

GRADUATE AG RESEARCH SPOTLIGHT



Julius Eason

"Agriculture has a stigma in some urban communities. The continuation of small urban farming programs would help the youth understand that ag has real opportunities for STEM majors."

Julius Eason, PhD student, Entomology

THE STUDENT: Julius Eason grew up in Atlanta, Georgia, and earned an undergraduate degree in biology at Fort Valley State University — the first of two historically black colleges and universities he would attend. He thought he might pursue medicine, until a junior year entomology class kindled his interest. Although he'd had little exposure to agriculture, he went to Florida A&M University for master's study in entomology and became particularly interested in integrated pest management (IPM) strategies for food crops. "I was always fond of plants and being outside but didn't realize the diversity of the fields you could go into," he says of agriculture. He began doctoral work at Purdue in fall 2015.

THE RESEARCH: "I'm looking at different bacteria communities associated with the alimentary canal — the gut of fungal feeding insects," Eason explains. "They play a vital role in our immune system by breaking down other communities to use as nutrition and also fending off foreign bacteria microbes." Under the advisorship of Linda Mason, dean of the Graduate School and an internationally recognized expert in IPM, Eason focuses on the hairy fungus beetle. The pest is often found in poorly managed corn storage bins that produce hot spots of moisture and the fungi *Aspergillus*, which secretes chemicals that attract the insect. Eason explores the microbial reasons the beetles can feed on contaminated grain, but humans can't: "Do they

possess a certain bacterial community that humans lack?" he asks. The long-term goal is to understand the grain-insect-fungal interaction and possibly find a microbe that could be used as a probiotic.

FACULTY INSIGHT: "I was fortunate to develop my own research," Eason says. His work involves both field populations and lab colonies. He taps Purdue's extensive tools and resources for advanced molecular research, including its Genomics Core Facility, but faculty knowledge has been most important to his research, he says. Before completing his degree in fall 2020, he expects to write and submit three articles for publication. He is known in the department for his willingness to help new students as well as speakers and other visitors. "Julius is an outstanding mentor to new students and visitors in the lab," Mason says.

FUTURE PLANS: Eason aspires to land a USDA postdoc and then to develop agriculture programs for youth in urban communities, likely in the South. "When I was growing up, I never thought about agriculture because I wasn't exposed to it," he says. "A biology major could lead to nursing or medical school, but entomology was not on my radar." He hopes to work with programs that lead more city kids into undiscovered fields. In his spare time, Eason enjoys spending time with his wife and their son, born in March.