

Evaluation of sanitation protocols for non-conventional food-contact surface materials used in produce packinghouses



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Summary

There is a lack of guidance in the produce industry on cleaning and sanitizing non-conventional food-contact surfaces in packinghouse environments. Current practices need to be validated to assess any associated microbial risks, and future guidance should be data-driven prior to implementation. Semi-structured interviews with growers at very small to medium operations, as well as Extension Specialists across the U.S. working with produce growers, will aid in characterizing the most common non-conventional food-contact surfaces and current cleaning and sanitizing practices. The experimental approach in the laboratory will be informed by these interviews. The data generated from this research will help characterize the risks associated with non-conventional food-contact surfaces and limit cross contamination during packing operations.

Objectives

1. Utilize a mixed methods approach to confirm types of porous food-contact surfaces in produce packing areas.
2. Evaluate the effectiveness of cleaning and sanitizing of porous food-contact surfaces in produce packing areas.

Methods

Interview materials were developed and submitted to the University of Arkansas IRB for approval. Once approved, the recruitment of growers was carried out with the assistance of extension collaborators in Michigan, Washington, Arkansas, North Carolina, and Florida. The primary recruitment methods were emails and telephone calls to secure a total of 18 on-farm visits. Upon completion of each on-farm visit, interviews will be transcribed and organized in order to use the emergent thematic approach once all interviews are completed (**Figure 1**). The results will serve to identify the selection of commonly used non-conventional food-contact surfaces and their related cleaning and sanitation practices. Furthermore, the results will guide the decisions of the next phase

Results to Date

Starting January 2024, study personnel have been working on completion of on-farm grower interviews to identify the most commonly used non-conventional food-contact surfaces and their respective cleaning and sanitation practices. Five different states have been selected for these interviews: Michigan, Washington, Arkansas, North Carolina, and Florida (**Figure 2**). Researchers have completed 12 interviews in Arkansas, Michigan, North Carolina, and Florida of the anticipated 18 total on-farm interviews shown in **Figure 3**. The completed interviews have been carried out by applying semi-structured interview questions. Sample questions can be seen in **Figure 4**.

Benefits to the Industry

This research aims to examine practices that will help the produce industry standardize packinghouse or packing area procedures to reduce risks of contamination. Additional knowledge gaps include a lack of information on the environmental cleaning practices on diversified, limited season farming operations with small packing areas. A majority of small to medium farms are diversified, meaning they produce multiple raw agricultural commodities. The findings will support ongoing efforts to educate the produce industry on good agricultural practices (GAPs) that reduce the risks of spreading microbial contamination on-farm. Extension educators and specialists will be able to integrate the findings into practical information during FSMA Produce Safety Grower Trainings, USDA GAPs Training workshops, and other food safety educational sessions and publications.

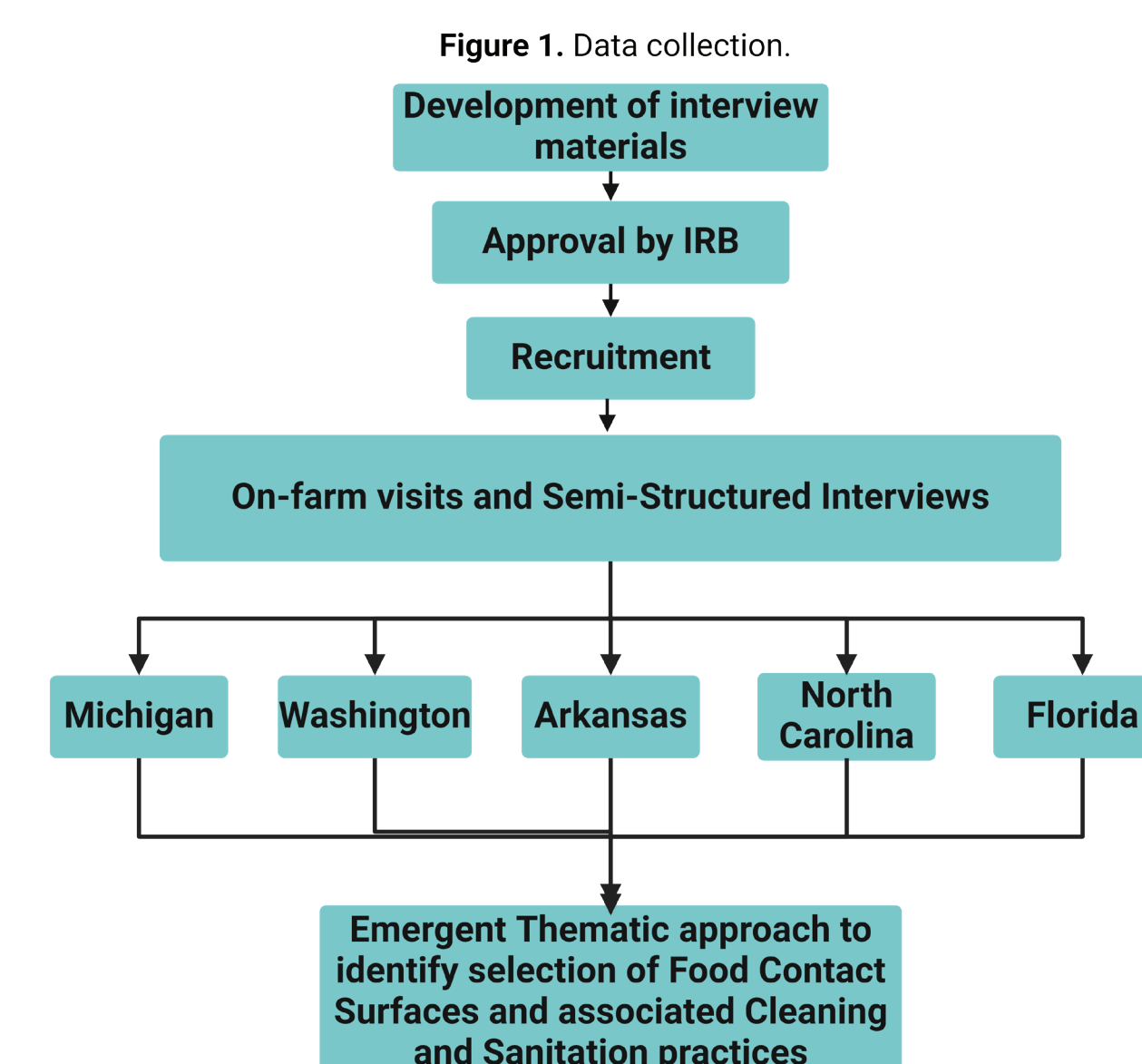


Figure 2. Areas of the US visited or planned to be visited by researchers.

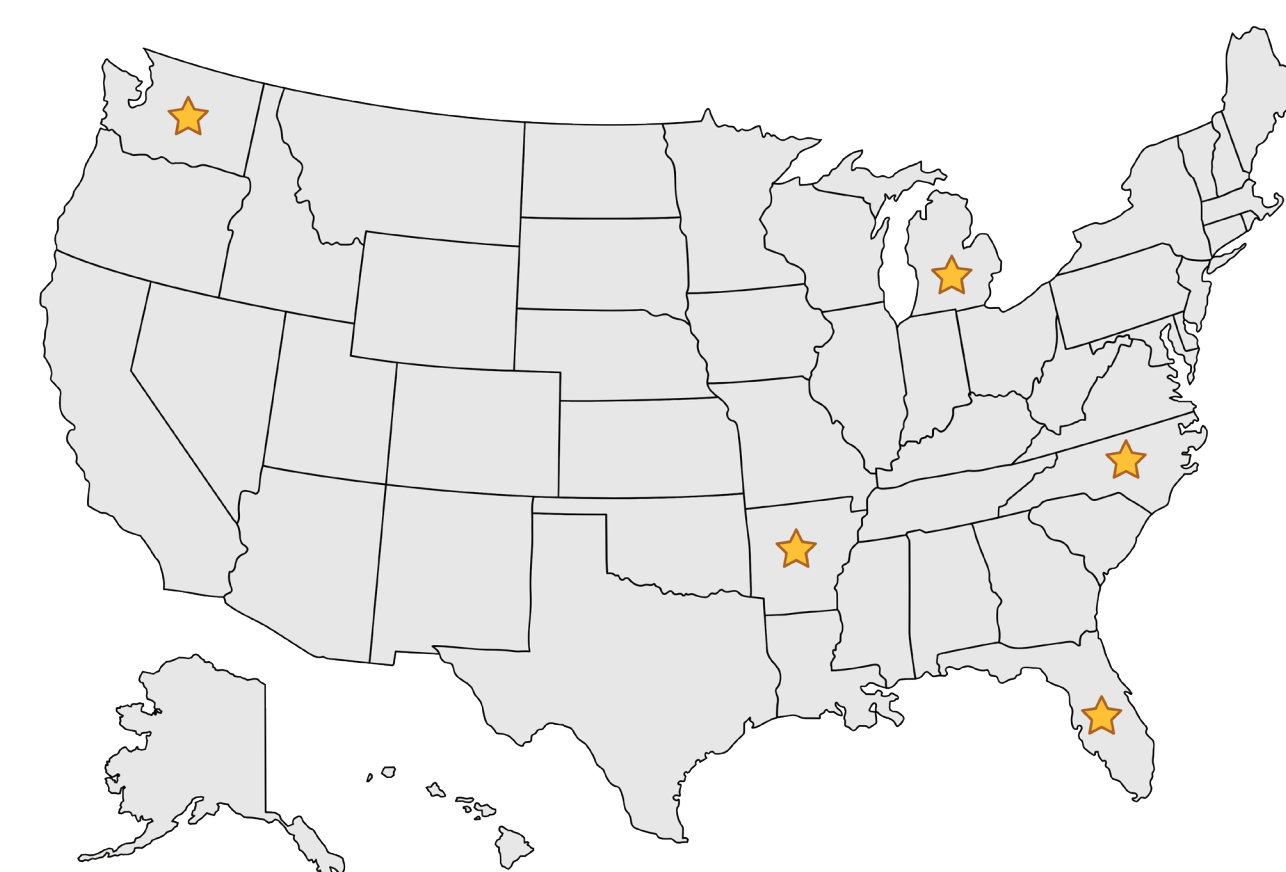


Figure 3. Anticipated total participation according to state.

	On-Farm Visits
Michigan	3
Washington	4
Arkansas	3
North Carolina	4
Florida	4

Figure 4. Sample questions for on-farm visits.

	Sample Questions
Introduction	Can you identify three main challenges you believe you have regarding your produce packing area?
Food Contact Surfaces	What types of surface materials are used within your produce packing area?
Food Contact Surfaces	Are there particular surfaces that you are more concerned about, with respect to cross-contamination?
Cleaning and Sanitation	What types of methods do you use to clean and sanitize surfaces that contact your product?
Cleaning and Sanitation	What sanitizers do you commonly use, and have you used different sanitizers in the past? If so, why did you change your current choices?