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Collaboration Advances Strawberry Research

OLATHE -- What if there were a better way to grow strawberries in Kansas? Kelly Gude, graduate student in [horticulture with an emphasis in urban food systems](#), is working on research that could make this a reality.

Most varieties grown in Kansas are planted in the fall and harvested for a mere five weeks in the spring. Gude is studying six varieties of day-neutral strawberries, which can be planted in the spring and harvested for a period of five months.

Gude began working on this project with her advisor, [Eleni Pliakoni](#), Ph.D. and K-State Extension specialist [Cary Rivard](#), Ph.D. in May 2014. Her work is looking at the yield and productivity of the plants as well as their flavor, quality, and ability to survive during storage. She brings the strawberries into Pliakoni's lab at K-State-Olathe for analysis four times each growing season. In addition to the pre-harvest data collection, the postharvest data includes: storage life, visual decay, respiration, moisture loss, antioxidant levels, total phenolic levels, titratable acidity, soluble solids, texture and color.

Gude also collaborated with [Marianne Swaney-Stueve](#), Ph.D., manager of the [Sensory and Consumer Research Center](#) at K-State Olathe to gather consumer opinion of the strawberries. During studies in July and August 2015, the Center team asked 230 participants to observe and taste five of the six varieties. Consumers were asked to provide their opinion of overall liking, overall flavor, redness, sweetness and firmness.

The results from the consumer studies were compared to the lab analysis of color, soluble solids, texture, and titratable acidity.

"It's exciting that the lab results for texture, firmness and sweetness aligned with consumer opinion," said Tegan Jepsen, Analyst, Sensory and Consumer Research Center.

Kansas climate in the summer is not ideal for strawberries, which are a cool-season crop. Gude and Rivard are testing how the plants perform in Kansas using high-tunnels and a plasticulture growing method, which means they are grown with plastic mulch on raised beds with drip irrigation. The plants are also treated with evaporative

cooling. When the temperature rises above 85 degrees Fahrenheit, mist sprays the fruit, cooling its internal temperature.

“Our results indicate that growing day-neutral strawberries in a high tunnel could be a successful system in Kansas when proper varieties are utilized,” said Gude. “Further research is needed to investigate the utility of the evaporative cooling treatments across multiple growing seasons.”