



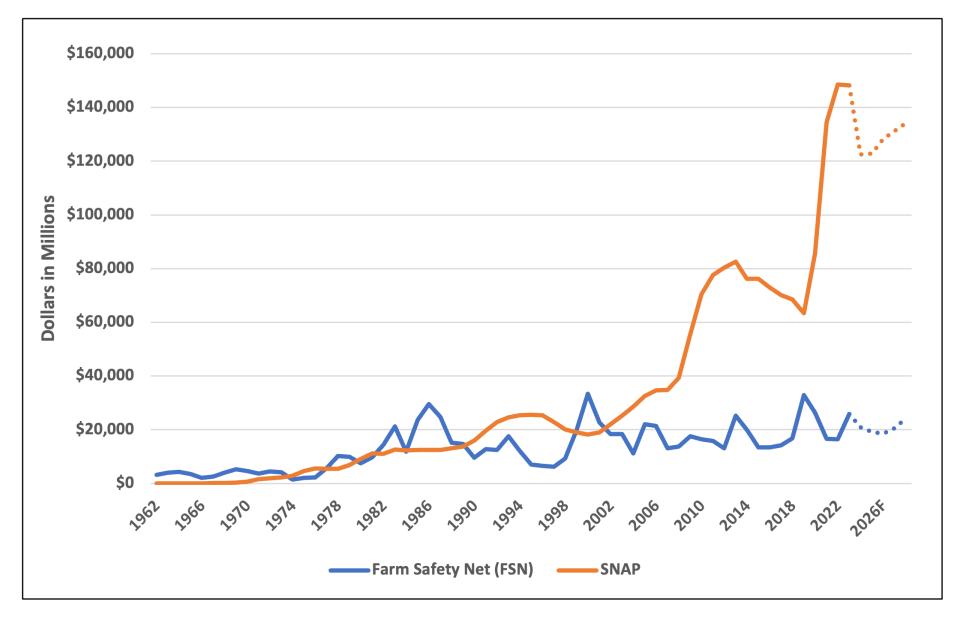








USDA Secretary Vilsack Testifies at U.S. House Agriculture Committee Hearing



Source: OMB Table 11.3 – Outlays for Payments for Individuals by Category and Major Program: 1940 – 2028 and Table 3.2 – Outlays by Function and Subfunction: 1962 – 2028.





Jamie McCurry







UPDATE ON AFLATOXIN PROJECTS

A Quick Snapshot of Projects

Summary

- Aflatoxin in US peanuts imposes significant economic stress to the US peanut industry
- Even in low aflatoxin years, a significant amount of money is spent just due to the <u>"potential"</u> of aflatoxin
- Eliminating or significantly reducing aflatoxin would improve the competitiveness of US peanuts
- The industry incurs these cost every year to ensure that US peanuts meet final product quality mandate.

The Next-Generation of Aflatoxin Control: The Biotechnology and Genomics Revolution

- New research focused on biotechnology and genomics applications to understand and mitigate aflatoxin in three areas:
 - Using Transgenics and Genome Editing to Study Drought /Aflatoxin Interactions
 - Using RNA Interference to Develop Non-GMO, Biotech Aflatoxin Controls
 - Developing an A. flavus Pangenome to ID New Aflatoxin Regulatory Genes



Plant Pathology
Mycotoxicology & Postharvest Pathology



Jake Fountain, PI UGA



Baozhu Guo, Co-PI USDA-ARS



Crop Genetics & Breeding Research Unit

Reducing Aflatoxin Contamination in United States Peanuts

A project of University of Florida, Mississippi State University, and the National Peanut Research Laboratory

Barry Tillman, Zack Brym, Bill Hammond- Agronomy Department, UF Alina Zare- Computer and Electrical Engineering Department, UF Brendan Zurweller-Plant and Soil Sciences, MSU

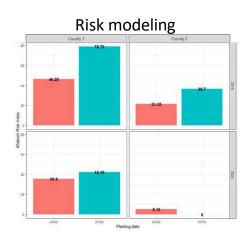




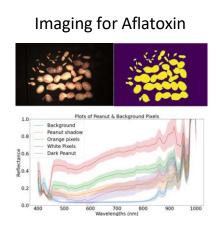


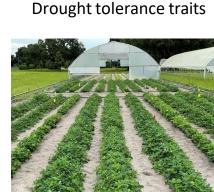
Project goals and objectives

- Risk model development to predict aflatoxin contamination
- Investigating shell characteristics to minimize LSK and contamination
- Utilizing hyperspectral imaging to detect contamination
- Investigating drought tolerance traits to minimize contamination









Current University of Georgia Collaborators



Scott Abney Entomology



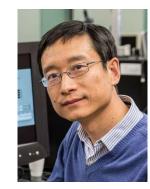
Mahos Bourlai Engineering



Jaime Camelio Engineering



Bob Kemerait Plant Pathology



Charlie Li Engineering



Alicia Peduzzi Forestry



Cristiane Pilon Crop & Soil



Glen Rains Entomology



Harald Scherm Plant Pathology



George Vellidis Crop & Soil

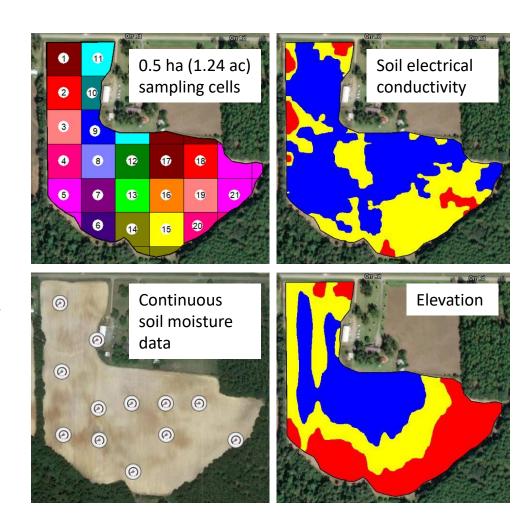


Detection and Mitigation of Aflatoxin Contamination: New Technologies and Decision Support from the Field to the Shelling Plant

 Collaborative project between USDA-ARS National Peanut Research Lab (NPRL) and University of Georgia, initiated summer 2022

Data Layers

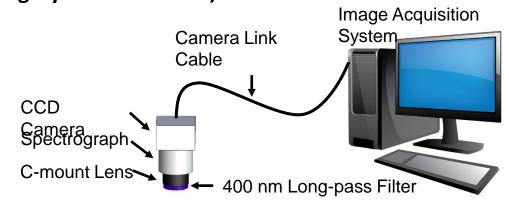
- Soil electrical conductivity, soil texture
- Elevation
- Continuous soil moisture, precipitation
- Monthly hyperspectral response of the plant canopy measured from UAV
- Beginning 90 days after planting, biweekly sampling in grid cells
 - Leaf temperature
 - Stomatal conductance
 - Chlorophyll a fluorescence
 - Peanut pods for aflatoxin analysis
- Lidar for plant height near harvest

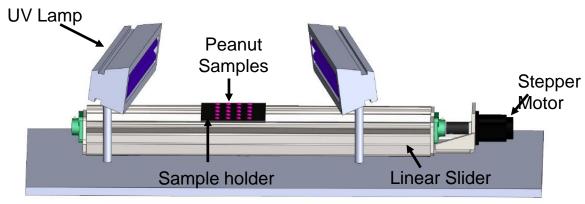


Aflatoxin Study Field 3 (2022)



Experimental Setup (UGA Bio-Sensing and Instrumentation Lab and Multi-Spectral Imagery Lab – fall 2022)





Schematic of the hyperspectral fluorescence imaging system

- Experiments to be conducted at three levels:
 - Undamaged kernels spiked with aflatoxin
 - Undamaged kernels inoculated with A. flavus
 - Naturally affected kernels
- Hyperspectral fluorescence images will be collected with UV excitation source
- Effective wavelengths will be selected and region of interest extracted from HSFI
- Convolutional neural network models focusing on instance image segmentation approaches will be evaluated
- Scale-up to be investigated in future years



Reducing Aflatoxin Contamination in United States Peanuts

Ajit K. Mahapatra, H. Singh, S. Punnuri, G. Mbata and N. Joshee



Agricultural Research Station Fort Valley State University, 1005 State University Drive, Fort Valley, GA



- Evaluation of Nanoparticles (NP's) based Techniques for Rapid Detection of Aflatoxin B1 (AFB1) in Peanut
- To provide peanut stakeholders information on the points along the supply chain where interventions to reduce concentrations of aflatoxins in peanuts
- Structural analysis and fungal infection
- Anatomical and histochemical aspects

Drought/aflatoxin Tolerant Breeding Lines

Drs. Holbrook and Ozias-Akins







Breeding Peanut for Reduced Aflatoxin Contamination

Goals:

Develop a Reliable and Repeatable Method to Evaluate Post-Harvest Aflatoxin Resistance

Define Mechanisms of Pre- and Post-Harvest Aflatoxin Resistance

Associate Moleculars Markers with Specific Mechanisms of Resistance

Develop Peanut Germplasm Less Susceptible to Aflatoxin Contamination



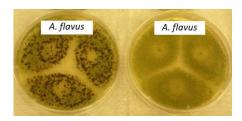
 Designed, and currently building nanoparticles for the delivery of RNA interference (RNAi) that targets multiple aflatoxin-synthesis genes in Aspergillus.



• Developing a method to determine the minimum concentration of RNAi necessary in a peanut seed to effectively silence aflatoxin-synthesis genes in *Aspergillus*.



- Revealing how the multinucleate nature of *Aspergillus* poses additional challenges in the interpretation of its interaction with peanut seed defenses (phytoalexins).
- Renee Arias



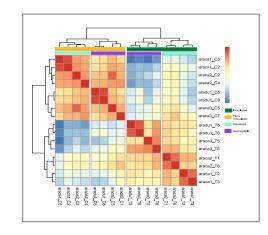
Pre-breeding for resistance to pre-harvest aflatoxin accumulation

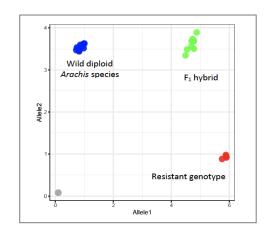


- Screening peanut wild relatives and landraces for aflatoxin resistance.
- Generating genomic resources for gene discovery.



- Transfer of beneficial alleles into cultivated peanut.
- Discovering genetic variants for marker assisted selection.

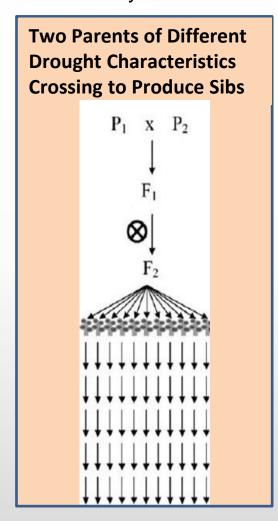




National Peanut Research Laboratory

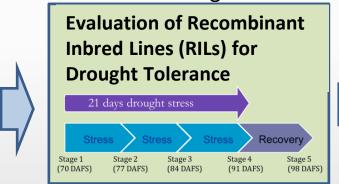
Development and Evaluation of New Breeding Lines for Drought Tolerance and Atox Reduction







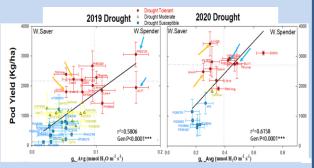
Plots Before Drought Treatment



Drought Treatment for 2 weeks







Genotype	Dry Inshell Wt (g)	Average	Yield (Irr)	2 yr rank
PI 493329	1080.3	1088	1079.3	1
PI 502120	1100.8	1063.5	1620.7	2
AU-17	1352.8	1028.5	1245.1	3
Tifrunner	849.2	1015.9	1239.7	3
G06G	1200.4	1156.4	1643	4
Line-4	811.9	959.3	1480.7	4
TifNV-Hi O/L	726.4	712.8	1500.7	5
C76-16	687.3	816.6	947.8	6
Line-8	712.9	923.6	1459.1	7
AU16-28	1371.6	1269.3	1567.1	8
PI 268755	472.6	497.5	516	9
Ga Green	841.5	678.1	1443.3	9
PI 390428	222.2	231.8	775.8	10
PI 339960	221.4	264.4	326.8	11
PI 290560	274.2	317.4	463.8	12
PI 325943	519.6	302.9	605.2	13
AU18-35	795.1	1046.6	1899	NA
AP-3	794.6	532.5	1479.1	NA

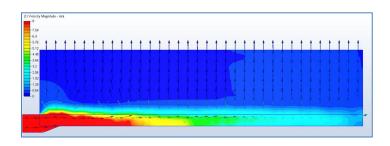


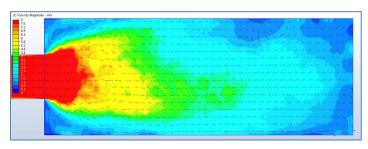
Post-Harvest Aflatoxin Research

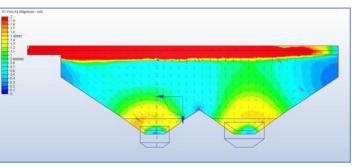
- CFD Modeling to Improve Drying Uniformity and Warehouse Ventilation
- Change in Aflatoxin Contamination in Farmers
 Stock Storage Due to Pre-Harvest Risk of Aflatoxin
 Contamination
- Decision Support System for Managing Farmers' Stock Warehouses Based on Aflatoxin Accumulation During Storage
- Engineering Research to Mitigate Aflatoxin Contamination



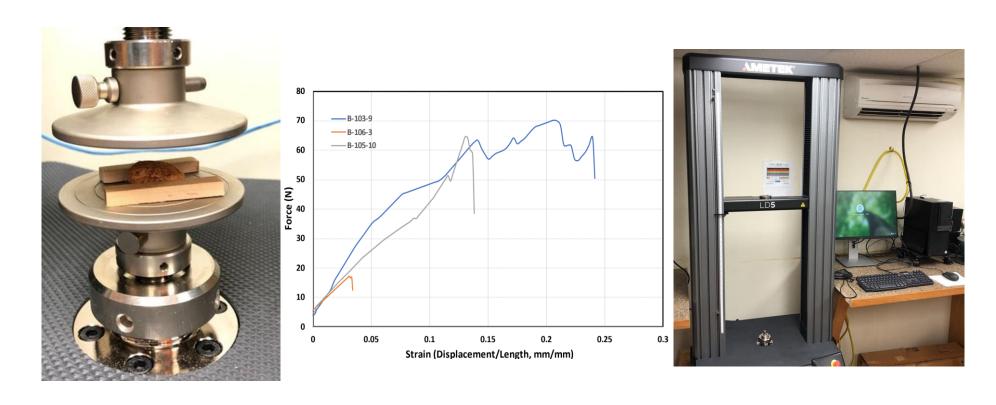
Modeling airflow through peanut pods to improve peanut quality and reduce aflatoxin.







Peanut Hull Strength & Integrity





Ron Sorensen Agronomist, ARS Dawson

Hamed Abbas Plant Pathologist, ARS Stoneville

Marshall Lamb Dawson

2022 Aflaguard Results at NPRL Environmental Control Plot Facility

Treatments (6 for each treatment)

1. No Treatment	Drought 90 DAP	
2. No Treatment	Full Irrigated	
3. Treated (Bioplastic + Aflaguard)	Drought 90 DAP	(Aflaguard applied as a seed treatment)
4. Treated (Bioplastic + Aflaguard)	Full Irrigated	(Aflaguard applied as a seed treatment)
5. Treated (Aflaguard at 60 DAP)	Drought 90 DAP	
6. Treated (Aflaguard at 60 DAP)	Full Irrigated	

Results are total B1 & B2

NO aflatoxin in the Full Irrigated Plots (not shown)

2023 samples have been harvested, shelled, and sent to lab



2022 Aflaguard Results at NPRL Environmental Control Plot Facility

Treatments (6 for each treatment)

1. No Treatment	Drought 90 DAP
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3. Treated (Bioplastic + Aflaguard)	Drought 90 DAP
4. Treated (Bioplastic + Aflaguard)	Full Irrigated
5. Treated (Aflaguard at 60 DAP)	Drought 90 DAP
6. Treated (Aflaguard at 60 DAP)	Full Irrigated

	<u>Jumbos</u>	<u>Mediums</u>	<u>No. 1s</u>	<u>LSK</u>	<u>OK</u>
No treatment	546.3	263.2	321.4	51.6	109.2
Bioplastic + Aflaguard	0	0	0	0	0
Aflaguard (60 DAP)	0	0	0	0	25.9

Aflaguard and other approaches Results at NPRL Bolton Research Farm

Same Irrigation Treatments (3): Non-irrigated, irrigated till 90 DAP, full irrigated

- 1. No Treatment
- 2. Aflaguard at 90 DAP
- 3. Bioplastic
- 4. Bioplastic + Aflaguard
- 5. Bioplastic + Hardwood Biochar
- 6. Aflaguard + Biochar + Aflaguard
- 7. Diflufenzypyr
- 8. Peanut Hulls (spread in field)
- 9. Vine cutting

No aflatoxin resulted in 2022 due to favorable weather during growing season.

2023 Samples have been harvested and sent to lab.

At the Bolton farm we did see visible Aspergillus flavus from the non-irrigated and 90 DAP drought plots while processing the 2023 samples. So, we're expecting to get meaningful data on how these treatments performed in the 2023 field trials.





There are about 22 new research objectives from the new funding. Many more subobjectives.

20 scientists from Land Grant Universities and USDA focusing on reduction of aflatoxin in collaborative research.

We are leveraging the strengths of each other.

Lots of promising new, cutting-edge research at all industry levels.

Thank you for the support.







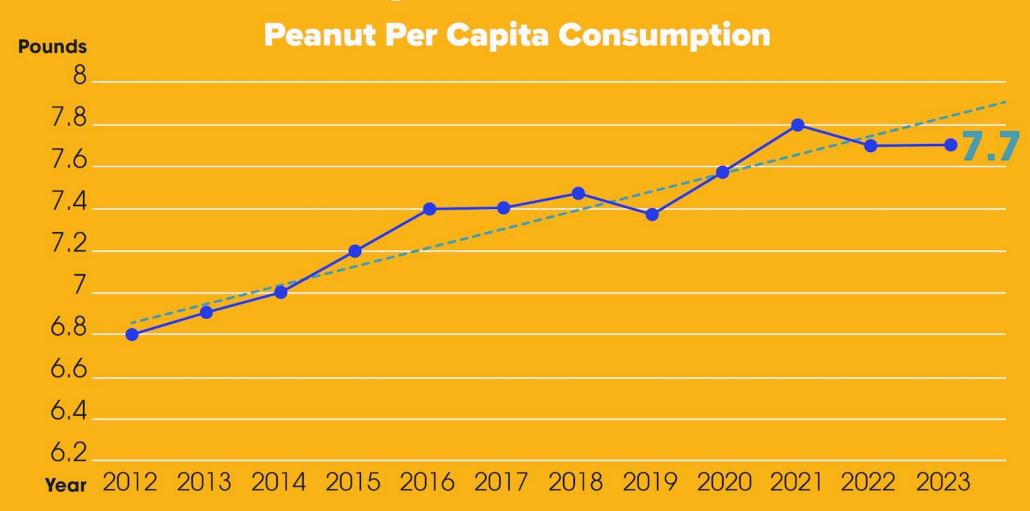
We Are Peanuts

The **National Peanut Board** is a farmer-funded national research, promotion and education group in support of all things peanuts.

Our Mission is to improve the economic condition of America's **7,000 peanut farmers and their families** through compelling promotion and groundbreaking research.



U.S. Per Capita Peanut Consumption Maintaining at Near-Record Levels



Peanut Consumption 2023

consumed an average of 7.7 pounds of peanuts...









Increased 13% from 2022



Peanut candy -











Why Lions matter

A new creative agenda

GG

'The creative agenda is moving from Brand Purpose to Brand Joy'

Paul Kemp Robertson Contagious, 2023

#BRINGHOMETHEBUD

OREOCODES



Dine with Comfort Overview

We know there is one place in America that grows as much comfort as peanut farms: diners. Diners are a comforting home away from home and America's love for nostalgic dishes and diner atmospheres runs deep.

We curated a **one-of-a-kind multi-course comfort food menu starring peanuts paired with a 60's-inspired retro diner** restaurant takeover to create the ultimate peanut-inspired diner concept.

From Michelin-starred chefs to food and beverage trend reports, <u>2023 is</u> the year of pop-up, experiential restaurants, nostalgic comfort dishes and <u>in-person connection</u>. What better way to bring these all together than peanuts and peanut butter in an environment many of us know and love.

By partnering with a well-respected celebrity chef to create local and national touch-points for this campaign, we brought the nostalgia of peanuts to the forefront of conversations across earned traditional media and digital platforms.



Chef Partner & Menu Offerings: Struck the Perfect Balance

Chef & Restaurant Selection

As an 8x James Beard award-winning celebrity chef, author, and restaurateur, Chef Marcus Samuelsson is a high caliber chef with a passion for cooking with peanuts and bringing new flavor profiles to his dishes. His Atlanta restaurant, Marcus B&G is a cozy, welcoming space located in one of Atlanta's most iconic neighborhoods. Marcus B&G was the ideal backdrop for the 60's retro diner-inspired takeover.



Recipe Development

The limited-time menu featured elevated, peanutforward, and deliciously nostalgic dishes. Chef Marcus Samuelsson found the balance of diner classics and leveled-up Southern favorites while offering an unexpected twist by utilizing peanuts in unique ways and formats throughout.



VIP Press Preview Event: Igniting Local Peanut Conversation

To drive local awareness of our peanut-inspired pop-up at Marcus Bar & Grille and bring people together for a real-life memorymaking experience, we hosted an exclusive VIP preview night attended by nine press guests as well as nine earned influencer quests and our VIP's respective plus ones. The local event not only ignited conversation locally about peanuts, but it helped us foster and grow key media relationships.

- Of our media guests, 3 converted traditional earned coverage, including coverage in AJC, Skye's the Limit Podcast, and WSB-AM radio. The event also drove 6 social posts from press, garnering 35.9K impressions. We are seeing through two additional coverage leads with Georgia Trend and Flavor & The Menu as well.
- Of our influencer guests, there were a total of 48 posts shared, garnering 2 million total earned impressions* across in-feed posts and stories.

Notable Media Attendee Snapshot



Skve Estroff Atlanta Food Expert and Podcast Host



Belinda Skelton WSB-AM Radio Host



Yvonne Zusel Atlanta Journal Constitution Food and Dining Team Lead



Katie Ayoub Flavor & The Menu Managing Editor



Kwame Ofosu Askwame, Editor in Chief

Notable Influencer Attendee Snapshot



Sucheta Rawal Contributor (Georgia Trend, Huff Post, CNN)



@toomuchmouth TikTok Video



@cupofconsuella **IG Story**



@belleonthebeltline IG Carousel



@tpgent TikTok Video

^{*}earned impressions are based on the follower count as opposed to backend reported metrics.

Earned Media: Peanut-Inspired Menu Drove Headlines

Total Earned Coverage*

34

*Inclusive of earned traditional and social posts from reporters

Marcus Samuelsson's New Restaurant Pop-Up Will Have A Retro Vibe -Exclusive Interview

Tasting Table.

Total Impressions 850M+

Brand Mentions 100% Favorable Sentiment 100%

The Atlanta Journal-Constitution

Marcus Bar & Grille to host peanutinspired pop-up next week

For six days, the eatery will offer a nutty multi-course menu.

Why Marcus Samuelsson Adds Peanut Butter To Waffle Batter - Exclusive





suchetarawal 6 I first met @ma ago in NYC whe about food @ia @roosterharlem his food here in 21plustravel Edited • 6w The @nationalpeanutboard has partnered with 8x James Beard awardwinning celebrity chef, author, and restaurateur Chef Marcus Samuelsson @marcusbarandgrille to curate a special, upscale dining experience that's as nutty as it is nostalgic. Don't miss your chance to enjoy the limited-edition, #peanut inspired culinary extravaganza popup that's happening in Atlanta for 5 days only!!! This is some serious yum you don't want to miss with something for every type of eater, from omnivores to vegans. #dinewithpeanuts

Iconic chef Marcus Samuelson partnered with @nationalpeanutboard to create an amazing 3 course dinner with peanut old fashioned of course at his Atlanta location @marcusbarandgrille

GOOD DAY AT LA NTA Tox Setlanta.com OWERBALL POWER PLAY: 3 FOX GEORGIA FIVE MIDDAY: 2-3-7 LOTTIEN Affinity

Chef Marcus Samuelsson celebrates the peanut

Influencers: Amplified Peanut-Filled Comfort Food Through Multiple Avenues



Favorable Commentary 91%





Total Engagements 34K





Earned Media: Good Housekeeping Cooking Demonstration Reminded Top Editors the Culinary Breadth of Peanuts

In collaboration with Stefani Sassos, the director of the Good Housekeeping Institute Nutrition Lab, we orchestrated an engaging deskside opportunity featuring Chef Marcus Samuelsson. The interactive cooking demonstration showcased menu items from the peanut-inspired pop-up, aligning seamlessly with a 60's retro diner theme. Over 10 national food media editors under the Hearst umbrella participated.

The positive response extended to social media, where editors shared their enthusiasm, reinforcing the success of the event and positive coverage centered around peanuts.

Overall, this unique in-person deskside created a relationship building opportunity to keep peanuts top of mind among top-tier food editors.





Notable Attendee Snapshot



Susan ChoungGood Housekeeping Recipe Editor

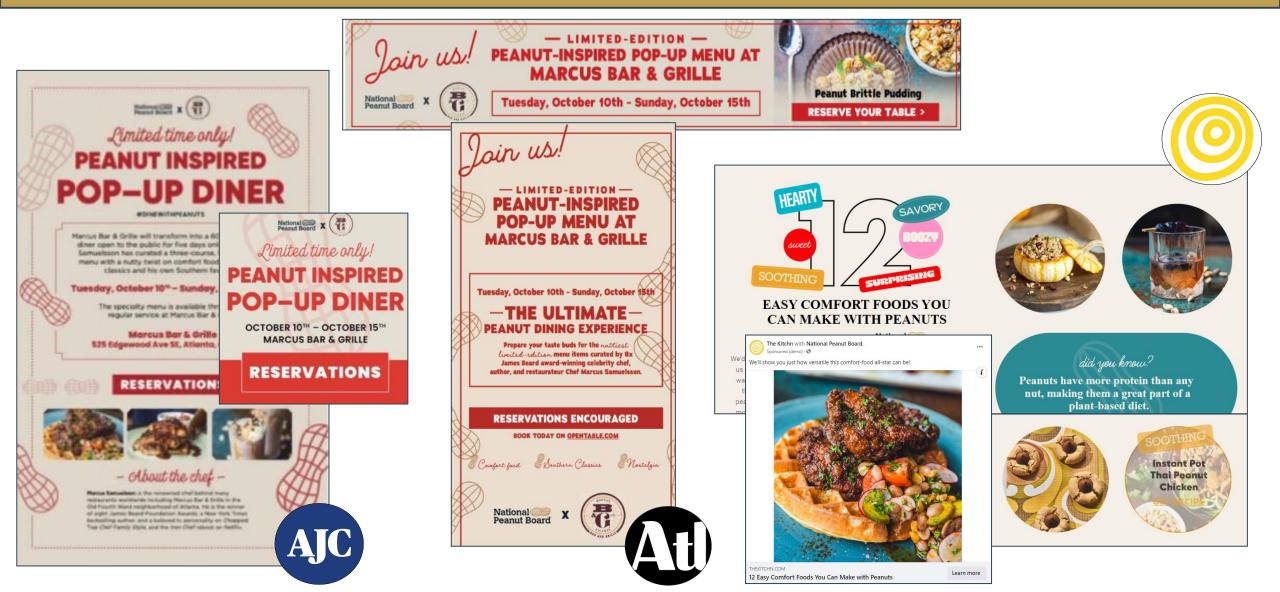


Stephanie DolgoffGood Housekeeping Deputy
Editor



Kate Merker Hearst Chief Food Director

Promotions: Drove Reservations & Extended Reach



Key Findings & Implications: Dine with Comfort

Our multi-pronged approach across earned and paid media generated 109 placements and 867.5M impressions – the most of any program this year.

The right spokesperson was able to deliver messaging to promote the pop-up locally and the right influencers, along with media, were able to amplify and extend the message to further solidify the connection between peanuts as a comfort food.



NPB Welcomes New President and CEO

"We will remain a valued, and collaborative partner to the industry. People will see us as passionate, competent, and innovative; and capable of leading NPB's next chapter. In addition, driving impact across all the Board's programs will be a primary focus."

Ryan Lepicier NPB President & CEO





Our new website encompasses everything in one.

Find



Production Research Database



Recipes



Peanut Allergy and more at Resources



Grower News

www.nationalpeanutboard.org

We The Peanut

We are building on our momentum with a long-term creative platform that not only shapes next year, but can carry us beyond.

Every day is an opportunity to grow our country's shared love for peanuts and peanut butter, no matter what form it takes.



2024 Referendum

- April 8 − 19.
- Ballots will be received through mail for growers who paid assessments for Crop Year 22
- Submit ballots by mail or online
- If you don't receive a ballot by April 8, reach out to our office





Early Introduction

LEAP Study (2015) showed introducing peanut foods as early as

4-6 months

reduced risk of allergy by up to **86**% in high-risk infants. This is further supported by the Dietary Guidelines for Americans and NIAID (2017).

We are still waiting for an update on the new WIC package.
While we wait, we are preparing for all scenarios.



Doubling Down on Schools

- Partnering with States...
- 50% of Top 50 Schools
 Serve Peanuts
- CIA Healthy Kids Collab...
- School Food Summit...

National Peanut Board

Summer School Nutrition Summit Future of School Nutrition





NPB Investment Secures Additional Funding

In its 20+ year history, the National Peanut Board has invested and secured more than **\$48.5 million** in production research funding, through budgeted allocations and industry matching funds.

\$43.87 million

NPB invested



\$4.7 million

NIFA & other industry invested

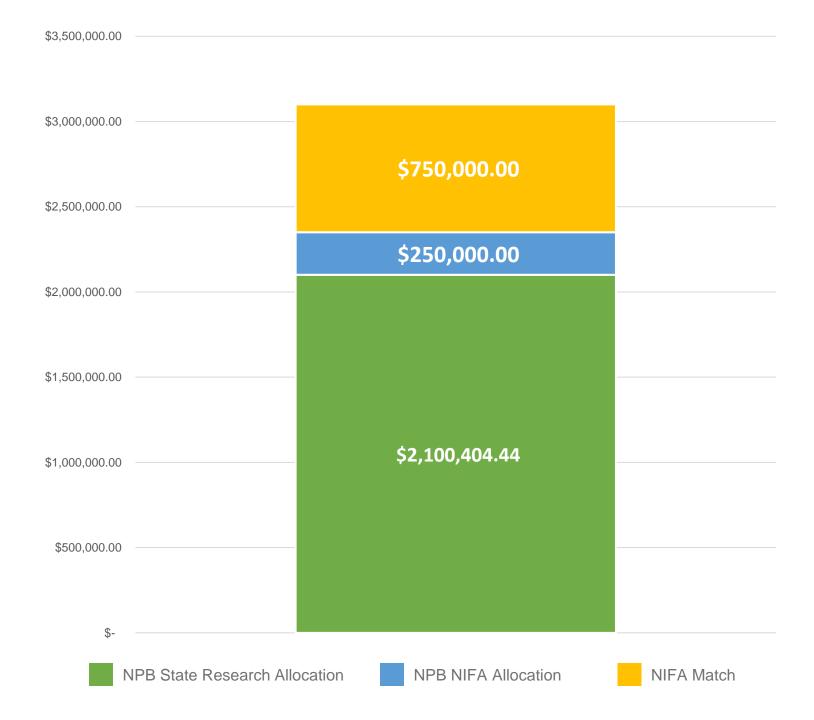


\$48.5 million

for peanut production research since 2001

Production Research is Making a Difference

In FY-24, NPB allocated \$2.35 million to production research. \$250,000 of those funds were to NIFA projects, which awarded an additional **\$750,000**. Total impact for FY-24 is more than \$3.1 million.



Industry-Wide Sustainability Initiative

U.S. Peanuts Should — and Must — Be Part of a Sustainable Future

Peanut farmers protect the land for a living and must make a living themselves. Meanwhile, food and environmental sustainability is being demanded by our customers, consumers, governments and trade partners. The Sustainable U.S. Peanuts Initiative unites these goals.



Contact:

Allison Randell Director of Sustainability American Peanut Council arandell@peanutsusa.com (386) 209-2951



Enrollment for the 2023 crop year is now open through the end of April.

Growers can visit www.SustainableUSPeanuts.org
To learn more and sign up today!



The National Peanut Board believes diversity is critical for future growth. Support of the Peanut Leadership Academy is one way we're working to include underrepresented farmers - sponsoring two PLA members per class.







National Peanut Buying Points Association

2024 Annual Conference







Who is the American Peanut Council?

- Mission is to support the long-term growth of the peanut industry across <u>all</u> sectors of the supply chain
- Key pillars/focus areas:
 - Grow and defend export markets for U.S. peanuts
 - Provide leadership in reputation management/crisis
 - Support the industry on research priorities
 - Build a framework for sustainability





APC Membership Profile

- Four sectors represented in the membership:
 - **Growers** all peanut-producing states represented
 - Shellers and Buying Points representing over 95% of U.S. peanut market share
 - Manufacturers Hormel, J.M. Smucker, Mars, etc.
 - Allied suppliers, transportation, equipment
- APC board of directors and executive committee reflects all four sectors



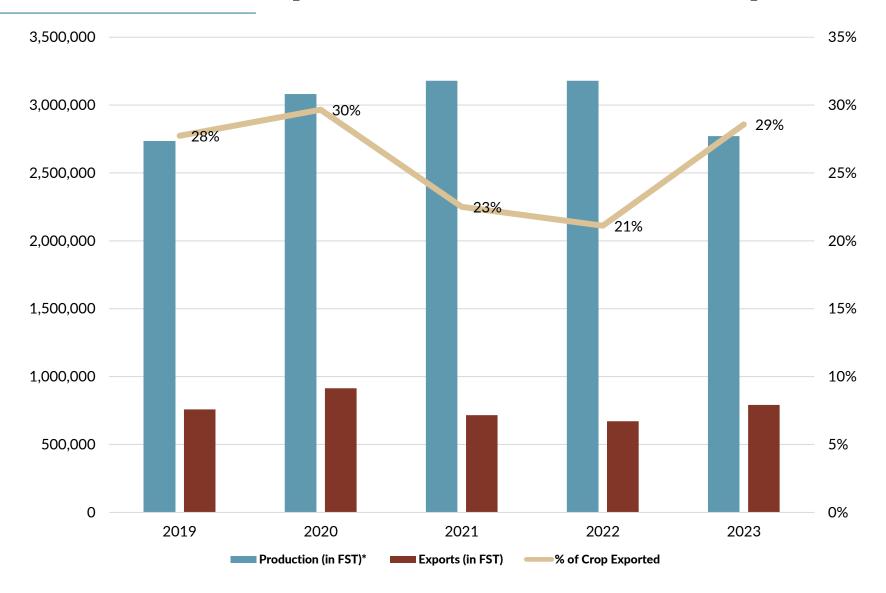
Supporting Industry Research Priorities





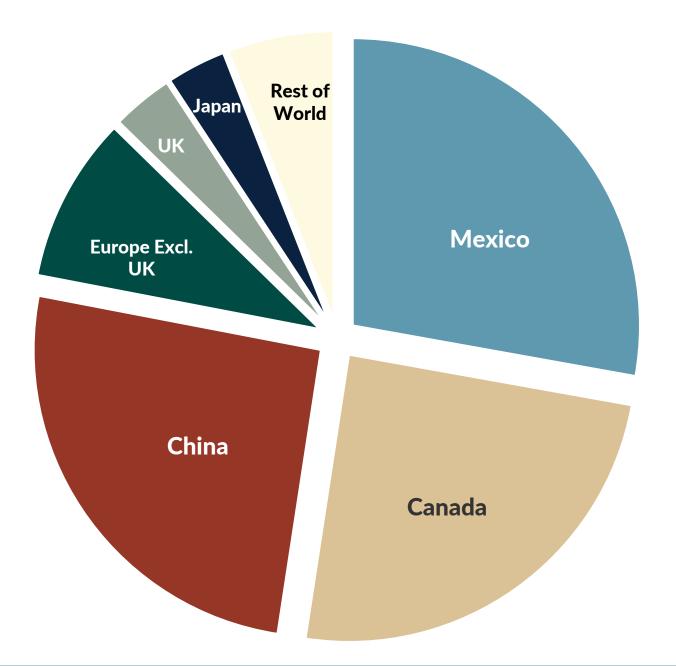


U.S. Annual Exports – Production – % Exported



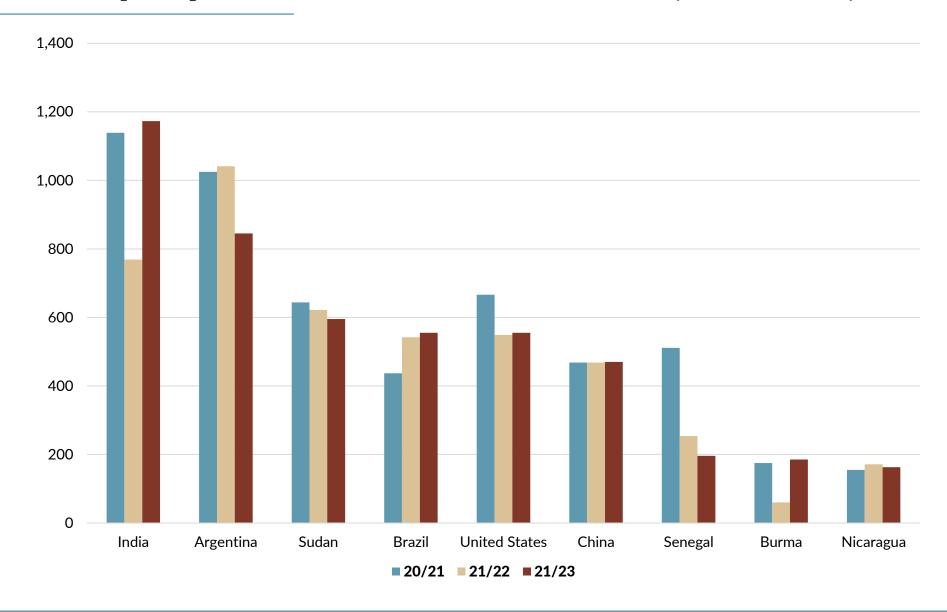


2023 U.S. Peanut Exports By Market





Top Exporters - All Peanut Products (in 000 MT)









Sustainable U.S. Peanuts Initiative

'Sharing Our Industry's Story'





U.S. Peanuts have a great sustainability story!

- Affordable source of plant-based protein
- Nitrogen fixing
- All plant parts are utilized by the industry
- Low fertilizer and water requirements
- Works well in rotation with other crops



AMERICAN

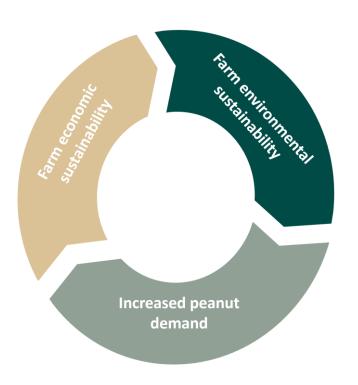
FAT 49%

PROTEIN 26%

CARBS 16%

Why does sustainability matter?

- Data shows that consumers, manufacturers and international trading partners demand their food be sustainably produced
- Peanut growers need to maintain economic sustainability on the farm
- The Sustainable U.S. Peanuts
 Initiative unites these goals through documentation and sharing the peanut sustainability story
- Creating transparency along the supply chain supports demand of U.S. peanuts







Competitors Are Stepping Up



Who's Involved







Objectives

- M Implement the FSA with major suppliers of peanuts in Argentina
- Develop localised support and capacity for FSA implementation in Argentina
- Identify opportunities for a second phase of the project focused on continuous improvement

The challenge

Argentina is the single largest exporter of peanuts to Europe, with the majority of the Argentinean peanut supply coming from only about a dozen suppliers. With changing European legislation, it is imperative that growers selling into Europe act proactively in order to meet increasing demands for sustainability from buyers. Additionally, with the short supply chain found in Argentina, there is the opportunity to move the industry collectively towards common sustainability goals.

https://saiplatform.org/our-work/projects/argentina-peanut-sustainability/ https://saiplatform.org/our-work/news/sustainability-leaders-in-argentina/



- A platform to track the environmental footprint of peanuts
- Growers share their production information and receive metrics compared to peers only takes one hour to complete
- Data is aggregated nationally and compared with industry standards
- Supported by all steps of the supply chain





www.sustainableuspeanuts.org



Information Submitted by Participating Growers







Biodiversity



Nutrient Management



Crop Protection



Soil Health



Farm Management



Water Management



Harvest Preparation



Worker Well-being



🥦 Field Level





Field & Farm



Rotation & Residue



Habitat & Conservation



Fertilizer & Crop Protection



Irrigation





What's In It For Me?

- You can help us demonstrate that peanuts are a great crop to have in rotation
- It provides reputational protection for the industry, starting at the field level
- This program can help us attract significant funding to support conservation practices
- You are already implementing good management practices.
 Let's document them to build our message



Help the peanut industry reach 300 grower enrollees for the '23 crop year!

Enroll now for the 2023 crop year through April 2024

Scan the code below or visit www.SustainableUSPeanuts.or



Contact:

Allie Randell
Director of Sustainability
American Peanut Council
(386) 209-2951
arandell@peanutsusa.com





Key 2024 Events

- USA Peanut Congress
 - June 10-13 Amelia Island, Florida
- APRES Annual Meeting
 - July 9-11 Oklahoma City
- APC Insights Summit
 - December 9-11 Atlanta

www.peanutsusa.com



