Georgia Peanut Commission
FY2024 Progress Report

Project Title

Optimizing *Aspergillus flavus* Biocontrol Application Methods for Improved Efficacy in Reducing Aflatoxin Contamination in Peanut

Investigators

PI: Jake Fountain, Assistant Professor, Department of Plant Pathology, University of Georgia, 1109 Experiment St., 216 Redding Building, Griffin, GA, 30223

Co-PI: Robert Kemerait, Professor, Department of Plant Pathology, University of Georgia, 2360 Rainwater Rd., Tifton, GA, 31793

Summary

In 2024, we examined the efficacy of two commercial biological control products for aflatoxin mitigation in peanut, AflaGuard and AF36 Prevail. The experiment was conducted both at the UGA Lang-Rigdon Farm in Tifton, GA and at the UGA Southwest Georgia Research and Education Center in Plains, GA. These biocontrol products were applied alone or in combination along with a non-treated control treatment in a randomized complete block design to 30ft (9.1m), two-row plots of Georgia-06G peanuts at label rates and timings in both locations. Dryland conditions were maintained after biocontrol application. In Plains, half of the plots received supplemental water from a boom sprayer the morning after biocontrol application while the plant canopies were open to attempt to better activate the biocontrol products. Peanuts from each plot were mechanically harvested at maturity, dried at 145°F (63°C) for 5-7 days, then shelled for use in aflatoxin testing. Aflatoxins were quantified by Waters Agricultural Laboratories using a Veratox method (Neogen).

Very low levels of aflatoxin were observed in the plots from 2024 with levels ranging from 0 – 3.4ppb across all treatments and locations. While statistically significant differences between treatments and locations were observed, no meaningful differences were seen with aflatoxin levels being so low overall. No significant difference was seen comparing plots receiving or not receiving post-application water sprays in Plains. Regardless, these products and approaches to improving efficacy in dryland production warrants further investigation under aflatoxin-conducive environmental conditions. In addition, future repeats of this experiment may examine differences between aflatoxin levels in sound mature kernels (SMKs) and damaged/split kernels separated during shelling to ensure no aflatoxins are being missed in sample processing.