



Joshua Craver

"I love the idea that by manipulating the environment, a plant is going to change for better or worse. How do we optimize the environment to improve plant growth?"

Joshua Craver, PhD, Horticulture

THE STUDENT: Joshua Craver grew up in Tyler, Texas, where his parents were both teachers. He chose Mississippi State University and a major in landscape architecture, which he thought would ideally combine his enjoyment of the outdoors and architecture. When he discovered he was more interested in plant science, his advisor suggested he give horticulture a try. Craver ended up leading his university's Horticulture Club and working on a faculty mentor's research project. "I thought, 'Maybe there's something more to horticulture than being a grower or starting my own nursery,'" he recalls. After earning a master's degree in horticulture at Kansas State University, he came to Purdue in August 2014 to work with Roberto Lopez, then associate professor and floriculture Extension specialist, on lighting applications in controlled environment horticulture. "It came down to Purdue having a fantastic horticulture program and his program specifically," Craver says. When Lopez took a position at Michigan State in early 2016, Purdue Professor of Horticulture Cary Mitchell stepped in to co-advise Craver. A one-hour floral crops production course that Lopez had previously taught became Craver's. Working with students in the greenhouse "was another step in solidifying my passion for teaching," he says.

THE RESEARCH: Craver's research focused on growing annual bedding plant seedlings indoors with LEDs. Bedding plants for spring markets are started from seed in late winter or early spring in plug trays. (Later they'll be transplanted into larger pots for eventual

retail sale.) Because much of this production occurs in northern latitudes, which have low light during the winter months, greenhouse growers depend on expensive supplemental lighting. Craver explored whether these plants could instead be grown indoors; for example, in warehouses on multi-level shelving in close proximity to the light source. "The reason that works is because of LED technology," he explains. The technology isn't new, but scientists have new tools to measure and understand "the fascinating intricacies of how these plants respond to the environment." In addition to informing Midwest producers of bedding plants, research like Craver's has potential impact on growing fresh produce in urban areas.

RESOURCES: He cites the importance of supportive advisors and staff at Purdue, as well as top-notch facilities like walk-in growth chambers, in creating a setting conducive to high-quality research. He also notes the Center for Instructional Excellence as an excellent resource for honing his teaching skills.

FUTURE PLANS: Craver has defended his dissertation and graduates this month. Deep into the interviewing process for faculty positions around the country — "part exhilarating and part exhausting," he says — he credits his Purdue committee for preparing and coaching him. "Good support makes it less intimidating. It's exciting to be competitive for prospective jobs." In his leisure time, Craver enjoys playing disc golf, hiking, and travel with his wife.