

Evaluating food safety challenges of blueberry harvesting



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Project funding dates

January 1, 2021 – December 31, 2022

Acknowledgements

The project team thanks Ms. Sarah Doane for assisting with the survey, and thanks the 68 blueberry growers and packers who have responded to the survey to date.

Summary

As a “super food” with many health benefits, fresh blueberries (Figure 1), like other fresh fruits and vegetables, can be a potential vehicle of transmitting gastrointestinal diseases and pose a risk to public health. Industry cleaning and sanitation practices directly affect the hygiene status of harvest containers and equipment, and subsequently the microbial quality of the harvested blueberries. The ultimate goal of this research project is to overcome the critical food safety challenges of blueberry harvesting by identifying best industry practices in cleaning and sanitization of harvest containers and equipment.

Objectives

1. Collect information about cleaning and sanitation practices for harvest containers and mechanical harvesters among blueberry growers/packers through an anonymous survey in several U.S. states.
2. Validate the efficacies of selected key cleaning and sanitation practices in decontaminating harvest containers and mechanical harvesters in the fields and/or packing facilities.
3. Evaluate, in a laboratory setting, whether identified key industry cleaning/sanitizing practices can effectively remove microbial buildups and biofilm mass on materials used to manufacture harvest containers and mechanical harvesters.
4. Transfer the knowledge gained from the project to berry growers/packers and promote best industry practices for broad adoption.

Methods

A survey questionnaire was developed by key members of the project team and revised according to the comments of project collaborators in a kickoff project meeting. The survey questionnaire was subsequently posted on a Google site:

<https://docs.google.com/forms/d/e/1FAIpQLSeuF7TfBG22HgNKpErLI022g1pewxPdQflg1d2GCyzDnEH7dg/viewform>.

The survey link was emailed to blueberry growers/packers by project collaborators in several U.S. states as well as one province in Canada.

Results to Date

Since the survey questionnaire targets the practices of blueberry growers/packers and not the growers/packers themselves, the Institutional Review Board at the University of Georgia has determined that an approval for using human subjects in the project is not required. Survey participants remain anonymous. Both the identity and affiliation of the survey respondents are kept confidential. To date, about 68 participants from 13 different U.S. states have responded to the survey questions (Figure 2). The age groups of the respondents are shown in Figure 3. Survey results will be analyzed as soon as the graduate students are available for the project.

Benefits to the Industry

Information generated by this project will be useful to blueberry growers and packers, and perhaps other fresh produce growers/packers, to improve their cleaning and sanitation practices and produce safer products for consumers. Strong consumer confidence on safe food products will likely boost industry revenues.



Figure 1. Highbush blueberries.

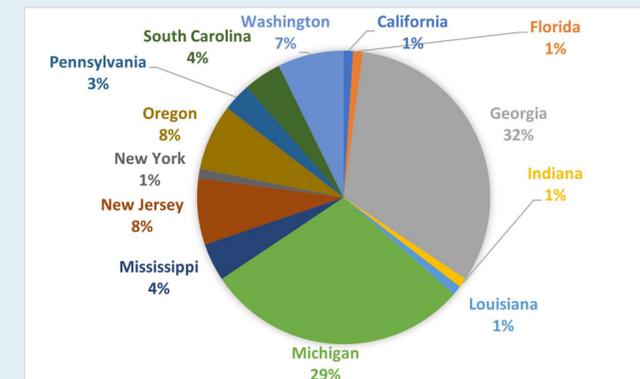


Figure 2. Geographic areas of the blueberry grower/packer survey respondents.

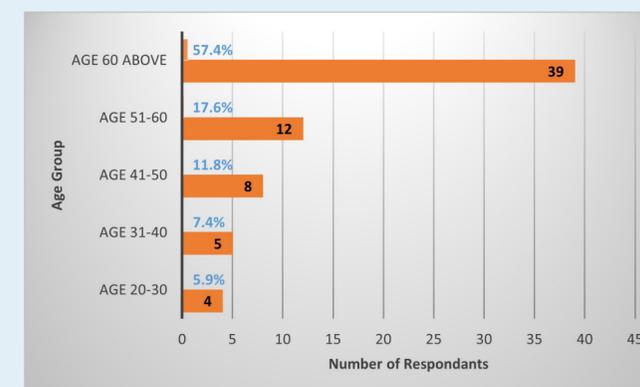


Figure 3. Age groups of the blueberry grower/packer survey respondents.