



Preserving the Future



One Professor's Drive to Change the World Thru Food

STORY AND PHOTOS BY BECKY BERNET

Unforeseeable, uncertain, yet absolute. The future is a mystery, but Sheryl Barringer, PhD and chairperson of The Ohio State University Food Science and Technology Department (FST) has been working to ensure that there is plenty of food in the time ahead.

Barringer's Beginning

During her senior year of high school, Barringer 'stumbled' across food science. She felt that she could excel enough in this intriguing career path to make an impact. "Maybe subconsciously I knew that I was always interested in food and always enjoyed playing with it. I just had no clue it was a major until my senior year in high school when I was looking at majors," Barringer said.

Barringer went on to obtain her bachelor's degree in Food Science from the University of Illinois. At the University of Minnesota, she received her doctorate in Food Science and Nutrition. Her studies lead her to expertise in fruit and vegetables processing, food flavor (volatiles),

liquid coatings, powder coatings (Ex: powder on chips), electrostatic coatings (charged particles used to coat food), and non-electrostatic coatings.

Due to her expertise, Barringer previously taught technical problem solving and chocolate science courses at Ohio State. Currently, she teaches fruit and vegetable processing. To Barringer, watching students understand and remember the material is the most pleasing part of teaching. Afterward, she sees them move into wonderful



careers. "I love teaching," said Barringer. "That's where I have the real impact on the world."

Barringer's success as a faculty member corresponds with the teaching awards received. In 2001 and 2005, the college awarded her Ohio State College of Food, Agriculture, and Environmental Science Outstanding Teaching award.

Surely due to her academic excellence, Barringer has held the title of department chair since 2015. Although the department chair is vastly different from teaching, Barringer considers it a privilege to aid in the success of the department. "The chair position is about promoting everybody else," Barringer said.

As department chair, she overlooks curriculums and resource accessibility for product development teams. The job consists of a lot of paperwork, but Barringer expresses no limits when it comes to aiding the advancement of food science.

Research Mode

In her spare time, Barringer enjoys participating in research. For out-

standing research in the advancement of food science, Barringer received The Institute of Food Technologists Samuel Cate Prescott award in 2004. "Definitely very honored, very excited," said Barringer when asked about her reaction to this award.

However, achieving this award was not the end of her research, Barringer's most memorable research involves powder coating on cheese. Powder coatings prevent shredded cheese from sticking together. Unfortunately, the coating is not always distributed evenly. This uneven distribution of cheese coating led Barringer to experiment with electrostatic powder coating.

The powder used for coating floated throughout the production facility. Workers wore masks and goggles to prevent themselves from inhaling the cheese dust. "You couldn't see the opposite end of the room because there's so much powder floating around," said Barringer.

Thanks to Barringer's research, the electrostatic powder unexpectedly eliminated the dust within the facility. Furthermore, it resulted in longer shelf

life and an even powder coating. The outcome from this experience consisted of methods used in later research.

Looking Ahead

Konrad Dabrowski first met Barringer for an Ohio Soybean Council project on the suggestion of a fellow colleague. Currently, the two are collaborating to create a proposal for the Ohio Seed Grant which wants to utilize the fish in Lake Erie.

"Fish was kind of new for her (Barringer), but I was, to some extent,

shocked how enthusiastic she became from the very beginning," said Dabrowski. "Her initiative in many respects, and her expertise, is so complimentary in extending my horizons."

The proposal is approved locally and awaiting approval from the Ohio Seed Grant. Dabrowski is considering extracting chemicals from tropical plants to extend the shelf life of fish and with Barringer's help, that theory may be tested.

To enhance this potential project, Barringer currently researches the flavor of fish in hopes of extending the shelf life. When the fat of fish goes rancid, bacteria forms, thus distorting the flavor. This is known as oxidizing. Barringer plans to adjust the diet of the fish to stop the fats from oxidizing.

Barringer uses antioxidants like

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whey (the watery part of curd milk), mint, and rosemary to test reactions after the fish is filleted. She speculates that the bacteria and acid in whey could decrease the odors of fish without affecting the taste.

Barringer does not stop there. She even has experience with frozen foods. She has interest in the freezing process and frozen food storage. Dennis Heldman, PhD, has collaborated with Barringer to explore the influence of freezing on frozen foods, with emphasis on the importance of controlling the size of ice crystals during the process.



Heldman and Barringer worked on methods to control the impact of temperature deviations during storage and distribution of frozen foods. Using methods developed during Barringer's research, the shelf-life of several different types of frozen foods improved.

Pursuit of Passion

Barringer seems to do it all. A teacher, researcher, department chair, and an associate editor for Foods and Food Ingredients Journal of Japan. She is also a fellow of the Institute of Food Technology and a fellow of the International Academy of Food Science and Technology.

To top off the list, Barringer became managing co-site director for Center of Advanced Processing and Packaging Studies (CAPPS) in April of 2021. CAPPS is part of the National Science Foundation, founded by the Industry University Cooperative Research Center, which has worked for over 30 years to build a bridge between universities and the food industry.

With food quality and health at the top of public concerns, high achievers like Barringer bring comfort to boding questions of the future of food. Her determination, intelligence, and work ethic complement her skills as a teacher and a colleague. *