oz/acre) of Kudos® 27.5 WDG applied twice according to label recommendations. Harvest index (HI), pod yield, and vegetative biomass (VB), were measured. VB and HI were influenced by genotype ($p=0.0003$ and $p<0.0001$, respectively), while dosage rate and genotype x dosage interaction did not affect either trait. Gorbet produced the greatest vegetative biomass and the lowest HI. FloRun 52N and Arnie had similar HI which was greater than Gorbet. Yield was affected by genotype ($p=0.0262$), whereas dosage rate and the interaction were not. FloRun 52N had higher yield than Arnie. Gorbet yield was intermediate to Arnie and FloRun 52N. Genotype primarily influenced VB, HI, and yield. PGR treatment did not affect VB or yield, but only the length of branches. Lateral stem length and main stem height were shorter when PGR was applied. The length of laterals and mainstem was greater in Gorbet than in FloRun 52N or Arnie. This suggests that the benefit of PGR treatment in reducing lateral length and plant height is the main reason for improved yield and/or harvest speed in commercial production because VB did not change. The results indicate that selection against large plant types like Gorbet will not reduce yield potential because smaller plants like FloRun 52N are able to support high yield potential.

Herbicide Systems for Use in South Texas Peanut Production

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Studies were conducted in south Texas, near Pearsall (28.50367° N; -99.07554° W), during the 2024 and 2025 growing seasons to evaluate herbicide systems for peanut variety response and weed control. Georgia 09B was planted in 2024 while ACI N104 was planted in 2025.

Early-season leaf yellowing ($\leq 5\%$) was seen with fluridone treatments. When fluridone was applied at 877 ml ha⁻¹, a late-season yellow flash (9%) was noted. This yellow flash was minimal (1%) with fluridone at 585 ml ha⁻¹. Carfentrazone + pyroxasulfone injury ($\leq 15\%$) consisted of leaf burn and this injury was visible for 7 to 21 days after application.

Using POST systems in combination with PRE systems improved weed control. Adding S-metolachlor + 2,4-DB POST to either pendimethalin + S-metolachlor or pendimethalin + S-metolachlor + flumioxazin PRE resulted in $\geq 96\%$ Palmer amaranth and smellmelon control. Adding acetolachlor + 2,4-DB POST to pendimethalin + acetochlor + flumioxazin PRE improved Palmer amaranth control to $\geq 96\%$ and smellmelon control to $\geq 89\%$. Pendimethalin PRE + carfentrazone + pyroxasulfone POST controlled Palmer amaranth 76 to 80% and smellmelon 95%. Pendimethalin PRE followed by imazapic + 2,4-DB POST controlled Palmer amaranth 83 to 90% and smellmelon 100%.

Using herbicides such as S-metolachlor or acetochlor POST in combination with PRE herbicides, no later than 40 to 45 days after planting, can provide season-long weed control under south Texas growing conditions. Keeping peanuts weed-free for the first 70 to 90 days after planting allows the peanuts to lap and help provide additional cover to prevent new weed infestations.

Peanut Response to Kudos OD Rate in Large-Plot Trials in North Carolina and Virginia

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The prohexadione calcium formulation Kudos OD is available for use in peanut. Research was conducted in North Carolina and Virginia in 10 trials with Kudos OD applied twice at 5.4 oz/acre or 7.2 oz/acre. A non-treated control was included. The first application was made when 50% of laterals from adjacent rows touched followed by the second application 2-3 weeks later. The interaction of trial × treatment was significant for row visibility and main stem height but not pod yield. When pooled over trials, row visibility (1-10 scale where 1 = flat canopy and 10 = triangular-shaped rows) was 4.0, 7.3, and 8.4 for Kudos OD rates of 0, 5.4, and 7.2 oz/acre, respectively. Main stem height was 46, 37, and 35 cm for these respective rates of Kudos OD. Pod yield was greater when Kudos OD was applied at 7.2 oz/acre compared with non-treated peanut; yield following Kudos OD at 5.4 oz/acre was intermediate.

Weed Risk Tools for Peanut and Other Crops in North Carolina

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Weeds can have a major negative impact on crop yield. Weed suppression is obtained by implementing a range of cultural practices and applying herbicides at various points in the life cycle of the crop. Developing comprehensive strategies for weed management can be challenging because knowledge of interactions among tactics may not be known or readily accessible. Risk management tools for corn, cotton, peanut, sweetpotato, and tobacco were developed using Microsoft Excel to allow practitioners to view risk to yield for interactions among cultural practices (e.g., crop density and row orientation, cover crops, cropping sequence, hybrid or variety selection, planting date, and herbicides). Risk for elements in categories of management were assigned a numerical value for risk and a financial cost. For a specific crop and suite of management, practitioners can observe overall risk to yield and cost of decreasing risk. The Microsoft Excel platform allows advisors to adjust risk of practices, add new practices or remove practices that are no longer relevant, and change pricing structures when needed.

Growth and Sporulation of *Passalora arachidicola* and *Nothopassalora personata* on PDA and V8 Media

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In vitro studies and bioassays using culture grown conidia of *Passalora arachidicola* (PA) and *Nothopassalora personata* (NP), two important foliar pathogens of peanut, have been limited by cultivation challenges. While many laboratories prefer to use potato dextrose agar (PDA) as an initial growing medium and V8 agar for spore production, our laboratory has seen little advantage to V8 agar. This study tested the hypothesis that germling growth, spore quantity, and spore integrity are the same for PDA and V8 growing media. Seven isolates of PA and five of NP, induced to sporulate on PDA or V8, were transferred to PDA or V8 in a factorial design. Germination, measured at 3 days, was not affected by the originating medium ($P=0.12$). No effect on growth or spore quantity was observed at day 8 ($P>0.05$). However, a greater proportion of spores had bulbous deformities from the PDA plates than the V8, regardless of the originating medium ($P=0.03$). While inoculum concentrations were standardized, inoculum densities were greater on PDA than V8 medium and may have had an effect. The optimal sporulation time may also differ for PDA and V8. Germling growth and sporulation over time will be microscopically characterized to explore these alternative explanations, and the experiment will be repeated.

Peanut Yield, Labor Costs, and Pest Management With Fewer Pesticide Options

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Acephate, chlorothalonil, and paraquat have been fundamental components of pest management for decades in peanuts. These products may not be available due in part to evolved resistance (acephate) or regulatory decisions and consumer preferences (chlorothalonil and paraquat). Research was conducted over multiple years to determine if spinetoram was as effective as acephate in suppressing thrips (2 years) and if micronized sulfur or copper hydroxide and copper oxychloride were as effective in protecting peanut from leaf spot disease when applied at the first and last spray compared with this use pattern of chlorothalonil (3 years). In a third experiment conducted at two locations in 2025, leaf spot incidence, defoliation of peanut caused by leaf spot disease, weed population, and time required to hand remove weeds were compared with various pest management programs. Spinetoram was as effective as acephate in protecting peanut from thrips injury. Micronized sulfur copper hydroxide and copper oxychloride were effective in protecting peanut from leaf spot disease when applied at the first and last spray like chlorothalonil. Weed populations were higher and subsequent time needed to remove weeds by hand was higher when ALS and/or PPO-inhibiting herbicides were not included in the weed management program.

Peanut Cropping Frequency Influence on Leaf Spot and Stem Rot Intensity, Root-Knot Damage and Populations and Yield Parameters as Impacted by Cultivar Selection from 2011 to 2016

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Crop rotation is a valuable tool for managing leaf spot diseases, stem rot, and peanut root-knot nematode in peanuts. Hence, a 30-year irrigated study in southeast Alabama was conducted with multiple peanut cropping frequencies. Root-knot susceptible (Georgia-06G) and resistant (Tifguard) cultivars were subplot treatments. Leaf spot intensity, stem rot incidence, root-knot damage and juvenile populations, grades, and yield were recorded for continuous peanut, one-year and two-year out rotations. Leaf spot defoliation differed by year and cropping frequency with less disease seen in most years for the one- and two-year out than for continuous peanuts. For the latter but not two former rotations, Tifguard suffered less defoliation than Georgia-06G. Impact of cropping frequency on stem rot differed by year with lower indices seen for the two-year and, to a lesser extent, one-year out rotations than continuous peanuts with no disease differences between cultivars in any year. Root-knot damage differed by peanut cropping frequency and cultivar with Tifguard consistently having less damage than Georgia-06G. Root-knot juvenile counts differed by year, peanut cropping frequency and cultivar with the resistant cultivar, Tifguard, often supporting lower populations across years and rotations. Greatest grades were noted for the two-year out than other rotations with Georgia-06G having the highest grades. Yield response differed by year and peanut cropping frequency with continuous peanuts and two-year out rotation having the lowest and greatest yields, respectively, compared with intermediate values seen for the one-year out rotation. Across all years and cropping frequencies, Tifguard posted greater yield than Georgia-06G.

Efficacy of Reduced Rate Applications of Convoy for Control of Southern Blight

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Southern blight caused by the pathogen *Athelia rolfsii* is a key soil-borne disease in peanut that can cause substantial yield loss. Convoy fungicide has been on the market since 2011 and has been widely used in fungicide programs across the peanut producing states. The active ingredient, flutolanil, is a systemic group 7 fungicide and provides activity on both *Athelia rolfsii* and *Rhizoctonia* complexes. Convoy is typically applied at 16 to 32 fluid ounces per acre rate on a two to four week spray interval schedule. The objective of this study is to evaluate Convoy fungicide efficacy when applied at 16, 24, and 32 fluid ounces per acre at three -week intervals. Convoy was applied with chlorothalonil at 80 and 100 days after planting in rotation with applications of tebuconazole and chlorothalonil (4-spray program). Southern blight incidence was evaluated after digging and inversion. Other data collected was pod yield, pod grade, and leaf spot ratings. In 2025, all fungicide programs yielded similar results and were greater than the non-treated control. This suggests that the 16 to 24 fluid ounces per acre rate is effective at controlling southern blight when fungicide applications are made every three weeks.

Detecting Peanut Storage Risk Before It Happens: A Field-to-Warehouse Approach

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Postharvest deterioration of farmer stock peanuts remains a significant challenge for the U.S. peanut industry. While aflatoxin contamination is the primary food safety concern, physiological deterioration during storage also reduces flavor quality and market value. Current intake assessments rely largely on mechanical size sorting, visible damage grading, and kernel moisture, which provide limited insight into the physiological condition of peanuts entering storage. This research develops an integrated framework linking field-level stress detection, harvest-time biochemical indicators, and controlled storage outcomes to predict both aflatoxin susceptibility and flavor degradation risk.

Field experiments across multiple environments evaluated drought responses among diverse peanut genotypes using unmanned aerial vehicle (UAV) multispectral imaging and ground-based physiological measurements, including soil water potential, leaf water potential, and gas exchange. These measurements characterized canopy stress signatures associated with drought exposure and late-season physiological decline. Complementary sampling at commercial buying points captured farmer stock peanuts representative of those entering storage. Samples were analyzed for biochemical indicators of kernel stability, including membrane integrity, lipid oxidation, moisture status, and compositional fingerprints.

To directly test storage vulnerability, samples were placed in controlled storage domes representing contrasting environments: a high-risk condition with elevated temperature and humidity promoting fungal growth and deterioration, and a low-risk condition designed to suppress aflatoxin development and slow quality loss. During storage, peanuts are periodically evaluated for aflatoxin accumulation, oxidative deterioration, and flavor quality. Future work will integrate field physiology with storage outcomes to directly link canopy stress signals to postharvest performance.

Varying Soil Texture is Linked to Changes in Peanut Seed and Pod Characteristics

DAHAL, S.¹, Hiers, J.B.¹, Plumblee, M.T.¹, Anco, D.J.¹

¹Edisto Research and Education Center, Department of Plant and Environmental Sciences, Clemson University, Blackville, SC.

Peanut (*Arachis hypogaea* L.) is a geocarpic legume; as such, physical properties of the soil may plausibly impact pod development and final kernel size, the latter of which accordingly affects farmer seeding costs. Following harvest, farmer stock value is based on tonnage assessed by a quality grading system that financially rewards large, mature kernels (TSMK and ELK) and, by default, indirectly confers reduced value for loads with comparatively higher hull percentages. Soils with high clay or silt content represent a source of greater mechanical impedance, which conceivably may restrict pod expansion and alter associated grade features. There is not enough existing research on the relationship between soil texture variation and quality traits of peanut at harvest. To address this gap, this study assessed how soil texture components of sand, silt, and clay affect TSMK 100-seed weight, ELK, TSMK, and hull percentages across runner and Virginia market type cultivars produced in corresponding fields. Grade data were analyzed from randomized complete block trials from 2017 to 2024 in association with soil texture measurements via hydrometer tests. Relationships were examined through Bayesian hierarchical models in R using the *brms* package. Higher sand content was associated with increased TSMK 100-seed weight at a median log rate of 1.38, decreased ELK at a median logit rate of -1.58, and increased hull and decreased TSMK at respective median logit rates of 2.30 and -2.37. These results contribute new knowledge on the quantitative effects of soil texture on peanut harvest characteristics.

What Do Growers Need? Survey-Based Identification of IPM Priorities in Oklahoma Peanut Production

FARIS, A.M.¹, Duffeck, M.R.¹, Smith, M.^{1,2}

¹Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK.

²Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK.

Integrated pest management (IPM) programs must evolve alongside changes in crop production practices, pest pressure, and stakeholder needs. In Oklahoma peanut production systems, shifts in acreage, cultivar adoption, environmental conditions, and pest dynamics over the past decade highlight the need to reassess stakeholder priorities related to pest management. The last comprehensive assessment of pest management needs in Oklahoma peanut systems was conducted in 2016, indicating a need for updated, data-driven guidance. The objective of this study was to identify current pest management challenges and knowledge gaps among Oklahoma peanut stakeholders to guide future Extension and research priorities. A mixed method needs assessment approach was implemented. Secondary data sources—including reports from USDA-NASS, historical Oklahoma State University peanut research publications, archived pest alerts, and industry reports—were evaluated to identify longitudinal trends in pest pressure and management practices. These findings informed the development of a stakeholder survey designed in collaboration with an evaluation specialist. The survey was distributed electronically and in person to growers, crop consultants, industry representatives, and other peanut stakeholders across Oklahoma. Here we present preliminary data based on initial response rates where data was analyzed using descriptive and inferential statistics to identify and prioritize pest management concerns related to arthropods, pathogens, and weeds. Results will inform targeted Extension programming, applied research priorities, and educational resource development for Oklahoma peanut production systems. Findings will be disseminated through Extension publications, stakeholder meetings, and presentations at professional venues including the American Peanut Research and Education Society annual meeting.

Georgia Farmers Increase Adoption Rate of Soil Moisture Sensor Technology for Irrigation Scheduling Through the Master Irrigator Program

EDWARDS, P.¹, Anderson, H.², Beasley, S.³, Bennett, J.², Bowen, D.², Brown, W.², Carlson, S.², Carter, B.², Cloud, C.², Collins, C.², Crews, B.², Dowdy, M.², Edenfield, J.², Frye, M.², Green, R.², Hall, D.⁴, Hayes, B.², Kalina, J.², Kichler, J.², Mallard, J.⁵, McAllister, S.², Miller, J.², Porter, W.⁶, Powell, S.², Royal, C.², Sapp, P.², Sapp, P.², Smith, A.², Shirley, A.², Stanley, L.², Tanner, R.², Tanner, S.², Tyson, B.², Wilson, T.²

¹SW District Area Agent, UGA Cooperative Extension, Tifton, Georgia 31793. ²UGA County Extension Agent, UGA Cooperative Extension. ³SW Dist. Area Educator, UGA Cooperative Extension, Tifton, Georgia 31793. ⁴SE District Area Educator, UGA Cooperative Extension, Cochran, Georgia 31014. ⁵SE District Area Agent, UGA Cooperative Extension, Statesboro, Georgia 31046. ⁶Associate Professor UGA Cooperative Extension Tifton, Georgia 31793.

In 2018, NASS reported only 11 percent of Georgia producers were using soil moisture sensors. The UGA Extension Ag Water team received a seed grant to begin the Master Irrigator Developmental Program in Georgia, which has led to fifty-seven farmers completing training in thirty-one counties during years 2023-2025. This program was designed to train irrigation managers and agents on advanced irrigation scheduling methods through multiple avenues including indoor seminars, in field one-on-one training, and guidance throughout the growing season. Producers gain valuable information and experience in managing irrigation applications on their farms, changing the way they decide to manage irrigation. Irrigating without an irrigation scheduling method can have a significant impact on crop yield, irrigation water use efficiency, and water consumption. Participants were surveyed before and after participation concerning their preferred methods of irrigation scheduling. The pre-survey showed fifty-five percent of responses were initiating irrigation scheduling decisions on either visible plant stress or feel of soil, both of which are not reliable-scientific methods while the post survey showed a fifty-nine percent reduction in the utilization of non-scientific methods such as feel of soil and visible plant stress in plans for future irrigation scheduling procedures. Surveys after course completion stated that ninety eight percent were most comfortable with soil moisture sensors as their chosen tool for management. With utilization of the knowledge gained and innovative technologies in the field, these producers are irrigating crops when the crops need moisture, and state water resources are being utilized more efficiently.

Peanut Response to Tillage and Cover Crops in North Carolina Using Large and Small Plot Sizes

GARNER, E.H.¹, Jordan, D.L.¹, Lux, L.A.¹, Reisig, D.¹, Austin, R.¹, Pike, B.¹, Lanier, I.², Stevens, B.²

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Research was conducted in 2024 and 2025 at Lewiston-Woodville, NC to determine peanut yield when planted into desiccated native vegetation, wheat, or cereal rye using both no till and strip till. Pesticides were used extensively to minimize the contributions of cover crops to pest management so that the effect of tillage and cover crops on peanut yield could be defined more clearly. Yields were determined from large-plots (4 rows by 400 feet) and from a smaller section (2 rows by 30 feet) for each treatment. When using results from the large-plot data, peanut yield following strip-tillage into native vegetation or wheat cover crop was equal to or greater than yield in other cover crop treatments and tillage systems. Response in cereal rye was variable and lower in some instances. Peanut yield response to tillage and cover crop treatments for peanuts also varied based on plot size. Although significance of main effects differed when comparing yield based on plot size and year, the interaction of tillage treatment × cover crop was significant for both plot sizes during both years. However, differences in rankings of treatments and statistical significance were noted when comparing plot sizes. These results indicate that recommendations on tillage and cover crop treatment combinations can be influenced by experimental procedures including plot size.

Peanut pods are dug and vines inverted prior to threshing, and pod loss during this process can vary based on soil characteristics. We did not identify specific soil characteristics in areas where small plot yield was determined that could explain partially differences among treatments. The lower coefficient of variation for larger plots and the knowledge that larger plots capture more land area that could influence response to tillage and cover crop combinations suggest that recommendations should be based on the larger plot data and not small plots. Logistics, resources, and land availability often dictate plot size. Numerous recommendations on peanut response to tillage systems have been made based on small-plot techniques. Results from those trials, while informative for practitioners, need to be considered within the context of the experimental procedure.

Effect of Digging Dates on the Yield Performance of Four Market Types of Peanuts (*Arachis hypogaea* L.)

Naik, Y.¹, **PUPPALA, N.**¹, Ravelombola, W.², Cason, J.³, Burow, M.⁴, Chamberlin, K.⁵

¹New Mexico State University, Agricultural Science Center, Clovis, NM. ²Texas A&M AgriLife Research and Extension Center, Vernon, TX. ³Texas A&M AgriLife Research and Extension Center, Stephenville, TX. ⁴Texas A&M AgriLife Research and Extension Center, Lubbock, TX. ⁵USDA-ARS Wheat, Peanut and Other Field Crops Research Unit, Stillwater, OK.

Peanut (*Arachis hypogaea* L.) is particularly sensitive to digging time, as harvesting either too early or too late can adversely affect both yield and quality. Suboptimal digging timing can result in annual yield reductions of up to 30%. With the development of new cultivars, it is crucial to determine the number of days each requires to reach maximum yield, grade, and market value. The objective of this experiment was to assess the impact of digging dates and identify the optimal harvesting period for four peanut market types. Eighteen peanut accessions representing four market types (Runner, Virginia, Spanish, and Valencia) were evaluated over two consecutive years (2024 and 2025) in Portales, New Mexico, USA. The accessions were harvested at two different digging dates: approximately 130 and 150 days after planting. In our study, a second digging led to an increase in pod yield for all types. The percentage yield change varied among genotypes, with Virginia being the most affected by early digging (12.0% in 2024 and 12.4% in 2025), followed by Runner (9.3% and 8.3%), Spanish (5.7% and 4.1%) and Valencia (3.2% and 4.6%). These results suggest that to achieve maximum yield, Runner and Virginia genotypes require a longer growing period of more than 150 days, whereas Spanish and Valencia can be harvested earlier, around 130 days after sowing, making them suitable for short-season growing areas in the US. The findings provide essential guidance for growers, enabling informed management decisions that can maximize yield, enhance seed quality, and improve market value, even under variable seasonal conditions.

Evaluation of Peanut Varieties in Ben Hill County, Georgia

SANDERS, H.¹, Anderson, H.², Monfort, W.S.³

¹Extension Agent, University of Georgia Extension, Ben Hill County, Fitzgerald, Georgia 31750. ²Extension Agent, University of Georgia Extension, Irwin County, Ocilla, Georgia 31774. ³Extension Peanut Agronomist, Crop and Soil Science Department, University of Georgia, Tifton, Georgia 31793.

Georgia is the leading producer of peanuts in the United States. One of the predominant cultivars, 'Georgia-06G', released in 2006, has served as the industry standard due to its high yield potential and stability across environments. Recent advances in peanut breeding have introduced several new varieties with potentially improved agronomic and quality traits. Consequently, producers are interested in comparative performance data between these newer varieties and the established standard. In response to a documented local need, an on-farm large plot variety trial was conducted on a commercial peanut field in Ben Hill County, Georgia. The study was conducted under irrigated conditions to evaluate agronomic performance across eight cultivars: Arnie, DG913, FloRun-52N, Georgia-06G, Georgia-21GR, Georgia-22MPR, Georgia-23RKN, and TIFNV-HG. Stand counts, growth measurements, disease assessments, pod loss at digging, yield, and Grade parameters were collected and analyzed. Incidence of Tomato Spotted Wilt Virus (TSWV) remained low with no significant differences between cultivars, indicating minimal disease pressure in this trial. Cultivar Yields (lbs/A) ranged from 6218 to 7699 lb acre with TIFNV-HG and Georgia-06G out yielding Georgia 22MPR, Georgia 21GR, and Arnie. Kernel quality, as measured by total sound mature kernels (TSMK), varied among cultivars. Pod loss was also quantified for each variety, revealing a wide range from 189 to 887-pound loss per acre, suggesting notable differences in harvest efficiency and/or pod retention characteristics. Georgia 22MPR and Georgia-21GR had the greatest pod loss at digging compared to Georgia-06G, TifNV-HG, and FloRun-52N Findings from this research were disseminated to peanut producers in Ben Hill County.

Effects of Approved Seed Treatment Products on Stand Establishment and Agronomic Performance of Certified-Organic Peanut

WANN, D.Q.¹, Gregory, M.R.¹, Sawatzky, A.T.¹

¹International Peanut Group, Brownfield, TX.

Emergent plant stand is a major factor impacting yield potential and profitability of commercial certified-organic peanut production. Inconsistent seed quality and limited seed treatment options often result in poor emergent plant stands that can require up to one or two replanting events to ensure commercially-acceptable yield potential. Eight commercial, organic-approved seed treatment products for peanut were evaluated in 2025 for their respective impact on emergent plant stands and final yield and grade of peanut grown at a certified-organic location in Terry County, Texas. Seven products were evaluated in both seed-applied and in-furrow applications; one was evaluated only as a seed-applied treatment. “Stand establishment” was measured using Area Under the Progress Curve (AUPC) estimates from repeated stand count events at 14-, 21-, and 28-days-after-planting. Differences among treatments were significant ($P < 0.05$) for plant stand at each stand counting date, AUPC, and pod yield. In-furrow *Trichoderma koningii* + *T. harzianum* (“Promot® Plus”), seed-applied *Clonostachys rosea* strain J1446 (“LALSTOP® G46 WG”), and in-furrow *Streptomyces* sp. strain K61 (“LALSTOP® K61 WS”) resulted in the greatest stand establishment among treatments but did not differ significantly from the untreated control. Pod yields were greatest from the in-furrow LALSTOP® G46 WG and *Bacillus subtilis* + *B. licheniformis* (“SeedUp®”) treatments but did not differ significantly from the untreated control. Evaluation of these seed treatments will continue in 2026.

Validation of Equilibrium Moisture Content Based Models for Predicting Kernel Moisture Loss During Windrow Curing

ZURWELLER, B.¹, Tillman, B.², Brym, Z.², Hammond, W.², Wiggins, R.³, Goyzueta, M.D.², Kim, D.M.²

¹Plant and Soil Sciences, Mississippi State University, Mississippi State, MS 39762. ²University of Florida, Agronomy Department, Gainesville, FL 32611. ³Institute of Plant Breeding, Genetics, Genomics, University of Georgia, Tifton, GA 31794.

The rate of peanut kernel moisture loss after inversion varies considerably during harvest due to fluctuating environmental conditions. This can result in peanuts harvested at too low or high kernel moisture reducing grower profitability. Therefore, the primary objective of this research is to validate and calibrate kernel moisture loss models to determine if predictions have sufficient accuracy to aid growers with harvest recommendations pertaining to kernel moisture. Research was conducted from 2023-2025 to collect ground truth data for model validation and calibration. Experimental treatments consisted of three harvest times in each study year to maximize potential weather variation during peanut curing. Samples were collected daily for gravimetric kernel moisture content determination from the initial day of digging until harvest. The Young model coefficient of variation and root mean square error was 0.89 and 4.6%, respectively. The greatest source of prediction error with the Young model is that it does not account for pod moisture loss rate changes due to changes in seed moisture content. A new model that determines pod drying rates based on equilibrium moisture content (EMC) with a modified rainfall wetting parameter improved the model coefficient of determination and root mean square error by 4 and 1%, respectively. Additional model calibrations are currently being conducted to determine if model accuracy can be further improved.

Preliminary Assessment of Microbial Inoculation on Peanut Seed for Improved Drought Tolerance

DORIA, J.¹, Hussain, S.¹, Moreno, L.A.¹, Torres, T.S.C.¹, Pilon, C.²

¹School of Agricultural Sciences of Lavras, Department of Agriculture, Federal University of Lavras (UFLA), Lavras, Brazil. ²Department of Crop & Soil Sciences, University of Georgia, (UGA), Tifton, GA 31793, USA.

Peanut (*Arachis hypogaea* L.) is considered a relatively drought tolerant crop. However, it has faced reduced growth and productivity due to frequent drought episodes and high temperatures driven by climate change. Plant growth-promoting bacteria (PGPB) have emerged as a promising strategy to mitigate water-deficit stress effects on plants. This study evaluated bacterial isolates from the semi-arid region of Minas Gerais, Brazil, for their adaptation to water-deficit stress and potential as PGPBs. The isolates were characterized based on traits, such as exopolysaccharide (EPS) production, ACC deaminase (ACCd) activity, osmotic resistance, and proline production, which help reduce water-deficit stress in plants. High EPS production was observed in RIZMO15 and SE1M14, whereas RIZMO05 and SE2M15 exhibited elevated ACCd enzyme activity. Seventeen isolates exhibited resistance to extreme osmotic stress, and RIZMO12 and R2M15 showed high proline production. Based on these findings, 20 isolates were selected for inoculation (1×10^8 CFU/mL) into 'IAC-OL3' peanut seeds, and a control treatment (non-inoculated). Seed viability was tested prior to planting, and inoculated seeds were grown in pots with Viva Verde organic substrate. Two weeks after planting, 18 healthy seedlings per treatment were transplanted to trays containing a 1:2:1 mixture of soil, substrate, and sand and re-inoculated in the root zone. A second inoculation was performed ten days after transplanting. At peak flowering, shoot and root dry mass and leaf area were measured to assess the effects of the isolates on seed germination and seedling growth. Five of the 20 bacteria showed the best results for the variables germination, growth, and resistance to water stress in peanuts.

Photosynthetic and Yield Variation Among Peanut Genotypes to Biochar Amended-Soil Conditions in a Diverse Origin Peanut Population

PIERRE, F.¹, Hanif, S.¹, Sanz-Saez, A.¹, Chen, C.¹

¹Crop, Soil and Environmental Sciences Department, Auburn University, Auburn, AL 36849, USA.

Biochar is a carbon-rich amendment derived from the pyrolysis of organic material with high potential to improve soil physical properties, water retention, nutrient holding capacity, and overall plant productivity. This study aimed to understand physiological, root characteristics, and yield responses of peanut to biochar application. A population of 214 diverse origin peanut genotypes derived from six botanical families plus two breeding checks were evaluated under biochar application at a rate of 6 tons/acre with no-biochar control. A field experiment was conducted at Wiregrass Research and Extension Center, Headland, Alabama, using a split-plot block design with two replicates in 10-ft double-row plots. The biochar treatments constituted the main plots, while the peanut genotypes were randomized within the main plots. Physiological traits like net photosynthetic rate, stomatal conductance and intrinsic water-use efficiency were evaluated at 70-80 days after planting (DAP), while root traits were evaluated at 90-100 DAP using the shovelomic method along with pod yield after harvest. Preliminary results reveal significant genotype and treatment effects, as well as genotype-by-treatment interactions for all measured traits. The biochar application boosted physiological performance by improving soil properties, thereby positively influencing root development and water uptake. Although no overall biochar effect on yield was observed at the population level, genotype-specific yield responses to biochar were observed, highlighting the importance of genotype selection in biochar-amended systems. Further research is needed to elucidate the mechanisms driving differential cultivar responsiveness to biochar application.



58th Annual Business Meeting

July 16, 2026, 5-6 PM

San Juan, Porto Rico

Caribe Hilton, San Cristobal Ballroom

Agenda

- | | |
|--|---------------------------------|
| 1) Call to Order | Maria Balota, President |
| 2) Committee Reports | |
| • President's Report | Maria Balota |
| • Ad-hoc APRES Management Committee | Greg Macdonald, President-Elect |
| • Finance Committee | Foy Mills, Chair |
| • Nominating Committee | Rebecca Bennett, Past-President |
| • APRES Graduate Student Organization | Ranadheer Vennam, GSO President |
| • Site Selection Committee | David Langston, Chair |
| • Program Committee | Greg Macdonald, Chair |
| • Peanut Quality Committee | Chris Liebold, Chair |
| • Publications and Editorial Committee | Albert Culbreath, Chair |
| • Public Relations Committee | David West, Chair |
| • Peanut Science, Editor's Report | Chris Butts, Editor |
| 3) Award Presentations | |
| a. Joe Sugg Graduate Student Competition | Bob Kemerait, Chair |
| b. Coyt T. Wilson | Lisa Dean, Chair |
| c. Corteva Agriscience Research and Education | John Cason, Chair |
| d. Bailey Award | Josh Clevenger, Chair |
| e. Fellows | Pete Dotray, Chair |
| 4) Recognition of Retiring Board Members & Past President | |
| 5) Passing of Gavel: President Maria Balota to President-Elect Greg Macdonald | |
| 6) Adjourn to Awards Reception – <i>Sponsored by Corteva Agriscience</i> | |

APRES Board of Directors Meeting Minutes 16 July 2026

Call to order – Maria Balota 5:01 pm

Committee Reports

President Report – Maria Balota

Ad Hoc APRES Management Committee – Greg Macdonald - Due date may be extended to end of July. We have a good mix of folks to work on this. We have developed another Ad Hoc committee for sponsors. Let us know if any would like to join.

Finance Committee – Foy Mills – Introduced the committee.

Nominating Committee – Rebeca Bennett – Nominations were listing on the screen ***Motion by Greg Macdonald seconded by Keith Rucker. All in favor.***

APRES Graduate Student Organization - Ranadheer Vennam

Site Selection Committee – David Langston

Program Committee – Greg Macdonald

Peanut Quality Committee – Chris Liebold

Publications and Editorial Committee – Albert Culbreath

Public Relations Committee – David West

Peanut Science – Chris Butts – Albert Culbreath mentioned that we are already doing the ethical items and we are only putting the policy into black and white. Don't want anyone to think there has been a problem with ethics on the part.

Greg Macdonald moved to accept all the committee reports and Corley Holbrook seconded. All in favor.

Award Presentations

Joe Sugg Graduate Student Competition – Bob Kemerait

MS 1st Place – Gracie Roberson

MS 2nd Place – Jeret Royston

MS 3rd Place – Muskan Tiwari

PhD 1st Place – Ashmita Upadhyay

PhD 2nd Place – Daniel Matusinec

PhD 3rd Place – Alexi Dong

Posters

MS 1st Place – Charles Naapoal

MS 2nd Place – Carlos Toruno

PhD 1st Place – Gourav Chahal

PhD 2nd Place – Ranadheer Vennam

Coyt T Wilson – Lisa Dean
Winner – Rebecca Bennett

Corteva Agriscience Research and Education – John Cason
Research Winner – Maria Balota
Education Winner – Cristiane Pilon

Bailey Award – Josh Clevenger
Winner – Cristiane Pilon

Fellows – Peter Dotray
David Bertoli – I am really honored. Thank you everyone for keeping things going at APRES. Thanks to all at the Peanut Lab. I look forward to going to work every day. Most of all thanks to Soraya.

Mark Burow – Not sure what to say. Didn't expect Peter to say all the nice things about me. It's been an honor to work in peanuts to help growers and grad students. It is my honor to realize it's the students and post docs who do most of the work. I thank them.

Josh Clevenger – I think the most thing I take away from this is that the nominations are by your peers that see what you have done and the impact, and here I am. I heard Bob talk about Joe Sugg, tradition, and growing talent. I fit in that mold because I am still here and I care so much about APRES ever since I was a student. Please take Bobs words to heart about the young people being so passionate and talking to them as adults and treating them as peers and cultivating their passion. I just wanted to make an impact. I'm very honored. Thank you to the committee and those who sent the letters.

Naveen Puppala – Honor for me. Thank the committee. It would not be possible without my cooperators, The Peanut Innovation lab. Funding is not easy. Try to do work to keep my growers happy. I appreciate the support from National Peanut Board.

Recognition of Retiring Board Members & Past President

Painting was made by Dong Chen, Charles wife, and we thank her very much.

Emi Kimura
Kelly Chamberlin
Shelly Nutt
Peggy Tsatsos
Rebecca Bennett

Passing of Gavel: President Maria Balota to President-Elect Greg Macdonald

Greg – I look forward to serving this year. Extend applause to APC for all they did.

Adjourn to Awards Reception Motion *Greg Macdonald Motion and seconded by Shelly Nutt*

6:38 pm

2026 APRES President's Report

APRES is a relatively small but great community, and it was my privilege to serve as its 58th president. Thank you for trusting me to it!

I hope you enjoyed the program this year and looking forward to next year and the 60th anniversary in 2 years. I would like to acknowledge the contributors to this year's meeting and society affairs: the Program Committee (the Officers and the Technical Chair Committee), the APC Management Team, the Board Members, and all 12 Committees. Many thanks to our generous sponsors from which we received a little over \$37,500 this year. Last, but not least, thank you, the members, for your participation. This year we had a great attendance in spite of somehow being a more expensive trip than usual.

This year 2 items dominated the board's activities: the APRES budget and the renewal of the APC management agreement.

Equity wise, APRES is doing well, but the rate of equity erosion is alarming. The budget has been on a negative balance every year since COVID. We spent in these 6 years ~\$144,000 from savings with an estimated left cash on hand of ~\$160,000. If we subtract ~\$47,000 estimated loss this year, how long will our savings last if continue at this pace?

The measures taken by the BOD this year alone:

- Increased the member (\$400) and student and retiree registration fee (\$100).
- Maintained the spouse participation fee of \$25 per guest. But the per head cost of the food and beverages is \$200.
- Simplified the spouse program to only provide a room (at no cost for APRES), if they needed. It was not needed; therefore, a spouse room will not be provided in the future.
- Changed the dinner gala into a signature lunch on Wednesday.
- Approved the flat fee for publication in Peanut Sci. to \$1,500, which seems almost double charge from the previous cost, yet half what other open journals charge.

These measures were not sufficient; therefore, I asked the Finance Committee to make new recommendations to stop the equity erosion.

The APC management agreement, of which I was made aware after the meeting last year, started in 2022 with renewal every 2 years. The contract is from May 1 through April 30 and needed renew in April 2026 (to be signed by the APC CEO and APRES President). The agreement includes the main responsibilities former Executive Officers (preparation of the annual meetings, website maintenance, and financials or book keeping). It specifies a \$40,000 management fee to APC for services, funding by APRES of 3 APC people to attend the annual meetings (there were 2 people in the former contract), a quarterly APRES Newsletter produced by APC (this never happened), and annual review for APC by the APRES Board (this also never happened).

The Board proposed to APC the following contract changes:

- Released the AC from the newsletter responsibility.
- Approved yearly APC evaluation by all APRES members (a combination of evaluation APC and APRES Program's activities is available online, please take the survey).
- The rest of the contract was the same, including the \$40,000 management fee and 3 APC people paid by APRES to attend the annual meetings.

In response, APC gave us 3 options:

- Increased management fee to \$75,000, the number of APC people paid by APRES to attend our annual meetings increased to 5, no sponsorship "requesting" by APC.
- APRES BOD dissolves and APRES becomes part of APC, then there will be no management charge.
- APRES goes for other management venues.

The BOD had chosen the 3rd option and voted on an Ad Hoc Committee lead by Greg Macdonald to look into all possible management venues. APC graciously accepted that APRES stays on a contract extension until end of Sep (end of APC fiscal year) until we find a management solution.

My president reflection on the situation:

- Communication between BOD, APC or any other management entity, and APRES members needs to improve:
 - BOD decisions should be made available online.
 - The management contract be posted online.
 - Yearly online survey for the BOD, management entity, and Program Committee performances.
- To correct the budget and regardless of who is managing APRES, the Finance and Site Selection Committees need to become heavily involved with setting a threshold for hotel costs so that we can select locations and hotels that we can afford. These committees need to work hand-in-hand with the management entity and the Board. Budget proposals should be presented for Board approval a year ahead of the annual meetings.
- Reducing the costs and increasing the income of society should be simultaneously considered. A proposal has been made to increase participation; maybe we need to develop an Ad hoc committee to look into this.
- Selection of future management should be made unbiased by us belonging to industry or academia, solely for the benefit of APRES as a whole.

2026 APRES 'Ad-hoc' Management Committee Report

Committee Members:

- Greg MacDonald, Chair
- Kelly Chamberlin
- Peggy Tsatsos
- David Jordan
- Gary Schwarlose
- Keith Rucker

An ad hoc committee was created at the April APRES Board of Directors (BOD) meeting to review the executive officer position and its duties, as our contract with our current management partner, the American Peanut Council (APC) is expiring. The task of the committee was to provide recommendations to the BOD for future management of APRES. The current contract for management expired in April 2026, however this has been extended with APC until September 30, 2026.

The committee initially defined the duties of the executive officer position, as these have changed drastically over the years. The committee looked at management of other societies like ours, and found a range of how they operate, from one large management group to different groups managing different functions, to management within the society by volunteers. Duties for which management was needed fell into 3-4 broad categories – secretarial and/or treasurer, website management, and meeting management. Based on these categories, separate requests for proposals were developed for 1) secretary/treasurer, 2) website management, and 3) meeting management. These were combined into a single document and distributed to the APRES membership, interested parties and posted on the APRES website. Solicitors were asked to bid on all three, one or two of the proposals, but provide individual/separate costs for each service. The deadline for proposals was July 20, 2026, but was extended to July 31, 2026. The committee will review the proposals and provide recommendations to the BOD, with the goal of having management in place by September 30, 2026.

2026 APRES Finance Report

Committee members

- Foy Mills, JLA, Chair (2027)
- Travis Faske, UA (2026)
- Cristiane Pilon, UGA (2027)
- Chris Liebold (2028)

A conversation regarding APRES financials began via email with Maria Balota (President) the week of June 22, 2026. Subsequent to this email interaction, contact was made with Renee Duell (Finance and Administration) requesting APRES balance sheets, and profit and loss statements. Those were provided and these documents were inputted into a comparative analysis format. These comparative balance sheets, and profit and loss statements were then distributed them to the committee and the executive team of Maria Balota, Greg MacDonald (President-Elect) and Rebecca Bennett (Past-President).

The finance committee met virtually with the executive team and Ms. Duell on July 8, followed by a finance committee meeting (including Ms. Duell) on July 10.

After review of the financial documents and extensive conversation, the finance committee made several observations and offer the following recommendations to the APRES Board of Directors for consideration.

Observations/Comments

- Regular membership is flat and has been flat for a number of years (i.e., no growth).
- Registration has failed to cover the cost of the annual meeting. Sponsorships, which have fluctuated, have been used to cover shortfalls.
- Although APRES' equity position from a solvency standpoint remains within reasonable financial accounting measures, spending has exceeded income in recent years, which has caused APRES' strong equity position to steadily erode.
- Therefore, to stabilize and rebuild APRES' financial positions, the finance committee recommends the following measures.

Recommendations

- 1) Registration for the annual meeting must cover meetings costs excluding sponsorships. Regular member meeting registration fees have been insufficient to cover the uncovered costs associated with discounted registration for students and until recently, no registration fee for guests.
 - a) To cover the estimated meeting expenses included in the 2027 APRES budget, registration for members must increase to \$550 for early-bird registrants and \$650 for those not meeting the early-bird deadline.
 - b) To cover food and beverage costs, student registration must increase to \$200.
 - c) For guests, a \$200 registration fee must be applied or move to a selection menu with associated prices.
 - d) We recommend an inflation factor (e.g., Consumer Price Index) be used to adjust registration fees annually.
- 2) Hotel selection (contract) generally occurs two years prior to the APRES budget approved for that year's meeting. Therefore, to establish parameters for the site selection committee, meeting costs should be no more than a moving average of meeting costs for the three previous years. Any deviations from this parameter must be approved by the Board of Directors. We also recommend that uni-

versity conference sites be checked periodically for any cost-savings and be considered by the site selection committee (e.g., 2019 annual meeting held at Auburn).

- 3) Establish an ad-hoc sponsorship committee to work with management firm in soliciting sponsorships for the annual meeting. We also recommend that this ad-hoc committee review the sponsorship tiers for possible adjustments.
- 4) If meeting sponsorships exceed \$30,000 in any given year, any monies exceeding annual meeting costs are placed in the reserve.
- 5) Regular membership has been \$100 since 2006. Using the Consumer Price Index to account for inflation, the equivalent in 2026 is \$167. We recommend dues be raised to \$150 for regular members, all other dues to remain the same.

2026 APRES Nominating Committee Report

Rebecca Bennett, Chair

A total of five nominations were presented and accepted to fill vacancies on the APRES Board of Directors:

- President-Elect from the Southwest: Shelly Nutt, Texas Peanut Producers Board
- USDA Representative: Shyam Tallury, Plant Genetic Resources Conservation Unit, Griffin, GA (term expires 2028)
- Industry Representative for Crop Production: Dylan Wann, International Peanut Group, Brownfield, TX (2028)
- Southwest University Representative: John Cason, Texas A&M University, Stephenville, TX (2029)
- Manufacturer Products Representative: Peggy Tsatsos, Mars Incorporated, Chicago, IL (additional term ending 2029)

Because term end dates were not published in recent Proceedings and annual meeting programs, two BOD positions were inadvertently extended beyond their original terms. As a result, the new representatives for the USDA and Crop Production positions will serve for two instead of the usual three years.

We thank the outgoing members of the Board for their service:

- Emi Kimura, Southwest University Representative
- Kelly Chamberlin, USDA Representative
- Shelly Nutt, Grower Association Representative

Respectfully submitted,

Rebecca Bennett (USDA), Chair/Past President

Alicia Massa, USDA Representative

David Deshazo (JLA International), Private Business Representative

Jeff Dunne (NCSU), State Representative

2026 APRES Graduate Student Organization (GSO) Annual Report

2025–2026 GSO Executive Committee

- President: Ranadheer Reddy Vennam
- Vice President: Malarvizhi Sathasivam
- Reporter: Teresa Gaus-Bowling
- Social Media Chair: Vikash Verma

Activities and Student Engagement

During the 2025–2026 year, the APRES Graduate Student Organization (GSO) continued to represent graduate student members while working closely with the APRES Board of Directors to enhance student engagement and communication.

Published the Goofy Goober, the quarterly GSO newsletter, highlighting graduate student achievements, award winners, and APRES activities.

Featured graduate student spotlights showcasing student research, career interests, and contributions from peanut-producing states.

Shared peanut research updates, industry news, conference announcements, and introduced the GSO Executive Committee through social media.

Maintained regular communication with graduate students through email updates, announcements, and feedback requests.

Established a dedicated Graduate Student Organization (GSO) section on the APRES website with support from Gene Crawford.

Increased the APRES GSO Instagram presence to more than 800 followers.

58th Annual APRES Meeting

San Juan, Puerto Rico | July 14–16, 2026

Hosted the Graduate Student Luncheon, sponsored by Syngenta, on July 16, with more than 50 graduate students in attendance.

Dr. Jack Davis of JLA International addressed students during the luncheon.

Conducted elections for the 2026–2027 APRES GSO Executive Committee.

Announced Malarvizhi Sathasivam (Clemson University) as the incoming APRES GSO President and Graduate Student Representative.

2026–2027 GSO Executive Committee

Position	Officer	Institution	Email
President	Malarvizhi Sathasivam	Clemson University	msathas@g.clemson.edu
Vice President	Ashmita Upadhyay	University of Georgia	au08019@uga.edu
Reporter	Karishma Khanal	Auburn University	kzk0164@auburn.edu
Social Media Chair	Shimran Dahal	Clemson University	shimrad@clemson.edu

Annual Report Presentation

The 2025–2026 APRES Graduate Student Organization Annual Report was presented by Ranadheer Reddy Vennam, GSO President, during the APRES Awards and Business Meeting held from 6:00–7:00 p.m. on July 16, 2026.

2026 APRES Site Selection Committee Report

The site selection committee of APRES met at 4:00 PM on Tuesday the 14th of July at the 2026 annual APRES meeting. Those present were Christina Taylor (Meeting Director), David Langston (Chair), Jake Fountain (Vice-chair), Todd Baughman, Kris Balkcom, and Jacob Forehand. The committee primarily discussed the site of the 2027 meeting which will be held in Santa Fe, NM. Santa Fe offers a unique destination with a rich cultural heritage, outstanding dining, outdoor recreation, and a pleasant summer climate. Accommodations will be provided at the Dury Plaza Hotel. The Drury is an outstanding choice financially because:

- No food and beverage minimum, significantly reducing APRES' financial risk.
- Competitive guest room rate of \$239 per night.
- No resort or amenity fee, helping minimize attendees' out-of-pocket expenses.
- Recently renovated guest rooms and public spaces, providing an updated and comfortable experience.
- Reasonable catering pricing, helping keep meeting costs affordable.
- Competitive audiovisual pricing and concessions, reducing production costs.
- Hotel Amenities
- Complimentary hot breakfast each morning for all hotel guests.
- Complimentary evening reception with food, soft drinks, and alcoholic beverages each evening, providing significant added value for attendees.
- Discounted parking for attendees.

The Drury also provides destination appeal as it's located just one block from the historic Santa Fe Plaza, with easy walking access to restaurants, shopping, museums, and local attractions.

Conversations concerning the location of the 2028 meeting centered city venues. Locations highlighted were: 1) Ashville, NC; 2) Charlottesville, VA; 3) Norfolk, VA; and 4) Virginia Beach, VA. Criteria used to select these cities were cost, destination appeal, and summer climate. The committee will work together in the coming months to finalize the location.

Respectfully submitted,



David Langston

2026 APRES Program Committee Report

Committee Members

- Greg MacDonald, Local Arrangements and Program Committee Chair
- Cristiane Pilon, Technical Program Chair

Committee Planners

- Maria Balota, APRES President
- Luke Blaustein, APRES Executive Officer
- Christina Taylor, APRES Meeting Planner
- Gene Crawford, APRES Webmaster
- Renee Deuell, APRES Financial

Participation:

- 225 registered attendees, including 55 students and 82 spouses and family members
- Total of 9 sessions, 49 student competition oral and poster presentations
- 104 oral presentations, including 18 MS and 20 PhD Joe Sugg presentations
- 57 poster presentations, including 5 MS and 6 PhD National Peanut Board competition posters

Sponsorship - 22 Meeting Sponsors:

Bayer	BASF	Corteva Agriscience
Birdsong Peanuts	Syngenta	North Carolina Peanut Growers
FMC	Texas Peanuts	National Peanut Board
Premium Peanut	Hampton Farms	FINE-America
JLA	Visjon Biologics	J.M Smucker
ADAMA US	OFI	Georgia Peanut Commission
Valent	Wilco Peanut	Full Moon Engineering
AMVAC		

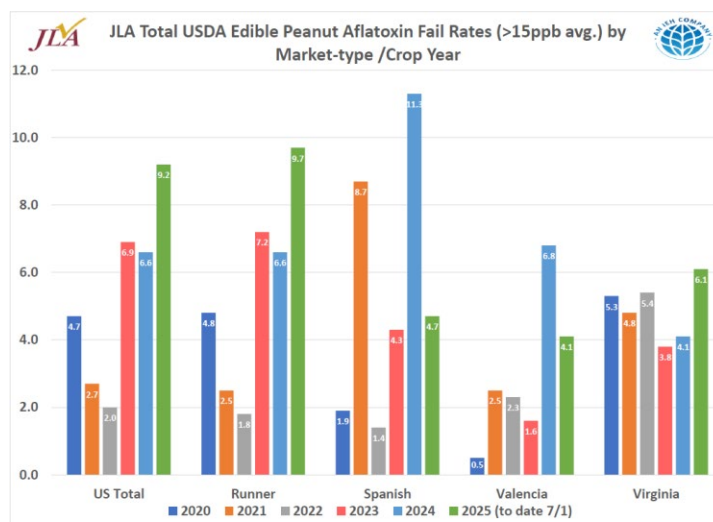
Program Highlights:

- General session theme “Peanuts: All Year Round” focused on the historical and current agriculture of Puerto Rico and linkages to peanuts and other crops
- Charles Simpson Wild Species Session
- Grower-Focused Session

2026 APRES Peanut Quality Committee Report

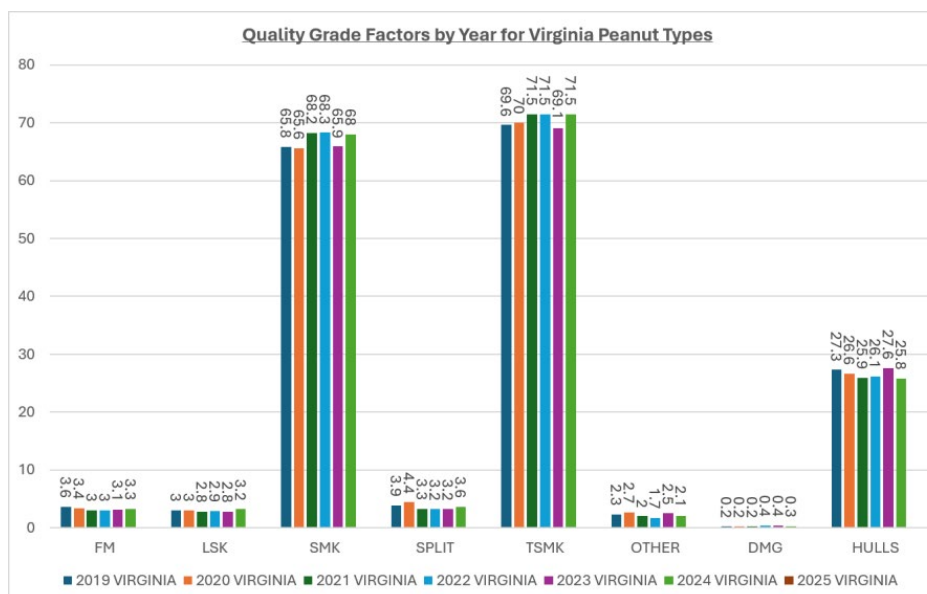
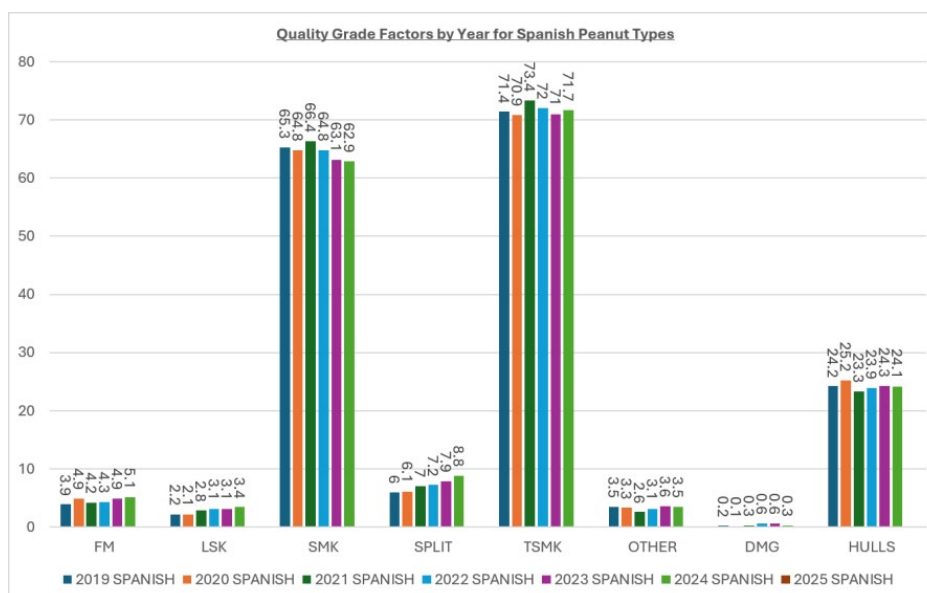
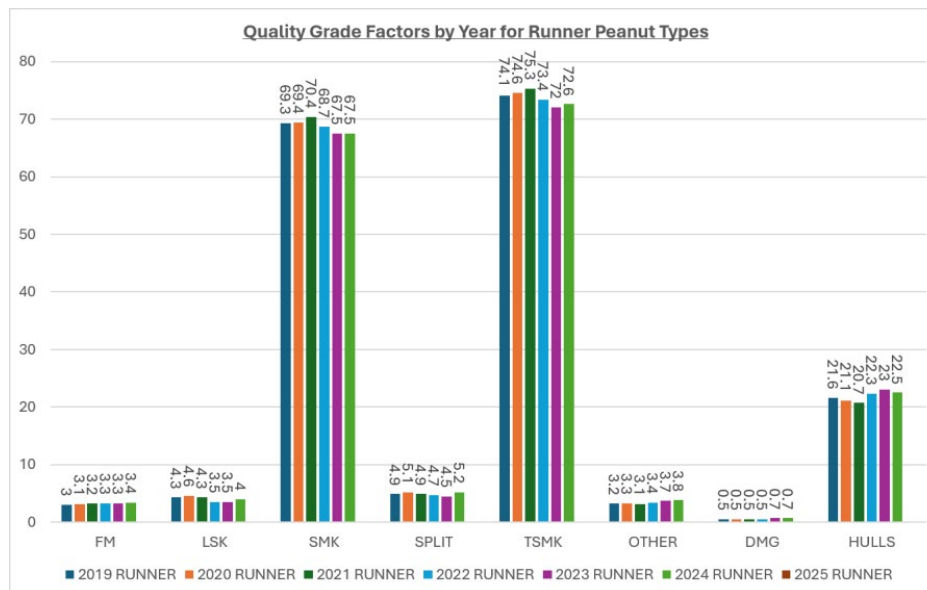
2025-26	Term End	Rep
Chris Liebold, Chair JM Smucker Co.	2026	Manufacturer (3)
Peggy Tsatsos Mars	2026	Manufacturer (3)
Donald Chase GA Peanut Board	2027	Grower (3)
Raegan Wiggins Premium Peanut	2027	Sheller (3)
Wilson Faircloth Syngenta	2027	Services (3)
John Cason Texas A&M	2028	Breeder (1)
Darlene Cowart Birdsong Peanut	2028	Sheller (3)

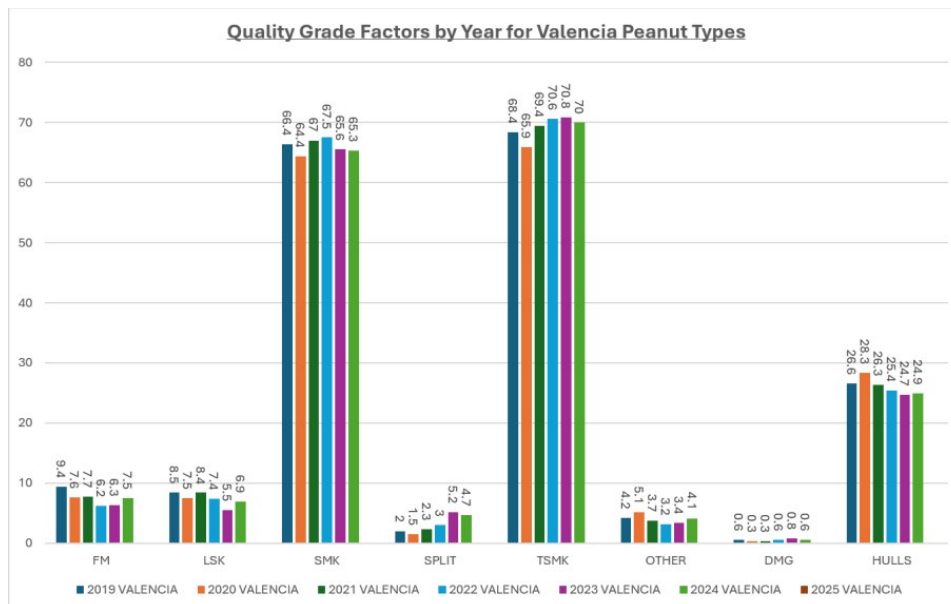
- Review of Past Meeting Notes – **Chris L. (JM Smucker)**
- 2025 Raw Peanut Quality Result - **Chris L. (JM Smucker)**
- Aflatoxin – **David (JLA)**
 - Shared data – see below.



Disclaimer: This report is final and may only be altered or revised by JLA.

- Seed Composition – **LCU**
 - Julie Marshall shared that this year’s crop was consistent with past years.
 - Average Fat
 - Average protein
- Federal/State Grade Data – **Raegan (Premium)**
 - Shared data – see below.

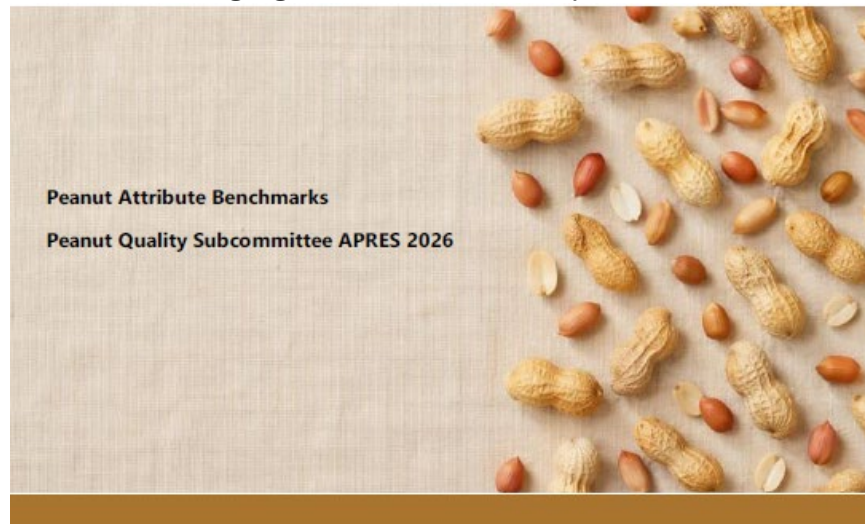




- Barry Tillman asked if any of this increase is related to shelling practices.
 - Raegan shared that drying practices and handling practices can influence these.
- Shell-Out Data – **Raegan (Premium)**
 - No shell out data from aggregated across the shellers.
 - Shared the USDA COA.
 - Asking if this data is needed, then it will take initiative to develop that across the shellers.
 - Yes, it would be useful. But what is the mechanism to do that?
 - Talk ASPA (Chris C.) about how to make it happen with the shellers. Aggregate data would be anonymous.

		UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SPECIALTY CROPS INSPECTION DIVISION MILLED PEANUT INSPECTION CERTIFICATE		FEDERAL-STATE INSPECTION CERTIFICATE	
This certificate is issued pursuant to the Agricultural Marketing Act of 1946, as amended and is admissible as prima facie evidence in all courts of the United States. WARNING! Any person who knowingly shall make, issue, alter, forge or counterfeit this report, or participate in any such actions, is subject to a fine of not more than \$1,000 or imprisonment for not more than one year, or both.					
Sampling Started: 04/01/2026 @ 4:07 AM			Sample Analysis Completed: 04/01/2026 @ 5:28 AM		
Applicant:			Sampled at:		
Where Analyzed:					
Receiver:		Not Given		Shipper: Same as Applicant	
Applicant States: 44,000 lbs Shelled Runner Type Peanuts in 20 Polypropylene Tote Sacks					
Tagged Lot: Lot tagged with White tags inscribed: USDA - Georgia Federal-State Inspected House 59 Lot 11280 Crop 25 Premium Peanut, LLC Douglas, Georgia Product of USA Shelled Peanuts (Runner Type) 2200 Lbs. PREMIUM PEANUT STRONGLY URGES THE PURCHASER OR RECIPIENT OF THE RAW PEANUTS IN THIS CONTAINER TO COOK THE PEANUTS BEFORE CONSUMPTION.				30 Tags Issued 28 Tags Used 2 Tags Destroyed	
Sample of Approximately 75,000 Grams Drawn, 1000.3 Grams Analyzed contained the following:					
18.42 %		S/W Kernels Passing 21/64 x 3/4 Inch Slot		Lab Sample Weights	
0.00 %		S/W Kernels Passing 16/64 x 3/4 Inch Slot		NO.1 51 Lbs.	
0.00 %		S/W Kernels and/or Sound Split & Broken Kernels Passing 17/64 Inch Round Count 40 Per Ounce		NO.2 48 Lbs.	
0.0 g		Other Types of Kernels		NO.3 49 Lbs.	
23.0 g		2.30 % Split or Broken Kernels			
4.3 g		0.43 % Damaged or Unshelled			
1.9 g		0.19 % Minor Defects			
0.0 g		0.00 % Foreign Material Based on 2001.2 grams			
		6.30 % Moisture			
Grade: U.S. NO. 1 RUNNER MEETS APSA "JUMBO RUNNER"					
NO.1 Sample PLI and Returned to Applicant's Agent. 04/01/2026.					
Remarks: Above Lot Meets Requirements of 7CFR part 996 for Human Consumption					

- Benchmarks for Traits of Interest – **Sub Committee Report (Matt S – JM Smucker, Kelly C. - USDA, Peggy T. - MARS, Jennifer B. - Algood, Ken S. – Hampton Farms)**
 - Runner
 - Spanish
 - Shared the data tables – See below.
 - Virginia
 - Valencia
- The correlation between yields affecting quality traits is there. Fat in particular.
- Fava Bean is example of yield hurting protein.
- Is there target yield?
- Conversation of segregation of HO and NO peanuts.



Stabilized Peanut Butter

Runners — Attribute Benchmarks

Attribute	Range / Low Limit	Key Comments
Peanut Type	Runners	—
Flavor (RP + SW)	Min 6 RP + 2 SW (scale of 10)	Oven roast: 350°F, 12–14 min depending on moisture/maturity
Fat %	46–50% (Soxhlet) target 48%	Smalls run lower — OK
Protein %	Maintain or exceed 23.5% (GA-06G avg)	Varies with maturity/environmental factors
Sugar %	Target 3.5%, low limit 3%	—
Fiber %	Maintain or exceed 8.5%, low limit 8%	Maturity determines fiber; related to sugar content
Saturated Fat %	Maintain 17–19% (GA-06G level)	>17% critical to stabilization & texture consistency; palmitic drop in high oleic varieties
Linoleic Acid %	Pursuing reduction while keeping sat fats at current 17–19%	For oxidative stability, focus on low linoleic acid vs. high oleic — applies to all peanut types

Key: Saturated fat (17–19%) is critical for texture consistency and stabilization; linoleic acid reduction is actively pursued for oxidative stability.

2

Unstabilized Peanut Butter

Runners & Spanish — Attribute Benchmarks

Attribute	Range / Low Limit	Key Comments	Attribute	Range / Low Limit	Key Comments
Peanut Type	Runners	—	Peanut Type	Spanish	Not small-seeded runners
Flavor (RP + SW)	Min 6 RP + 2 SW (scale of 10)	—	Flavor (RP + SW)	Min 6 RP + 2 SW (scale of 10)	Spanish avg higher RP & SW
Fat %	41–50%, target 45% (Soxhlet)	Smalls run lower — OK	Fat %	41–47%, target 44% (Soxhlet)	Smalls run lower — OK
Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors	Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors
Sugar %	Target 3.5%, low limit 3%	—	Sugar %	Target 4%, low limit 3.5%	—
Fiber %	Maintain or exceed 8.5%, low limit 8%	—	Fiber %	Maintain or exceed 8.5%, low limit 8%	—
Saturated Fat %	20% or lower OK	Not a factor in texture for unstabilized PB	Saturated Fat %	20% or lower OK	Not a factor in texture for unstabilized PB
Linoleic Acid %	Low linoleic / High oleic acid peanuts OK	—	Linoleic Acid %	Low linoleic / High oleic acid peanuts OK	—

Key: Saturated fat level doesn't matter for texture in unstabilized PB; Spanish peanuts have a lower fat range (41–47%) and a higher sugar target (4% vs. 3.5%). Southwest region 100% high oleic/low linoleic

Unstabilized Peanut Butter

Valencia — Attribute Benchmarks

Attribute	Range / Low Limit	Key Comments
Peanut Type	Valencia	
Flavor (RP + SW)	Min 6 RP + 2 SW (scale of 10)	Valencia average higher SW
Fat %	41–47%, target 44% (Soxhlet)	Smalls run lower — OK
Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors
Sugar %	Target 4.5%, low limit 4%	Highest sugar content
Fiber %	Maintain or exceed 8.5%, low limit 8%	—
Saturated Fat %	20% or lower OK	Not a factor in texture for unstabilized PB
Linoleic Acid %	Low linoleic / High oleic acid peanuts OK	—

Key: Similar to Spanish, only difference of note slightly higher sugar.

4

Whole Unshelled Kernels

Runners & Virginias — Attribute Benchmarks

Attribute	Range / Low Limit	Key Comments	Attribute	Range / Low Limit	Key Comments
Peanut Type	Runners	Seed size important, desire more mediums	Peanut Type	Virginias	Prefer XL and super XL
Flavor (RP + SW)	Min 6 RP + 2 SW (scale of 10)		Flavor (RP + SW)	Min 5.5 RP + 2 SW (scale of 10)	It would be ideal to drive RP up to 6.
Fat %	46–50% (Soxhlet) target 48%		Fat %	41–47% (Soxhlet) target 44%	
Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors	Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors
Sugar %	Target 3.5%, low limit 3%	—	Sugar %	Target 4%, low limit 3.5%	—
Fiber %	Maintain or exceed 8.5%, low limit 8%	—	Fiber %	Maintain or exceed 8.5%, low limit 8%	—
Saturated Fat %	20% or lower OK	—	Saturated Fat %	20% or lower OK	—
Linoleic Acid %	Low linoleic / High oleic acid required	—	Linoleic Acid %	Low linoleic / High oleic acid required	—

Key: Runners: Mediums high demand seed size important, Virginias prefer XL and super XL, high oleic/low linoleic required.

5

Shelled Peanuts

Virginias — Attribute Benchmarks

Attribute	Range / Low Limit	Key Comments
Peanut Type	Virginias	Jumbos and Fancy targeted, equal distribution. High hull quality is critical.
Flavor (RP + SW)	Min 5.5 RP + 2 SW (scale of 10)	Drive RP up to 6.
Fat %	41–47% (Soxhlet) target 44%	
Protein %	Maintain or exceed 23.5%	Varies with maturity/env. factors
Sugar %	Target 4%, low limit 3.5%	—
Fiber %	Maintain or exceed 8.5%, low limit 8%	—
Saturated Fat %	20% or lower OK	—
Linoleic Acid %	Low linoleic / High oleic acid required	—

Key: Jumbos and Fancy targeted, high oleic/low linoleic acid required.

6

- Emerging Technologies to Measure Peanut Traits
 - Qsorter – Jack D. (JLA)
- Shared Q-The Qsorter Explorer is a high-speed single kernel measurement and sorting instrument produced by Qualysense Analytics AG based in Switzerland.
- It can measure (options provided below) and sort ~20 kernels/second nondestructively based on predetermined algorithms.

- The first instruments in the peanut industry were introduced in 2018 and since then it has been adopted by multiple US seed breeders, quality inspectors, shellers and/or manufacturers.
- In January 2026 Qualysense was purchased by IEH Laboratories and Consulting Group based in Seattle WA.
 - IEH is a privately owned network of laboratories, instrument manufacturers, and technical consultants, among other related industries.
 - IEH also owns JLA, who has been closely involved with the development of the Qsorter instrumentation for peanut applications.
 - It was noted this change in ownership should be very positive for the peanut community using this instrumentation, as IEH is committed to supporting the instrument and improving the technology.
 - Mihai Vranakar (technical lead at Qualysense; been with the company 10+ years) was trying to make the conference, but they are in the process of moving their headquarters to a new facility in Switzerland this week.
- Qualysense has fully moved to their “2.0” instrument
 - Updated near infrared (NIR) detector, updated camera and updated computer
 - More advanced algorithms
 - Modular design will allow hardware updates in the future without having to buy a completely new instrument
 - Measurement options (users can customize for these options):
 - NIR: oleic, mold, aflatoxin, protein, oil and/or sugar
 - Vision: size, visual defects, blanched/unblanched, geometry, roast color
 - Users for the 2.0 will be able (if they choose) to generate their own calibrations via the NIR and/or vision systems.
- Users for the 1.0 generation of instruments are now also available (upgrade available) to develop their own NIR calibrations.
- It was emphasized that for any measurement being applied, the users should be sure that the instrument is properly validated for that measurement.
 - Procedures for this are published and the users can do this themselves or work with outside expertise to validate.
 - Generate appropriate metrics to define instrumental error, limitations, etc. (true for any scientific instrument)
 - Have appropriate quality checks/systems to operate the instrument successfully
- If users are interested in participating in a user group technical exchange, please contact JLA.
 - Update on NIR measurement of Flavor – Jeff D. (NC State)
 - Shared presentation – see below.

DEVELOPING SCREENING METHODS FOR ROAST PEANUT FLAVOR CHARACTERIZATION USING NEAR- INFRARED (NIR) SPECTROSCOPY

Peanut Research Foundation
Flavor Project Update

Jeff Dunne | Room 210, Unit 3, Method Road | 314.610.6568 | jdunne@ncsu.edu

Flavor Modeling using Raw NIR Spectra Output
GO.NCSU.EDU/PBG-NIR

NC STATE
UNIVERSITY

CROP AND SOIL SCIENCES

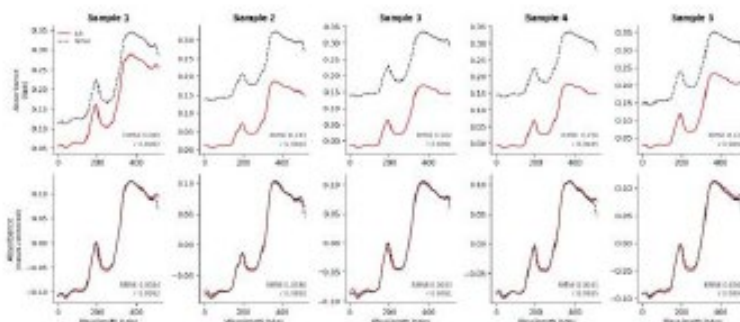
NCSU
PBG
NIR Classifier

Flavor Modeling using Raw NIR Spectra Output
GO.NCSU.EDU/PBG-NIR

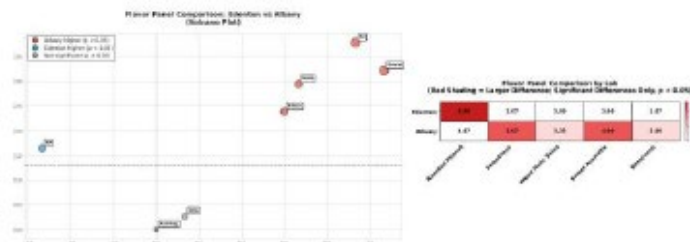
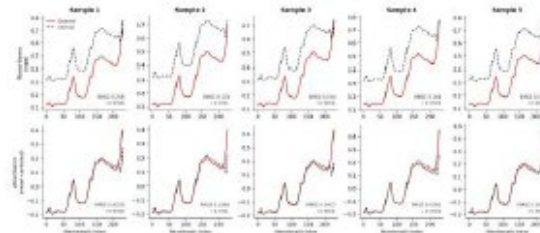
NC STATE
UNIVERSITY

CROP AND SOIL SCIENCES

MEAN PEARSON R	BINSE REDUCTION AFTER CENTERING	RAW BINSE RANGE	RESIDUAL BINSE AFTER CENTERING
0.9990 Spectral Shape Agreement	94% vs. Raw Absorbance	0.040-0.143 Absorbance Units	< 0.005 Mean Across Samples



MEAN PEARSON R 0.900 Standard Error Agreement	BIAS REDUCTION AFTER CONTROLLING 91% vs. Raw Absorbance	RAW BIAS RANGE 0.199-0.279 Absorbance Units	RESIDUAL BIAS AFTER CONTROLLING 0.009-0.060 Flavor Amino Acids
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Flavor Project - Future Work

Sample Requests from US Peanut Breeding Programs

- All Market-types
- Variable Locations
- All Breeding Programs
- Flavor Range (Good > Bad)

Google Submission Form

- Sample Metadata (Location, Year, Breeding Program etc.)
- Flavor Panel Data
- NIR Sample Data
- Genotype Data



- Shared flyer – see below.



KASP Peanut Flavor Marker Kit
Commercial KASP kit with selective markers for flavor potential

Test the kit yourself to see what works in your populations

- 1 Run KASP flavor marker to detect SNPs
- 2 Collect sensory data from expert descriptive panel*
- 3 Correlate kit and sensory data
- 4 Make data-driven breeding decisions based on flavor potential
- 5 Use the KASP kit with confidence to rapidly screen for flavor

This kit can be used as the first step in a multi-variable screening process to evaluate flavor potential in peanuts.

Contact for more information

ADRIAN RUSSELL
 Regional Acct Manager, South Central Diagnostics and Genomics
 401-871-5362 mobile
 Adrian.Russell@LGCGroup.com

*Sensory data should be generated by a validated peanut sensory lab.

- **Small Seeded Runner vs. Spanish Peanuts – Chris L. (JM Smucker)**

- Reiterated Spanish peanuts do not equal small seeded Runners in flavor and other quality factors.

- **Pesticide Residual Update – Chris B.**

- Chris shared history and most of the samples were found to be below the analytical amount.

- **A Heavy Metals Survey of Farmers' Stock Peanuts – Chris B. / Lou X.**

- Most of the samples collected were below the level of detection. There were few samples above.
- Mars 3-year data set – Peggy T. (MARS)
 - Corroborates what Dr. Butts shared. Everything was 0.2 or less. Shared it with EU and were able to qualify several new suppliers. Not publishing.

- **Discussion on combining Seed Summit to the Peanut Quality Committee – Keith R./Chris L.**

- Take the conversation offline, but Keith Rucker (Seed Summit) is aligned with the proposal of merging the two meetings for a more efficient agenda.

- **Open Discussion – Chris L. (JM Smucker)**

- Hudson Alpha funds for breeders available
 - Process how to submit to use funds. – Josh C. (Hudson Alpha)
- New Business
 - Staying Ahead of Peanut Smut – Rebecca B. (USDA)

- Shared presentation – see below.
- The question was asked of “why now?”
 - Staying ahead of the trends. Have heard of three findings but not confirmed. It would be devastating to the industry if it does arrive.
- Is there any correlation to aflatoxin?
 - It has not been identified to date.



United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



Staying One Step Ahead of Peanut Smut





United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



National Plant Disease Recovery Plans

• Provide a brief primer on high-consequence diseases, “assess the status of critical recovery components, and identify disease management research, extension, and education needs”









United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



Thirty Years of Peanut Smut in Argentina

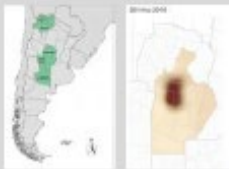
First discovered in 3 fields in Córdoba

1995



Found in all production areas. High levels of spores in soil near shelling plants in Córdoba.

2014



New provinces infested and larger areas in Córdoba with highly infested soil.

2023





Incidence data from Paredes et al., Plant Dis., 2024

Why Worry About Peanut Smut?

- Can reduce yield up to 35-51% in highly infested soils in Argentina
 - Estimated losses in Córdoba province alone in 2022: \$42,731,115 (Paredes et al., *Plant Dis.*, 2024)
- Few effective chemical controls available
- Teliospores long lived—6 years
- Potential quarantines on exports to peanut-producing countries



(Hawksworth et al., *Forensic Sci. Int.*, 2016)

Factors Contributing to Spread in Argentina

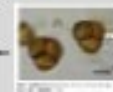
- No visible symptoms or signs aboveground
- Susceptible cultivars were widely grown – at one point, Granoleico in 70% of planted area (Paredes et al., *Trop. Plant Pathol.*, 2021)
- Aerial dispersal from shelling plants and during harvest
- No process in place for clean seed production/certification



(Regnier et al., *Plant Disease*, 2017)

Some Ways Peanut Smut Could Arrive in the U.S.

- Trade
 - Peanut smut spores found in shipment of syrup to New Zealand (Hawksworth et al., *Forensic Sci. Int.*, 2016)
 - Seed and other imports from countries that imported planting seed from Argentina
- Meteorological events
 - Hurricanes, tropical storms, dust storms

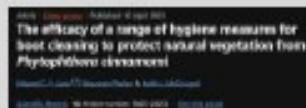


11Alive.com, May 20, 2022

Some Ways Peanut Smut Could Arrive in the U.S.

- Travel and Tourism
 - Hunting in Córdoba and other provinces: "In Córdoba alone,... an estimated average of 10,000 dove hunting tourists* per year, with two-thirds hailing from the United States."

* Estimate from Statista.com



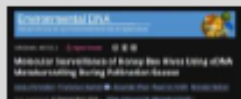
Bacteriowarrior.com



<https://www.huntingnews.com/argentina-dove-hunting/>

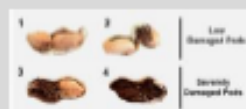
Surveillance System for Peanut Smut

- Environmental samples
 - E.g. beehive debris



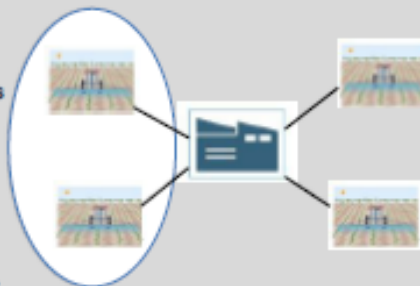
Surveillance System for Peanut Smut

- Shelling Plants are Ideal*
 - In plants, smut spores are only found inside pods on seeds
- Targeted, geographically representative samples
- Collect peanut dust over time and test using species-specific PCR primers or E-probes (in development)



Surveillance System for Peanut Smut

- If positive ID
 - Requires notifying APHIS and state plant protection departments
 - Sample potentially affected areas to locate infestation
 - APHIS assesses risk and w/state agencies implement containment strategies




United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



Surveillance System for Peanut Smut

- If positive ID
 - Coordination needed between APHIS, state governments, and peanut industry (growers, shellers, manufacturers, university extension)
- Questions
 - How to keep affected growers and shellers in business?
 - Potential inter-state quarantines?
- Less disruptive but still impactful measures
 - Surveilling planting seed?
 - Agreeing to plant resistant cultivars in affected areas?


United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



Importance of Finding Peanut Smut Early

- *Containment is still possible, like early detection for cancer*
 - Avoid unintentionally increasing pathogen inoculum and spread
 - Can keep spore levels low in infested fields by planting highly resistant cultivars (e.g. TifNV-High OL + more are coming!)
- *Can ensure planting seed is not grown in infested soil*
- *Preserves choice of susceptible and resistant cultivars for nonaffected areas until more resistant cultivars are available*
- *Avoid additional costs for shellers to sort diseased peanuts*


United States Department of Agriculture

2026 APRES Peanut Quality Meeting
San Juan, PR



USDA-ARS Contacts

- Rebecca Bennett & Kelly Chamberlin, Stillwater, OK
- Rachel Koch Bach, Fort Detrick, MD
- Phat Dang, Dawson, GA

Acknowledgments

Mars, Incorporated 

USDA National Plant Disease Recovery System

- Improvement Opportunities
 - Better with agenda management...ran over by 30 mins.
 - Provide each agenda topic a set amount of time.

2026 APRES Publications and Editorial Committee Report

Albert Culbreath, Chair

TO: Dr. Maria Bolata
FROM: Albert Culbreath
RE: Publications and Editorial Committee
DATE: July 16, 2026

The Publications and Editorial Committee met Tues, July 14, 2026. Members present were Albert Culbreath and Dan Anco. Chris Butts also participated in the discussion. Prior to the meeting, we had email proposal from Peanut Science Editor Chris Butts regarding an ethics policy statement for Peanut Science that is needed in order for the journal to be listed in the Directory of Open Access Journals and other indexing services. The ethics statement proposed was consistent with what was already being practiced in the processing and publication process, so formal publication of that would change very little with regard to Peanut Science policy in practice. We agreed to support Dr. Butts' proposal at the BOD meeting.

One additional requirement for listing in the Directory of Open Access Journals and the indexing services was to use a similarity check to comply with plagiarism avoidance requirements. We supported the proposal to subscribe to CrossRef's Similarity Check, based on iThenticate comparison software by Turnitin. We supported the proposal to use that web-based program, and supported the proposed payment of approximately \$55 per year for use of that system.

We discussed the new Editor-Co-Editor structure of the Editorial organization of Peanut Science. That looks to be going well.

We also reviewed the new flat-fee system that was recently implemented for page charges for Peanut Science. That also looks to be serving us well, has helped Peanut Science operate with income above costs.

Respectfully Submitted
Albert K. Culbreath

2026 APRES Public Relations Committee Report

Tuesday, July 14, 2026, 10:00 to 11:00 AM Conference 3, Caribe Hilton
Members present: David West (Chair), Keith Rucker, David Nolin, and Brendan Zurweller

Necrology Report

James Martin “Jim” Leek – Founder of JLA

Jeffery Bruce Johnson – President, Birdsong Peanuts. First President of The Peanut Foundation, Proponent of RTUF peanut products.

Dr. Leland Trip – Past APRES President (1976), Fellow of APRES (1983), Coyt T. Wilson Distinguished Service from APRES (1991)

Dr. Brian Scheffler – Former Center Director, Jamie Whitten Delta States Research Center, Stoneville, MS.

Jake Teichroeb – Texas producer and partner in Trico Peanut, Seminole, TX, and founding partner of Texas Roasting Company.

Merlin Schantz – Hydro, OK. Peanut producer who hosted on-farm research and promoted peanuts and agriculture through tours of his operation.

Past years' additions:

Clifton Lewis Stacy, Sr. – Past Texas Peanut Producers Board, American Peanut Council (2025)

Dr. Joe Touchton – Former Head of Auburn University Department of Agronomy & Soils (2023)

Notable retirements since last APRES Conference

Anne-Marie DeLorenzo – 2025 Chairwoman of APC Strategic Sourcing for Peanuts with Mars Wrigley

Notable achievements by APRES members since the last conference

Marshal Lamb, USDA received the PREA Award.

Review of Promotional Activities

APRES Fun Run was Thursday prior today and the committee suggests continuing this popular activity.

Puerto Rico Humanitarian Project is ongoing, and a final contribution amount will be included in the official minutes submitted after the conference concludes.

The committee encourages the continuation of this project supporting the appropriate entity at the 2027 APRES Conference as well.

APRES article for agricultural magazine publication

Continued work on an article suitable for publication in producer-oriented publication covering the importance and contribution of APRES to the peanut industry. Including the information from the 50th anniversary conference and other sources. This will be sent to all state peanut commodity commissions/board, appropriate industry publications and distributed by other means.

Respectfully submitted,

David West, 2026 PR Committee Chair

2026 APRES Peanut Science Editor's Report

Chris Butts, Editor

I can report that *Peanut Science* is doing well. Since the 2025 Annual Meeting, 8 articles were published in Volume 52(1), 2 review articles added to the Commemorative Issue, Volume 52(2), and 10 articles published in Volume 53. The 20 articles averaged 142 days from submission to acceptance, and 36 days from acceptance to publication.

Volume 53 (2026) currently has 10 published articles consisting of 1 review article, 1 note, and 9 research articles. There are currently 7 manuscripts under review. There are 1 manuscripts in copyediting, and 0 manuscripts being typeset or proofread by authors.

Co-editor, Dan Anco, is leading the effort for Peanut Science to be listed in Web of Science (WOS) Core Collection and Directory of Open Access Journals (DOAJ). DOAJ has an endogeny policy limiting the number of articles published by editors and reviewers to 25% of the articles in the last two issues. Peanut Science currently meets the threshold. Indexing organizations encourage plagiarism checks of articles submitted to the journal for publication. The approximate time to receive a decision following application for indexing varies from 3 months (DOAJ) to 3 to 6 months (WOS). Journals accepted into the WOS Core Collection are assigned a JIF from Clarivate.

The editor and co-editor are developed a draft ethics policy to be posted with the author information. All other author information documents are under review to ensure compliance with the ethics and transparency requirements of the indexing entities. The policy was reviewed by the Publications and Editorial Committee, then forwarded to the Board of Directors for adoption. The Board of Directors approved the Ethics Policy in their meeting on Tuesday, July 14, 2026 and will be added to the Author Information section of the Peanut Science website.

To comply with plagiarism avoidance requirements of the indexing organizations, the Editor and Co-Editor recommended subscribing to CrossRef's Similarity Check. It is a web-based platform using iThenticate comparison software by Turnitin. Annual cost is projected to be \$55. There is no per article charge for the first 100 articles checked. Peanut Science currently subscribes to CrossRef for registration of the doi's. The recommendation was approved by the Publications and Editorial Committee and forwarded to the Board of Directors. The Board of Directors authorized the Editor to subscribe to CrossRef's Similarity Check in their meeting on Tuesday, July 14, 2026.

The Publications and Editorial Committee and the Board of Directors both support applying to list Peanut Science in indices such as WOS Core Collection and the Directory of Open Access Journals.

The actual expense/income report for January 01 – December 30, 2025 is shown in Table 1.

The projected expense/income report for January 01 – December 30, 2026 is shown in Table 2.

Table 1. Actual expense/income report for 01 Jan 2025 to 30 Dec 2025.

January-December 2025 (FY 2025)				
Expenses	Unit Cost	Units	Quantity	Net
<i>Actual (January – December 2025)</i>				
Janeway Platform Subscription	\$ 3,500	Annual	1	\$ 3,500.00
Typesetting Add-In for Word/Article (icText Tools, Inc)	\$ 200	Article	23	\$ 4,600.00
Crossref (DOI registration/membership)	\$ 275	Annual	1	\$ 275.00
Editor Stipend (Butts)	\$ 2,500	Bi-annual	2	\$ 5,000.00
Co-editor Stipend (Anco)	\$ 2,500	Bi-annually	1	\$ 2,500.00
Editor Travel Expenses (Butts, 2025 Annual Meeting)	\$ 1,741.56	Annual	1	\$ 1,741.56
Actual Annual Expenses				\$ 17,616.56
Income				
Page Charges – 5 Articles published in 2024, Invoiced in 2025		5		\$ 4,360.00
Page Charges - Articles Published/Invoice Jan – Dec 2025		18		\$ 16,640.00
Total Annual Income				\$ 21,000.00
Actual Net (Income – Expenses)				\$ 3,383.44
Projected				
Projected Expenses				\$ 17,622.00
Projected Income				\$ 20,760.00
Net (Income minus Expenses)				\$ 3,138

Table 2. Projected expenses and income for *Peanut Science* from 01 January to 30 December , 2026.

Expenses						
Date	Vendor	Description	Unit Cost	Quantity	Net	Running Total
1/1/2026	CrossRef	Annual Membership	\$ 275.00	1	\$ 275.00	\$ 275.00
		Similarity Check Annual Fee (20% of Annual Membership)	\$ 55.00	1	\$ 55.00	\$ 330.00
12/30/2026		DOI Registration	\$ 1.00	20	\$ 20.00	\$ 350.00
4/23/2026	icText Tools	Use of Intelligent Content Tools for typesetting accepted articles (Jan - April 2026)	\$ 200.00	6	\$ 1,200.00	\$ 1,550.00
12/30/2026		Use of Intelligent Content Tools for typesetting accepted articles (May - Dec 2026)	\$ 200.00	14	\$ 2,800.00	\$ 4,350.00
7/31/2026	APRES	Annual meeting Expenses for Editor & Co-Editor to Annual Meeting				
		Meeting Registration (complimentary)	\$ 400.00			
		Airfare (ATL - San Juan, PR)	\$ 658.85			
		Hotel (5 nights @ \$270 + 15% taxes)	\$ 1,552.50			
		Airport Parking (6 days @ \$15/day)	\$ 90.00			
		Meals & Incidental Expenses (DOD per diem \$148/day x 5.5 - \$50 for 1 sponsored meal)	\$ 764.00			
		Editor Trave Expense	\$ 3,465.35	1	\$ 3,465.35	\$ 7,815.35
		Co-editor Expense (\$2,000 max)	\$ 2,000.00	1	\$ 2,000.00	\$ 9,815.35
11/30/2026	Andy Byers	Janeway Platform Annual Fee (for 2027)	\$ 3,500.00	1	\$ 3,500.00	\$ 13,315.35
7/1/2026	Dan Anco	Co-Editor Stipend	\$ 2,500.00	1	\$ 2,500.00	\$ 15,815.35
	Chris Butts	Editor Stipend	\$ 2,500.00	1	\$ 2,500.00	\$ 18,315.35
12/1/2026	Dan Anco	Co-Editor Stipend	\$ 2,500.00	1	\$ 2,500.00	\$ 20,815.35
	Chris Butts	Editor Stipend	\$ 2,500.00	1	\$ 2,500.00	\$ 23,315.35
Income						
1/1/2026 - 7/10/2026		Page Charges (Invoiced)	\$ 1,500.00	10	\$ 15,000.00	\$ 15,000.00
7/10/2026 - 12/30/2026		Page Charges (20 manuscripts are published in 2026)	\$ 1,500.00	10	\$ 15,000.00	\$ 30,000.00
2026 Projected Net						
Expenses						\$ 23,315.35
Income						\$ 30,000.00
Net						\$ 6,684.65

Colored lettering indicates proposed new expenditure

2026 APRES Joe Sugg and National Peanut Board Graduate Student Award Committee Report

Committee Members

- Bob Kemerait, University of Georgia, Chair
- Zachary Treadway, UA
- Isaac Esquivel, UF
- Jessica Bell, Nichino
- Chad Abbott, FMC
- Tim Bryant, Virginia Tech
- Clemen Oliviera, UGA
- Maíra Duffeck, OSU
- LeAnn Lux, NCSU
- Fetien Abera, SCSU
- Alvaro Sanz-Saez, Auburn
- Sruthi Narayanan Kutty, Clemson
- Mychele Batista da Silva, V. Tech
- Volunteer Pam Lopez Kemerait

Once again, the Joe Sugg Graduate Student Awards were sponsored by the North Carolina Peanut Growers Association, and the Poster Awards were sponsored by the National Peanut Board. There were 18 Master's graduate student presentations from 9 different universities and 20 PhD presentations from 7 different universities, expanding on a wide range of topics and research. There were 5 Masters posters and 7 PhD posters presented from 5 different universities.

The Joe Sugg Graduate Student Awards for best oral presentation were:

PhD Category:

- 1st place – Ashmita Upadhyay, University of Georgia
- 2nd place – Daniel Matusinec, University of Georgia
- 3rd place – Alexi Dong, University of Georgia

Masters Category:

- 1st place –Gracie Roberson, Valdosta State University
- 2nd place – Jeret Royston, University of Georgia
- 3rd place – Muskan Tiwari, Texas Tech University

The National Peanut Board Student Poster Competition were:

PhD Category:

- 1st place – Gourav Chahal, Auburn University
- 2nd place – Ranadheer Vennam, Virginia Tech University.

Masters Category:

- 1st place – Charles Naapoal, Texas Tech University
- 2nd place – Carlos Toruno, University of Florida

2026 APRES Coyt T. Wilson Awards Committee Report

Committee Members

Lisa Dean, Chair (2026)

David Bertoli (2027)

Abilash Chandel (2027)

Kelly Chamberlin (2028)

The call for nominations was sent by APRES on 1 April 2026.

The committee received and evaluated 1 nomination for the Coyt T. Wilson Service Award.

Winners were agreed upon by the committee via email, and results were reported to Christina Taylor on 10 June.

The recipient of the Award is Dr. Rebecca S. Bennett.

2026 APRES Corteva Agriscience Award Committee Report

Committee Members: John Cason (Chair), John Richburg, Shelly Nutt, Ethan Carter, David Langston, R. Scott Tubbs, and Michael Marshall

For the 2026 review cycle of the The Corteva Agriscience Award Committee received one Research Award nomination and one Education/Extension Award nomination. In addition, three Education/Extension Award nominations from the 2025 cycle were rolled forward for consideration.

Committee members reviewed all nomination packets and submitted their votes by email. Votes were tallied by the committee chair.

Based on the committee's evaluation and voting results, the committee recommends the following award recipients:

- **Research Award:** Maria Balota
- **Education/Extension Award:** Cristiane Pilon

Respectfully submitted,

John Cason

2026 APRES Bailey Award Committee Report

Committee Members

- Josh Clevenger, HudsonAlpha, Chair
- Ondulla Toomer, USDA-ARS
- Jack Davis, JLA
- Dylan Wann, IPG
- Charles Chen, Auburn University
- Emi Kimura, Texas A&M

There was a total of 7 invitations for paper submission and 4 papers submitted.

The 2026 Bailey Award was presented to:

Cristiane Pilon, Kelvin Awori, John Snider, Olavo Betiol, Soraya Leal-Bertioli and David Bertioli University Georgia for their paper entitled:

“Photosynthetic Quantum Efficiency of Wild-Derived and Cultivated Peanuts”

2026 APRES Fellow Award Committee Report

The announcement for APRES Fellow nominations was sent by email on April 20. Four nominations were submitted by the May 22 deadline. The Fellows Committee reviewed and ranked the nominations. All nominations were considered excellent. The Committee recommended to the APRES Board of Directors that all nominations be accepted. The Board agreed and approved all nominations. The winners were announced at the Business Meeting and Awards Ceremony on Thursday, July 16.

2026 APRES Fellows:

David Bertoli, Georgia Research Alliance Distinguished Investigator and Professor at the University of Georgia in Athens

Mark Burow, Peanut Breeder, Department of Soil and Crop Science, Texas A&M AgriLife Research and Department of Plant and Soil Science, Texas Tech University, Lubbock, TX

Josh Clevenger, Faculty Investigator – Center for Plant Genomics and Sustainable Agriculture, HudsonAlpha Institute for Biotechnology

Naveen Puppala, Peanut Breeder with New Mexico State University in Clovis, NM.

Respectfully Submitted,

Peter Dotray, Chair

David Jordan

Peggy Ozias-Atkins

Barry Tillman

APRES Meeting Sites & Awardees

ANNUAL MEETING SITES

2026 – San Juan, Puerto Rico	1997 – San Antonio, TX
2025 – Richmond, VA	1996 – Orlando, FL
2024 – Oklahoma City, OK	1995 – Charlotte, NC
2023 – Savannah, GA	1994 – Tulsa, OK
2022 – Dallas, TX	1993 – Huntsville, AL
2021 – Virtual	1992 – Norfolk, VA
2020 – Virtual	1991 – San Antonio, TX
2019 – Auburn, AL	1990 – Stone Mountain, GA
2018 – Williamsburg, VA	1989 – Winston–Salem, NC
2017 – Albuquerque, NM	1988 – Tulsa, OK
2016 – Clearwater Beach, FL	1987 – Orlando, FL
2015 – Charleston, SC	1986 – Virginia Beach, VA
2014 – San Antonio, TX	1985 – San Antonio, TX
2013 – Young Harris, GA	1984 – Mobile, AL
2012 – Raleigh, NC	1983 – Charlotte, NC
2011 – San Antonio, TX	1982 – Albuquerque, NM
2010 – Clearwater Beach, FL	1981 – Savannah, GA
2009 – Raleigh, NC	1980 – Richmond, VA
2008 – Oklahoma City, OK	1979 – Tulsa, OK
2007 – Birmingham, AL	1978 – Gainesville, FL
2006 – Savannah, GA	1977 – Asheville, NC
2005 – Portsmouth, VA	1976 – Dallas, TX
2004 – San Antonio, TX	1975 – Dothan, AL
2003 – Clearwater Beach, FL	1974 – Williamsburg, VA
2002 – Research Triangle Park, NC	1973 – Oklahoma City, OK
2001 – Oklahoma City, OK	1972 – Albany, GA
2000 – Point Clear, AL	1971 – Raleigh, NC
1999 – Savannah, GA	1970 – San Antonio, TX
1998 – Norfolk, VA	1969 – Atlanta, GA

1969-1978: American Peanut Research and Education Association (APREA)

1979-Present: American Peanut Research and Education Society, Inc. (APRES)

PAST PRESIDENTS

Maria Balota	2025-26	Fred M. Shokes	1996-97
Rebecca S. Bennett	2024-25	Harold E. Pattee	1995-96
Robert C. Kemerait, Jr.	2023-24	William C. Odle	1994-95
Mark D. Burow	2022-23	Dallas Hartzog	1993-94
David L. Jordan	2021-22	R. Walton Mozingo	1992-93
Gary L. Schwarzlose	2020-21	Charles E. Simpson	1991-92
Barry L. Tillman	2019-20	Ronald J. Henning	1990-91
Rick L. Brandenburg	2018-19	Johnny C. Wynne	1989-90
Peter A. Dotray	2017-18	Hassan A. Melouk	1988-89
C. Corley Holbrook	2016-17	Daniel W. Gorbet	1987-88
H. Thomas Stalker	2015-16	D. Morris Porter	1986-87
Naveen Puppala	2014-15	Donald H. Smith	1985-86
Timothy B. Brenneman	2013-14	Gale A. Buchanan	1984-85
D. Ames Herbert, Jr.	2012-13	Fred R. Cox	1983-84
Todd A. Baughman	2011-12	David D. H. Hsi	1982-83
Maria Gallo	2010-11	James L. Butler	1981-82
Barbara B. Shew	2009-10	Allen H. Allison	1980-81
Kelly Chenault Chamberlin	2008-09	James S. Kirby	1979-80
Austin K. Hagan	2007-08	Allen J. Norden	1978-79
Albert K. Culbreath	2006-07	Astor Perry	1977-78
Patrick M. Phipps	2005-06	Leland D. Tripp	1976-77
W. James Grichar	2004-05	J. Frank McGill	1975-76
E. Ben Whitty	2003-04	Kenneth H. Garren	1974-75
Thomas G. Isleib	2002-03	Edwin L. Sexton	1973-74
John P. Damicone	2001-02	Olin D. Smith	1972-73
Austin K. Hagan	2000-01	William T. Mills	1971-72
Robert E. Lynch	1999-00	J.W. Dickens	1970-71
Charles W. Swann	1998-99	David L. Moake	1969-70
Thomas A. Lee, Jr.	1997-98	Norman D. Davis	1968-69

FELLOWS OF THE SOCIETY

Dr. Josh Clevenger	2026	Mr. W. James Grichar	2007	Dr. James H. Young	1994
Dr. Mark Burow	2026	Dr. Thomas G. Isleib	2007	Dr. Marvin K. Beute	1993
Dr. David Bertoli	2026	Mr. Dallas Hartzog	2006	Dr. Terry A. Coffelt	1993
Dr. Charles Y. Chen	2025	Dr. C. Corley Holbrook	2006	Dr. Hassan A. Melouk	1992
Dr. Darlene M. Cowart	2025	Dr. Richard Rudolph	2006	Dr. F. Scott Wright	1992
Dr. Baozhu Guo	2025	Dr. Peggy Ozias-Akins	2005	Dr. Johnny C. Wynne	1992
Dr. Craig K. Kvien	2023	Mr. James Ron Weeks	2005	Dr. John C. French	1991
Mr. Jim Elder	2022	Mr. Paul Blankenship	2004	Dr. Daniel W. Gorbet	1991
Mr. Gary L. Schwarzlose	2022	Dr. Stanley M. Fletcher	2004	Mr. Norfleet L. Sugg	1991
Mr. Bob Sutter	2021	Mr. Bobby Walls, Jr.	2004	Dr. James S. Kirby	1990
Dr. Timothy L. Grey	2020	Dr. Rick Brandenburg	2003	Mr. R. Walton Mozingo	1990
Mr. Michael R. Baring	2019	Dr. James W. Todd	2003	Mrs. Ruth Ann Taber	1990
Dr. Peter A. Dotray	2019	Dr. John P. Beasley, Jr.	2002	Dr. Darold L. Ketring	1989
Dr. Barry L. Tillman	2019	Dr. Robert E. Lynch	2002	Dr. D. Morris Porter	1989
Dr. Steve L. Brown	2017	Dr. Patrick M. Phipps	2002	Mr. J. Frank McGill	1988
Dr. Eric P. Prostko	2016	Dr. Ronald J. Henning	2001	Dr. Donald H. Smith	1988
Dr. Robert C. Kemerait, Jr.	2015	Dr. Norris L. Powell	2001	Mr. Joe S. Sugg	1988
Dr. Todd A. Baughman	2014	Mr. E. Jay Williams	2001	Dr. Donald J. Banks	1988
Dr. Austin K. Hagan	2014	Dr. Gale A. Buchanan	2000	Dr. James L. Steele	1988
Mr. Emory Murphy	2014	Dr. Thomas A. Lee, Jr.	2000	Dr. Daniel Hallock	1986
Dr. Jay W. Chapin	2013	Dr. Frederick M. Shokes	2000	Dr. Clyde T. Young	1986
Dr. Barbara B. Shew	2013	Dr. Jack E. Bailey	1999	Dr. Olin D. Smith	1986
Mr. Howard Valentine	2013	Dr. James R. Sholar	1999	Mr. Allen H. Allison	1985
Dr. Kelly D. Chamberlin	2012	Dr. John A. Baldwin	1998	Mr. J.W. Dickens	1985
Dr. Robin Y. Y. Chiou	2012	Mr. William M. Birdsong, Jr.	1998	Dr. Thurman Boswell	1985
Dr. W. Carroll Johnson III	2012	Dr. Gene A. Sullivan	1998	Dr. Allen J. Norden	1984
Dr. Mark C. Black	2011	Dr. Timothy H. Sanders	1997	Dr. William V. Campbell	1984
Dr. John P. Damicone	2011	Dr. H. Thomas Stalker	1996	Dr. Harold Pattee	1983
Dr. David L. Jordan	2011	Dr. Charles W. Swann	1996	Dr. Leland Tripp	1983
Dr. Christopher L. Butts	2010	Dr. Thomas B. Whitaker	1996	Dr. Kenneth H. Garren	1982
Dr. Kenneth J. Boote	2009	Dr. David A. Knauff	1995	Dr. Ray O. Hammons	1982
Dr. Timothy B. Brenneman	2009	Dr. Charles E. Simpson	1995	Mr. Astor Perry	1982
Dr. Albert K. Culbreath	2009	Dr. William D. Branch	1994		
Mr. G.M. "Max" Grice	2007	Dr. Frederick R. Cox	1994		

BAILEY AWARD

- 2026 K.J. Awori, C. Pilon*, J.L. Snider, O. Betiol, S. Leal-Bertioli, and D. Bertioli
- 2025 K.D. Chamberlin*, R.S. Bennett, J.P. Clevenger, and W. Korani
- 2024 C. Pilon*, J.L. Snider, L. Moreno, C. Kvien, P. Ozias-Akins, and C.C. Holbrook
- 2023 K.D. Chamberlin*, R.S. Bennett, J. Baldessari, G. De la Barrera, G.G. Cordes, N.G. Grandon, E.M.C. Mamani, A. Rodriguez, S. Morichetti, C.C. Holbrook, P. Ozias-Akins, Y. Chu, S. Tallury, J. Clevenger, W. Korani, B. Scheffler, R.C. Youngblood, and S. Simpson
- 2022 S.B. Davis, R.S. Tubbs*, R.C. Kemerait, and A.K. Culbreath
- 2021 Award Suspended due to COVID
- 2020 R.S. Tubbs* and W.S. Monfort
- 2019 Y. Chu*, P. Ozias-Akins, P. Chee, A. Culbreath, T. G. Isleib, and C.C. Holbrook
- 2018 M.D. Burow*, R. Chopra, R. Kulkarni, T. Tengey, V. Belamkar, J. Chagoya, J. Wilson, M. G. Selvaraj, C. E. Simpson, M. R. Baring, F. Neya, P. Sankara, and N. Denwar
- 2017 J. Wang*, H. Zhou, Z. Peng, J. Maku, L. Tan, F. Liu, Y. Lopez, J. Wang, and M. Gallo
- 2016 J. Davis*, J. Leek, D. Sweigart, P. Dang, C. Butts, R. Sorenson, and M. Lamb
- 2015 J. Clevenger*, Y. Guo, and P. Ozias-Akins
- 2014 R. Srinivasan*, A. Culbreath, R. Kemerait, and S. Tubbs
- 2013 A.M. Stephens* and T.H. Sanders
- 2012 D.L. Rowland*, B. Colvin. W.H. Faircloth, and J.A. Ferrell
- 2011 T.G. Isleib, C.E. Rowe, V.J. Vontimitta and S.R. Milla-Lewis*
- 2010 T.B. Brenneman* and J. Augusto
- 2009 S.R. Milla-Lewis* and T.G. Isleib
- 2008 Y. Chu*, L. Ramos, P. Ozias-Akins, and C.C. Holbrook
- 2007 D.E. Partridge*, P.M. Phipps, D.L. Coker, and E.A. Grabau
- 2006 J.W. Chapin* and J.S. Thomas
- 2005 J.W. Wilcut*, A.J. Price, S.B. Clewis, and J.R. Cranmer
- 2004 R.W. Mozingo*, S.F. O’Keefe, T.H. Sanders and K.W. Hendrix
- 2003 T.H. Sanders*, K.W. Hendrix, T.D. Rausch, T.A. Katz and J.M. Drozd
- 2002 M. Gallo-Meagher*, K. Chengalrayan, J.M. Davis and G.G. MacDonald
- 2001 J.W. Dorner* and R.J. Cole
- 2000 G.T. Church*, C.E. Simpson and J.L. Starr
- 1999 None Awarded
- 1998 J.L. Starr*, C.E. Simpson and T.A. Lee, Jr.
- 1997 J.W. Dorner*, R.J. Cole and P.D. Blankenship
- 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
- 1995 J.S. Richburg* and J.W. Wilcut
- 1994 T.B. Brenneman* and A.K. Culbreath
- 1993 A.K. Culbreath*, J.W. Todd and J.W. Demski
- 1992 T.B. Whitaker*, F.E. Dowell, W.M. Hagler, F.G. Giesbrecht and J. Wu
- 1991 P.M. Phipps*, D.A. Herbert, J.W. Wilcut, C.W. Swann, G.G. Gallimore and D.B. Taylor
- 1990 J.M. Bennett*, P.J. Sexton and K.J. Boote
- 1989 D.L. Ketrings* and T.G. Wheless
- 1988 A.K. Culbreath* and M.K. Beute
- 1987 J.H. Young* and L.J. Rainey
- 1986 T.B. Brenneman*, P.M. Phipps and R.J. Stipes

BAILEY AWARD (CONTINUED)

1985 K.V. Pixley*, K.J. Boote, F.M. Shokes and D.W. Gorbet
1984 C.S. Kvien*, R.J. Henning, J.E. Pallas and W.D. Branch
1983 C.S. Kvien*, J.E. Pallas, D.W. Maxey and J. Evans
1982 E.J. Williams and J.S. Drexler
1981 N.A. deRivero and S.L. Poe
1980 J.S. Drexler and E.J. Williams
1979 D.A. Nickle and D.W. Hagstrum
1978 J.M. Troeger and J.L. Butler
1977 J.C. Wynne
1976 J.W. Dickens and T.B. Whitaker
1975 R.E. Pettit, F.M. Shokes and R.A. Taber

JOE SUGG GRADUATE STUDENT COMPETITION AWARD

2026	A. Upadhyay (1 st , PhD), D. Matusinec (2 nd , PhD), A. Dong (3 rd , PhD), G. Roberson (1 st , MS), J. Royston (2 nd , MS), M. Tiwari (3 rd , MS)	2008	J. Ayers
2025	S.E. Joson (PhD), F. Anshul (MS)	2007	J.M. Weeks, Jr.
2024	E. Barnes (PhD), L. Dexter-Boone (MS)	2006	W.J. Everman
2023	J. Bell (PhD), S. Webb (MS)	2005	D.L. Smith
2022	E. Achola (PhD), J. Bell (MS)	2004	D.L. Smith
2021	C. Newman (PhD), J. Bell (MS)	2003	D.C. Yoder
2020	C. Levinson	2002	S.C. Troxler
2019	A. Kaufman	2001	S.L. Rideout
2018	D.J. Mahoney	2000	D.L. Glenn
2017	J. Fountain, W. Carter, L. Christman*	1999	J.H. Lyerly
2016	J. Clevenger, K. Racette*	1998	M.D. Franke
2015	C. Klevorn	1997	R.E. Butchko
2014	Y. Tseng	1996	M.D. Franke
2013	A. Fulmer	1995	P.D. Brune
2012	R. Merchant	1994	J.S. Richburg
2011	S. Thornton	1993	P.D. Brune
2010	A. Olubunmi	1992	M.J. Bell
2009	G. Place	1991	T.E. Clemente
		1990	R.M. Cu
		1989	R.M. Cu

* 2016 and 2017 had two and three separate sessions, respectively

NATIONAL PEANUT BOARD GRADUATE STUDENT POSTER COMPETITION AWARD

2026	G. Chahal (1 st , PhD), R. Vennam (2 nd , PhD), C. Naapoal (1 st , MS), C. Toruno (2 nd , MS)	2022	M. Mills
2025	N. Pettit (PhD), A. Marchetti (MS)	2021	A. Skipper
2024	L. Commey (PhD), G. Paredes (MS)	2020	P.-C. Lai
2023	N. Shay (PhD), M. Sysskind (MS)	2019	A. Peper
		2018	C. Weaver

COYT T. WILSON DISTINGUISHED SERVICE AWARD

2026 Dr. Rebecca S. Bennett
2025 No Nominations
2024 Dr. Rick L. Brandenburg
2023 Ms. Kim Cutchins
2022 Mr. Bob Sutter
2021 Dr. Robert C. Kemerait
2020 Dr. Kelly D. Chamberlin
2019 Dr. Timothy L. Grey
2018 Dr. Craig K. Kvien
2017 Dr. Austin K. Hagan
2016 Dr. Timothy B. Brenneman
2015 Mr. Howard Valentine
2014 Dr. Tom Isleib
2013 Dr. John P. Bealey, Jr.
2012 Dr. Patrick M. Phipps
2011 Mr. W. James Grichar
2010 Dr. Albert K. Culbreath
2009 No Nominations

2008 Dr. Frederick M. Shokes
2007 Dr. Christopher L. Butts
2006 Dr. Charles E. Simpson
2005 Dr. Thomas B. Whitaker
2004 Dr. Richard Rudolph
2003 Dr. Hassan A. Melouk
2002 Dr. H. Thomas Stalker
2001 Dr. Daniel W. Gorbet
2000 Mr. R. Walton Mozingo
1999 Dr. Ray O. Hammons
1998 Dr. C. Corley Holbrook
1997 Mr. J. Frank McGill
1996 Dr. Olin D. Smith
1995 Dr. Clyde T. Young
1994 Dr. James Ronald Sholar
1993 Dr. Harold E. Pattee
1992 Dr. Leland Tripp
1991 Dr. D.H. Smith

CORTEVA AGRISCIENCE AWARD FOR EXCELLENCE IN RESEARCH

2026	Maria Balota	2008	Jay W. Chapin
2025	Soraya C.M. Leal-Bertioli	2007	James W. Todd
2024	R. Scott Tubbs	2006	No Award Given
2023	Feed the Future Innovation Lab for Peanut	2005	William D. Branch
2022	C. Corley Holbrook	2004	Stanley M. Fletcher
2021	No Recipient	2003	John W. Wilcut
2020	Ye Chu	2002	W. Carroll Johnson, III
2019	David J. Bertioli	2001	Harold E. Pattee, Thomas G. Isleib
2018	Barry L. Tillman	2000	Timothy B. Brenneman
2017	Marshall C. Lamb	1999	Daniel W. Gorbet
2016	H. Thomas Stalker	1998	Thomas B. Whitaker
2015	Charles E. Simpson	1997	W. James Grichar
2014	Michael R. Baring	1996	R. Walton Mozingo
2013	No Nominations	1995	Frederick M. Shokes
2012	Timothy H. Sanders	1994	Albert K. Culbreath, J.W. Todd, J.W. Demski
2011	Timothy L. Grey	1993	Hassan A. Melouk
2010	Peter A. Dotray	1992	Rodrigo Rodriguez-Kabana
2009	Joe W. Dorner		
1992-1996	DowElanco Award for Excellence in Research		
1997	Changed to DowElanco Award for Excellence in Research		
1998	Changed to Dow AgroSciences Award for Excellence in Research		
2018	Changed to Corteva Agriscience™, Agriculture Division of DowDuPont™ Award for Excellence in Research		
2019	Changed to Corteva™ Agriscience Award for Excellence in Research		

CORTEVA AGRISCIENCE AWARD FOR EXCELLENCE IN EDUCATION

2026	Cristiane Pilon	2008	Barbara B. Shew
2025	Nicholas S. Dufault	2007	John P. Damicone
2024	W. Scott Monfort	2006	Stanley M. Fletcher
2023	Keith S. Rucker	2005	Eric P. Prostko
2022	No Nominations	2004	Steve L. Brown
2021	Bob Sutter, Dell Cotton, Marianne Catalano	2003	Harold E. Pattee
2020	C. Corley Holbrook	2002	Kenneth E. Jackson
2019	No Nominations	2001	Thomas A. Lee
2018	Peggy Ozias-Akins	2000	H. Thomas Stalker
2017	No Nominations	1999	Patrick M. Phipps
2016	Timothy L. Grey	1998	John P. Beasley, Jr.
2015	Jay W. Chapin	1997	No Nominations
2014	Jason E. Woodward	1996	John A. Baldwin
2013	Peter A. Dotray	1995	Gene A. Sullivan
2012	Todd A. Baughman	1994	Charles W. Swann
2011	Austin K. Hagan	1993	A. Edwin Colburn
2010	David L. Jordan	1992	J. Ronald Sholar
2009	Robert C. Kemerait, Jr.		
1992-1996	DowElanco Award for Excellence in Extension		
1997	Changed to DowElanco Award for Excellence in Education		
1998	Changed to Dow AgroSciences Award for Excellence in Education		
2018	Changed to Corteva Agriscience™, Agriculture Division of Dow DuPont™ Award for Excellence in Education		
2019	Changed to Corteva™ Agriscience Award for Excellence in Education		

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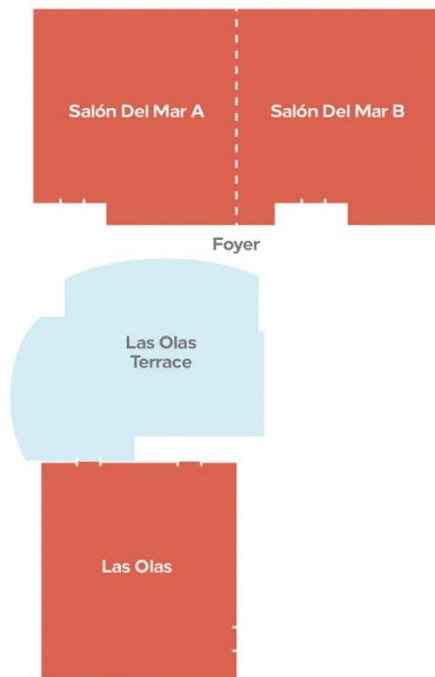
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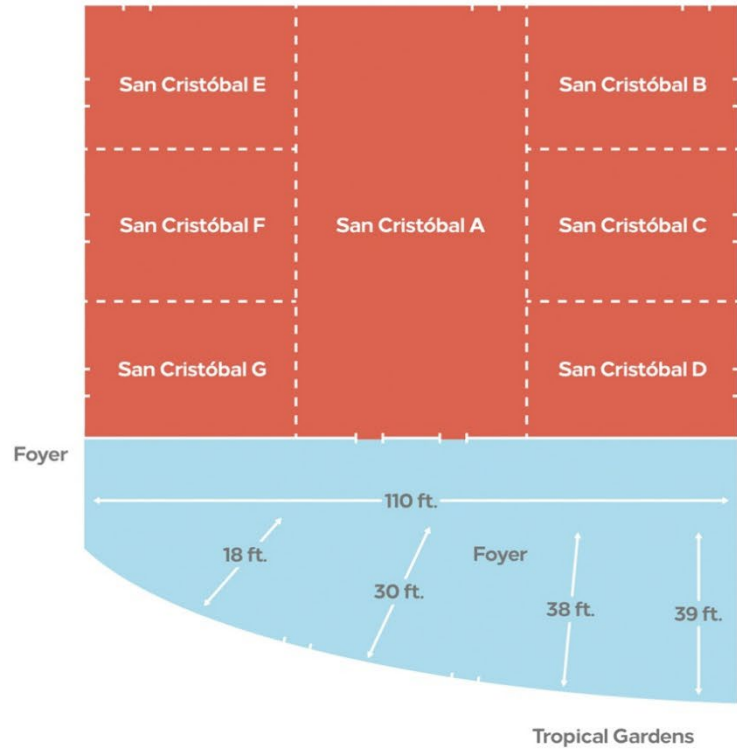
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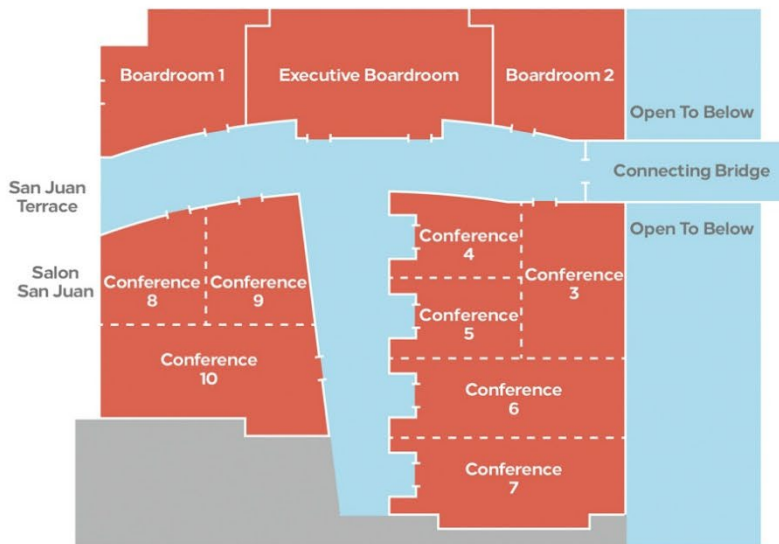


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