

New USDA Research Collaboration: Pecan Processing Technology



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Research
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Southeastern Fruit and Tree Nut Research Station (Byron, GA):

- Enhancing the productivity, value and safety of stone fruit and pecan crops
- Serving the US Pecan Industry

Pecan Research

- Entomology (Drs. Ted Cottrell & David Shapiro-Ilan)
- Horticulture (Dr. Cristina Pisani)
- Plant Pathology (Dr. Clive Bock)
- Pecan Safety (Dr. Cameron Bardsley)
- Pecan Quality (Vacant)
- New Programs: Genomics, Grazing



New Research Collaboration: Objective

Objective: Develop new and improved pecan processing technologies, such as pasteurization and cracking/shelling, for improved storage, food safety, nutrition, and marketability.

- **Sub-objective 3.A.** Determine factors that influence the growth and/or survival of foodborne pathogens on the surface of whole and cracked pecans (USDA & FVSU)
- **Sub-objective 3.B.** Evaluate the efficacy of novel technologies as mitigation strategies to reduce foodborne pathogens on pecans (FVSU & USDA)
- **Sub-objective 3.C.** Identify, characterize, and model pecan and machine factors to improve halves yields in pecan cracking and shelling (UGA lead)

Project Plan Review

- Congressionally funded research must be peer-reviewed
- The new project objective was reviewed through the USDA-ARS Office of Scientific Quality Review
- The plans are **reviewed** anonymously by experts in the field
- On July 29, 2022, the results of the review were provided – an excellent score was received with only minor revision recommended!
- Thank you & Congratulations to Drs. Bardsley (USDA), Bock (USDA), Mahapatra (FVSU), Morkos (UGA), Camelio (UGA)!
- Thank you to stakeholders for your input!

Additional Funds added in FY23

Focus on Pecan Quality

Approach:

- Various aspects of nut quality will be researched in response to environmental conditions of storage and packaging.
- Experimental evaluation will include kernel quality characteristics such as lipid, protein and other nutritional content, color, taste, shelf-life, etc.
- The impact of various pasteurization processes on nut quality will also be assessed.
- Mechanisms to improve shelf-life and nut quality during storage will be determined.

- Anticipated products include new and improved approaches to maximizing nut quality and extending storage duration.
- Result will be a separate project on Pecan Processing (currently the project is housed within pecan production); a new project plan will be needed.

USDA-ARS Plan

- Southeastern Fruit and Tree Nut Research Station, Byron GA will hire:
 - 1 postdoc on food safety (hired – Dr. Cameron Bardsley)
 - 1 Research Scientist, Food Safety (after postdoc term ends, FY24)
 - 1 Research Scientist Pecan Quality, FY24 (in process)
 - 2 high level research technicians (CAT III), FY23 (in process)
- Other team members: USDA-ARS, Wyndmoor, PA (Dr. Niemira, lead), USDA-ARS New Orleans, LA (Dr. Chris Mattison, lead); FVSU & UGA
- Georgia Pecan Grower's Fall Field Day – Byron, GA September 7, 2023