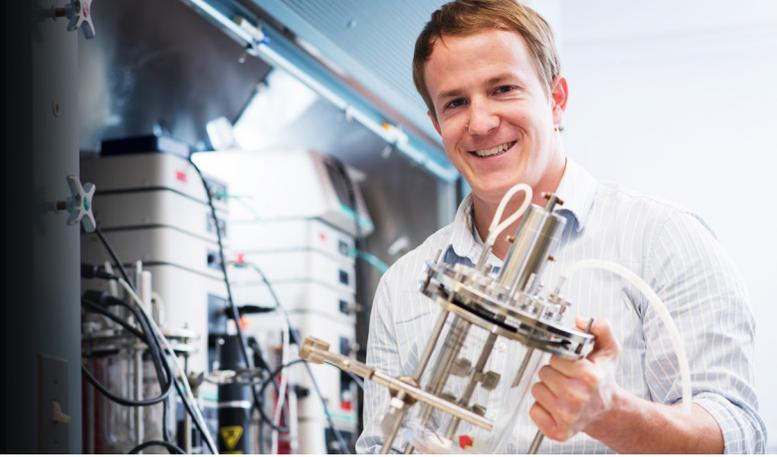


GRADUATE AG RESEARCH SPOTLIGHT



Raymond Red Corn

"Purdue is unapologetically challenging, yet really open. At other schools competitiveness is the name of the game, but good ideas come from a balance between competitiveness and cooperation. There's a cooperative atmosphere here."

Raymond Red Corn, M.S. candidate, department of Agricultural and Biological Engineering

THE STUDENT: Although Raymond Red Corn grew up in the Kansas City suburbs, he spent many summers with family in Oklahoma, where his paternal relatives, members of the Osage Nation, maintain the family's namesake heritage strain of red corn. After earning a civil engineering degree from the University of Kansas, he went to work for firm that focused on water and wastewater. The opportunities he saw to better use wastewater prompted him to seek out related research programs for graduate study. At Purdue, he was struck by faculty members' accessibility and the unique nature of the interdisciplinary ecological sciences and engineering program: "I felt like I could be looking at the broader picture of environmental issues while still honing in on specific areas." He came to Purdue in fall 2012, will complete his master's degree this semester, and intends to stay for a Ph.D.

THE RESEARCH: Plastics that end up in the environment "more or less don't go away, ever," Red Corn says. Current biodegradable options are not cost-effective; and because they are sourced from agricultural crops, their production competes with the food supply. Red Corn's research focuses on making the same products from food waste, using fermentation to produce lactic acid that can be turned into polylactic acid. "It's a resource from a waste source," he says. "I work on a really small part of the process – there's a lot more to it."

SETTLING IN: His first year at Purdue was fraught with uncertainty. "I didn't really have a project in mind, just a general concept," he says. So Red Corn kept proposing ideas, and his committee and advisor, Assistant Professor Abigail Engelberth, kept challenging him to dig deeper. In hindsight, he appreciates their direction, and that his master's-level research will naturally evolve into his doctoral-level work. "I came here to do research," he says. "Picking up a couple of degrees along the way is a bonus. If the research goes well, I'd like to see it through to the marketplace. Purdue also has great resources for that."

NEXT GENERATION OF LEED: Red Corn has been involved with the Living Building Challenge Design Project to design a new educational facility at Purdue's Ross Biological Reserve. One of the building's stringent standards is to release water into the environment at the same level of purity that it was received. Red Corn evaluated a combination of onsite wastewater treatment systems; performed preliminary design of an onsite wetland treatment system; and coordinated with other students to integrate the wastewater handling into other systems. He's also prototyping a urine-based hydroponics system for simultaneous food production and sanitation — an approach, he admits, his girlfriend gives him a hard time about.