

GRADUATE AG RESEARCH SPOTLIGHT



Michael Dzakovich

*"I'm not exactly a horticulturist. I'm more of a food scientist who grows plants."
Michael Dzakovich, M.S. candidate, Department of Horticulture*

THE STUDENT: Michael Dzakovich's first exposure to plant science was at age 3, when his back-door neighbor in Northbrook, Illinois, invited him to help in her vegetable garden. "I don't know if I was helping all that much," he says. "But I think that's where everything started." He enjoyed a class in horticulture at Glenbrook North High School and got his hands dirty as propagation assistant of sorts in the school's greenhouse. But amid suburban living and the amenities of downtown Chicago, Dzakovich had little understanding of the scope of agriculture, he says: "I looked at ag engineering, but I saw tractors and worried it wasn't a good fit." He visited Purdue to explore the aviation program—until a greenhouse tour with Professor of Horticulture Mike Dana recalled his affinity for growing plants. "Horticulture helped ground me in fundamental science, but there was also a translational component to it," he explains. He arrived as an undergraduate in 2009 and hopes to complete his master's degree this summer.

THE RESEARCH: "My master's research focuses on how we can manipulate plants using different colors of light to affect their nutritional and sensory quality," Dzakovich says. The goal is to produce greenhouse tomatoes that taste as good as garden tomatoes grown during the summer. Dzakovich analyzes the greenhouse-grown tomatoes' sugars, acids, vitamin C, polyphenolics, carotenoids, gene expression, and flavor molecules, while sensory panels provide feedback on texture and taste.

WHY TOMATOES?: If you were stranded on a desert island and had only one food choice to sustain you, you would be wise to consider the tomato, Dzakovich says. "Tomatoes are currently the number-two vegetable crop in the world, with a global value approaching \$60 billion." However, the winter tomato's reputation is bland, mealy and nutritionally inferior. "We see that as an opportunity to use light to regain some of those garden-grown attributes in the greenhouse," he says.

RESOURCES: "Purdue has absolutely everything that anybody needs to do good science—human resources, in the faculty and other graduate students, and equipment," Dzakovich says. "The infrastructure here is astounding." He worked for Professor of Horticulture Cary Mitchell as an undergraduate, and when Dzakovich stayed on for further study, the professor became his advisor. "[Mitchell] has done a diverse range of research, and his advising style is perfect for me," Dzakovich says. "He allows you to learn independently and through mistakes, but is there for advice and support when you need it."

FUTURE PLANS: His advisor was particularly helpful when Dzakovich was deciding on his next step—doctoral work at Ohio State. "I think my master's research has given me a diverse tool belt of analytical skills that I can use to tackle any new problem I'm faced with," he says. In his spare time, Dzakovich studies flamenco guitar and also enjoys hiking and cooking.