

Food Science Fellows

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Introduction/Need for Innovation or Idea

In North Carolina the need for food scientists has the potential to be even greater as our food and beverage industry is the second-largest economic sector of North Carolina's economy (Economic Development Partnership of North Carolina, 2017). For NC State graduating college students, the job-placement rate has been near 100% for many years, as there are hundreds of food manufacturing, food retail, foodservice, and regulatory employers across North Carolina who need food scientists to ensure that the value-added processing of agricultural products is done safely and meets customers' expectations. Unfortunately, this means we have been unable to fulfill our stakeholders' food scientist job openings.

Very few NC high school teachers teach or have a formal background in food science. Of the 130,000 students enrolled in Family Consumer Science (FCS) courses, *only* 375 completed the food science course in 2018-19 (R. van Dyke, personal communication, February 15, 2020), which is less than 0.5% of FCS students and less than 0.1% of secondary education students. Previously, only FCS teachers were licensed to teach food science courses; in 2019, agriculture teachers were permitted to teach food science, however few currently teach food science.

How it Works/Methodology/Program Phases/Steps

The research team's model of teacher professional development ^{Phase 1} + student engagement ^{Phase 2} + industry-teacher internships ^{Phase 3} is a novel approach to increasing career interest and preparation in a traditionally under-enrolled major. In winter 2021, [Land-grant] was awarded a NIFA grant to address the dwindling food science enrollments at the university. With this funding, the research team initiated a comprehensive teacher professional development and prospective student recruitment program for food science. Teacher professional development included offering the CASE Food Science and Safety (FSS) Institute; cross walking FSS activities, projects, and problems with NC Blueprints for Agriculture; and connecting teachers monthly with food science professors, graduate students, and industry professionals.

Results to Date/Implications

In summer 2021, phase 1 kicked off with nine NC agriculture teachers, one family and consumer sciences (FCS) teacher, two faculty, and one graduate student participating in the CASE FSS Virtual Institute. Teachers participated in the eight-day intensive professional development and took home materials and curriculum to integrate food science into their own courses. During the professional development, food industry professionals Zoomed into the session and shared real-world applications for the lessons.

To provide continual contact with and support for teachers, the research team created a Facebook group focused on food science teachers and a website to house and curate curriculum and career resources related to food science. Over the course of the three-year project, all project

materials will be housed on the website and made available to any teacher teaching food science, regardless of their state affiliation.

In September, the research team released the curriculum crosswalks between the CASE FSS and the NC Blueprints for Agriculture, which cross walked the CASE FSS with the state curriculum. Starting in November, monthly Zoom meetings were held to connect teachers integrating FSS with food science faculty. These sessions were designed to allow teachers to ask questions and share experiences with teaching food science. Teachers could apply for \$500 mini grants to purchase supplies and materials for integrating CASE FSS into their courses.

Future Plans/Advice to Others

In April 2022 and as phase 2, the research team will be coordinating the food science fair. High school food science students will be invited to participate in a food science-focused science fair to demonstrate their inquiry projects in food science. Additionally, food science faculty and students will be the judges for the science fair and will provide programming about careers in food science for high school students.

In summer 2022, phase 3 of the project will start with four teachers being selected as Food Science Fellows. These fellows will be provided a stipend to engage with local food science businesses for teacher mini internships. NC State food science faculty will coordinate with teachers and business partners to make connections with and structure the internships. At the conclusion of the internship, teachers will develop modules focused on food science careers within the business where they interned. The research team will add these to the food science careers website and make them available for all teachers interested in sharing information with their students about food science careers.

The research team will gather data from teachers about their students' interest in food science careers. Since the time horizon for actually applying to college and majoring in food science may be longer than the cycle of the grant, intention to pursue a degree in food science will be valuable information. Data will also be gathered related to teachers' needs related to integrating food science into their curriculum, preparing students for careers in food science, and preparing teachers to teach food science, even beyond that which is supplied by CASE.

Costs/Resources Needed

The overall grant project is for three years and \$300,000. Aside from personnel costs, participant and teacher costs include \$2,800 per teacher for the CASE FSS, \$500 for food science mini-grants, and \$2,000 for each teacher for Food Science Fellows internships and module development. The NIFA grant provided funding for six teachers to attend the CASE FSS Virtual Institute. The College of Agriculture and Life Sciences provided two additional CASE FSS registrations. The research team secured four additional half-scholarships from business partners, including ACME Smoked Fish Company, Mt. Olive Pickle Company, and Novozymes.

References

Economic Development Partnership of North Carolina. (2017). *North Carolina food processing industry*. Cary, NC: Economic Development Partnership of North Carolina. Retrieved from <https://edpnc.com/wp-content/uploads/2016/03/Food-Processing-2017-Web.pdf>