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Consumer-Focused Meat Science Extension Program Increase Consumer Confidence and Knowledge of Meat Selection and Preparation

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Consumer-Focused Meat Science Extension Program Increase Consumer Confidence and Knowledge of Meat Selection and Preparation

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Abstract. Science-based, meat science education is often limited outside of universities, creating possibilities to develop Extension activities to educate and empower consumers in principles of meat science. The Indiana BBQ Bootcamp was developed to provide consumers information on meat selection, proper cooking techniques, food safety, and meat seasoning (spice rubs and marinades) through demonstrations and product sampling. Attendees were surveyed before and after the program to report their confidence in their ability to perform basic meat science techniques. Responses to all survey questions showed significant increase in the attendees' confidence demonstrating improvement in their meat science knowledge.

Animal-derived foods provide high-quality and affordable proteins sources; yet, in the United States, a significant portion of meat loss and waste takes place at the consumer level (United States Department of Agriculture, 2020). Meat science is an area of education that is limited outside of university settings (Carr et al., 2020). This has resulted in consumers who are under-educated in the areas of meat cut selection, preparation, and food safety, but it has also created an opportunity to develop Extension activities that teach consumers the basic principles of meat science. The primary objective of this work was to rectify the lack of meat science education by developing a curriculum that empowers consumers to make stronger, more informed decisions about their meat purchases and preparations. To this end, we developed the BBQ Boot Camp program.

METHODS

PROGRAM

The BBQ Boot Camp program introduced many facets of animal, meat, and food science as they relate to meat selection and preparation; the goal of the program was to improve meat quality, safety, and utilization by the average consumer. Participants learned alongside meat scientists in an active learning environment that allowed them to engage directly with the presenters—and receive meat samples to reinforce the various lessons.

In order to meet the objectives, we created a Purdue BBQ Boot Camp curriculum consisting of the following modules and learning outcomes:

- Module 1: Meat Cut Selection
 - Learning outcomes:
 - ♦ Summarize the characteristics that determine meat palatability
 - ♦ Differentiate between various meat cuts due to anatomical location
- Module 2: Cookery Techniques
 - Learning outcomes:

- Recognize the impact of cooking technique (high temperature versus low temperature cooking) on meat palatability traits
- Distinguish which cooking techniques are most appropriate for different meat cuts
- Module 3: Understanding Degrees of Doneness
 - Learning outcomes:
 - Recognize proper use of a meat thermometer in various meat products
 - Determine the proper internal temperature (degree of doneness) necessary for various meat products' quality and safety
- Module 4: Creating Rubs and Marinades
 - Learning outcomes:
 - Explain the impact of rubs and marinades to meat palatability
 - Distinguish meat products that are appropriate for the use of rubs and/or marinades to improve overall eating experiences

Each module lasted approximately 15 minutes and was followed by the distribution of meat samples and an open question time. We provided each participant with a program handbook with reference materials and areas for notetaking.

ATTENDEE SURVEYS

We developed a survey to link the program learning outcomes to the program logic model (Arnold, 2002) and to follow the strategies of Roucan-Kane (2008). At the beginning and end of the BBQ Bootcamp, we asked participants ($n = 79$) to complete pre- and post-program voluntary response surveys. The survey asked participants to score themselves on their confidence in their ability to: select meat cuts, choose a cooking method for different meats, know the proper end-point temperature of meat, know what type of marinade to use for various cuts, and make a rub for meat.

Attendees provided a score on a 10-point Likert scale where 1 = *Not Confident*, 3 = *Somewhat Confident*, 5 = *Confident*, 7 = *Very Confident*, and 10 = *Extremely Confident*. We analyzed pre- and post-program data using a t-test in SAS (SAS 9.4) with significance determined at $p < 0.05$. The Purdue University Institutional Review Board approved the experimental design and data collection (IRB-2022-767).

RESULTS

Table 1 presents the pre- and post-program survey response averages. All pre- and post-program questions showed significant increase in consumers' confidence scores ($p < 0.05$) following the BBQ Boot Camp Program.

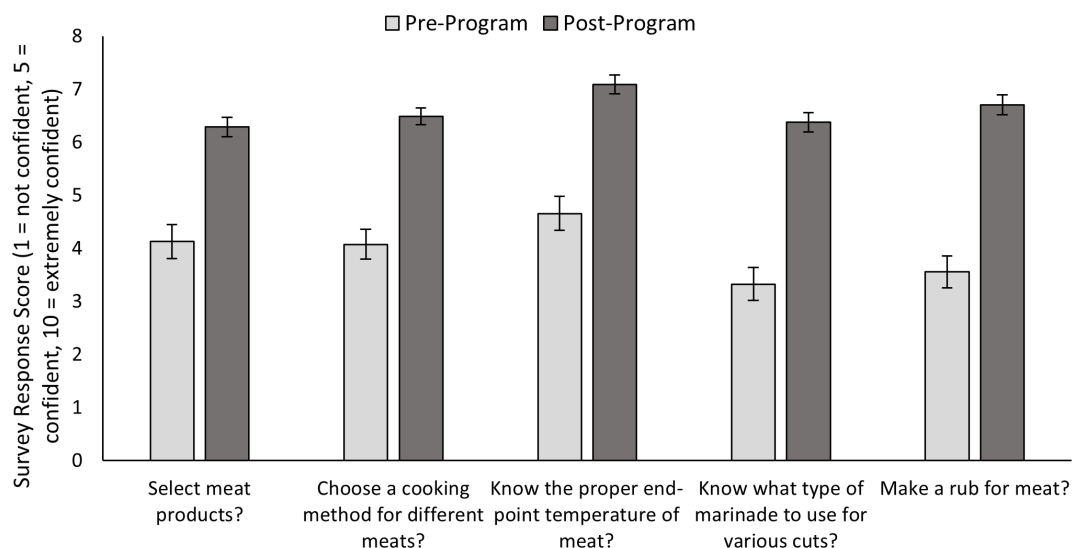


Figure 1. Participants' Survey Responses When Asked "How Confident do You Feel in Your Ability to: ..."

Improving Consumer Meat Knowledge

This data indicates that the initial assessment of the learning outcomes was favorable, and participants improved in all areas.

CONCLUSIONS

The data shows improvement of consumers' self-reported confidence with meat science topics after participating in the BBQ Boot Camp Program. This program generated strong discussion between the presenters and the audience that demonstrated the interactive nature of the program. The data provides short-term, initial implications of impact, but in order to fully understand and quantify the long-term impacts of the BBQ Boot Camp Program, researchers must develop further surveys—and potentially focus groups. Additionally, further work should include demographic questions to improve understanding of participants' backgrounds and their relation to survey responses.

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