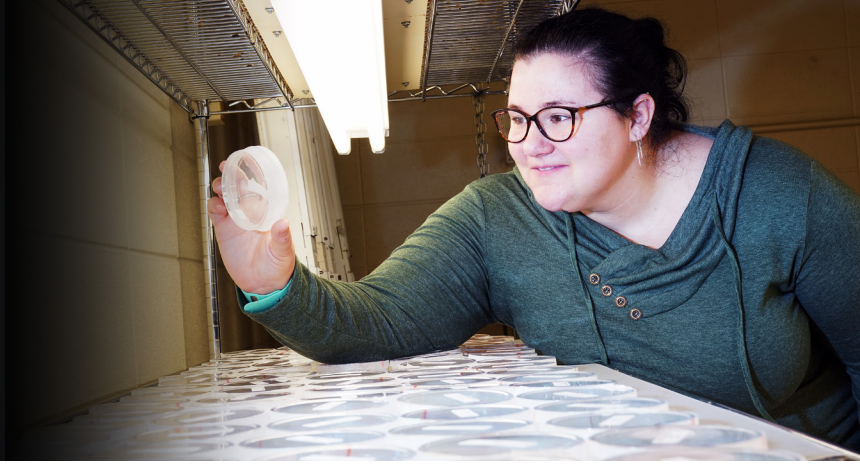
GRADUATE
AG RESEARCH
SPOTLIGHT



Rachel McCoy

"The interdisciplinary nature of plant science at Purdue makes it a great place to study plants."
Rachel McCoy, PhD candidate, Horticulture and Landscape Architecture

THE STUDENT: An undergraduate ethnobotany course at the University of Evansville opened Rachel McCoy's eyes to how people interact with plants — one example is through traditional medicine — and impacted her academic path. After earning her BS in biology, the Indianapolis native joined the Purdue University Interdisciplinary Life Science Program (PULSe) for straightforward reasons: "I was interested in plants because they're awesome. And Purdue was a really good place to do plant science." More specifically she was drawn to the program's interdisciplinary approach and opportunities to rotate through different labs to experience various aspects of plant science. "I liked the community during my interview," she adds. "Students were willing to answer my questions. All the faculty I talked to were great, too." In 2016 she joined the lab of Joshua Widhalm, assistant professor of horticulture, whom she's come to think of as an ally as well as an advisor. "He's always supportive of my goals," she says.

THE RESEARCH: The Widhalm lab focuses on plant allelochemicals, natural products released into the environment that influence the growth and development of other species. McCoy has discovered that black walnut trees make the allelochemical juglone using the part of the same pathway that plants use to make phylloquinone, which humans need as vitamin K and that plants use for photosynthesis. "We need to get phylloquinone from our diets, from leafy greens," she explains. "We mostly understand how plants use it in photosynthesis, but we don't fully understand how plants make it or the extent to which the pathway is used to make other compounds, like juglone." In exploring those mechanisms, the tools of McCoy's trade include chromatography and metabolic profiling. "I love trying to figure out things that nobody knows," she says.

OPPORTUNITIES: In spring 2018 McCoy was awarded a prestigious USDA NIFA-AFRI predoctoral fellowship. She was the first author of an article published in Horticulture Research, one of five publications with an additional three in submission. " A lot of what I've been coauthor on have been collaborations," she notes. Purdue's Graduate Student Senate gave her its 2018 Above and Beyond award for her initiative during two years as senator for Horticulture and Landscape Architecture. "As grad students, we can get so caught up in our research that we don't think about what's going on outside the lab, and I think it's important that someone is thinking about that," she says of her senate involvement. "It also helps us know what's going on outside of our department on campus."

FUTURE PLANS: McCoy expects to defend her thesis in April, so her search for a postdoc is underway. "I want to end up as a professor at a small university," she says, citing her personal experience at Evansville as influential in that decision. In her spare time, she enjoys two cats, Juno and Doodle, and traveling with her husband. "We like to go places we've never been," she explains. "We like weird museums, especially in small towns, where you get a random conglomeration of whatever they can find."