



HEALTHY PRACTICES

Portable Handwash Stations for Fruit and Vegetable Growers

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Preharvest and postharvest contamination of produce is associated with an increasing number of foodborne pathogen outbreaks. The primary contamination sources at preharvest and harvest include contaminated soil, poor water quality, animal fecal droppings (e.g., cattle, birds and domestic animals), poor worker hygiene, inadequately composted or raw animal manure or sewage, and insect infestations from fields adjacent to cattle rangeland (Brandl 2006; Olaimat and Holley 2012).

Even though many sources of contamination are challenging to control, worker hygiene is one of the critical routes of contamination that every produce operation should focus on. Produce farms are vulnerable to contamination by pathogens such as *E. coli* O157:H7, *Salmonella* spp. and *Listeria monocytogenes*, which can be present in soil, water and animal feces. Workers' hands can transfer pathogens to produce during harvesting, handling and packing (Oluwadara O.A., et al., 2018). The most

common way that human pathogens are spread on farms is the fecal oral route. This happens when workers or visitors don't wash their hands after using the toilet, then touch the produce, contaminating it with fecal pathogens (García, S., Heredia, N., 2017). Also, when workers handle pesticides and other agricultural chemicals, contamination can occur from residues on workers' hands. The need to train workers and any farm visitors about proper handwashing is essential.

Handwashing is a fundamental practice in maintaining food safety and public health, especially in a produce farm setting. According to the Centers for Disease Control and Prevention (CDC), regular handwashing reduces the transmission of communicable diseases among farm workers. This is crucial to preventing outbreaks of illnesses, which can spread rapidly in a farm setting. Another benefit of handwashing is the reduction of risks of skin irritations and infections that can result from exposure to fertilizers, pesticides and other chemicals used on the farm (CDC, 2024).

Many food safety regulations, such as the FDA's Food Safety Modernization Act (FSMA) and Good Agricultural Practices (GAPs), mandate regular handwashing as part of their protocols. Compliance with these standards is essential for market access and consumer trust. Farms seeking certifications from organizations must adhere to stringent hand hygiene standards. For example, OSHA requires one toilet and one handwashing facility per every 20 workers within a quarter-mile of the working area or within 10 minutes of driving time (OSHA Regulation for Field Sanitation). The farms should provide adequate handwashing facilities, including clean water, soap, and disposable towels or air dryers. These should be conveniently located near work areas, restrooms and eating areas.

To avoid or lower the risk of contamination, regular training sessions should be conducted to educate workers on the importance of handwashing, proper techniques, and the situations that necessitate handwashing (e.g., after using the restroom, before handling produce, after touching animals). Implementing a system to monitor

handwashing practices and enforce compliance ensures that protocols are followed consistently. This might include periodic inspections and incentives for compliance.

There is a common misconception that handwashing stations are costly to install and maintain, deterring organizations from incorporating them into their facilities. But a handwashing station does not necessarily need to be plumbed into the facility's water supply system, which can be an expensive and complex process. Numerous alternatives are cost-effective and easy to use and assemble. Portable handwashing stations, which consist of a water reservoir, soap dispenser, catchment basin and single-use paper towels, can be set up in any location without the need for plumbing connections. These images show examples of portable handwashing stations that can be made on a low budget.



Portable hand wash station #1:

- Time to build: 25 minutes
- Cost of the equipment: \$130 (taxes not included)
- Trash can, paper towels, waste bucket are NOT included in the cost.
- Clean water capacity: 8 gallons
- Wastewater capacity: 5-gallon bucket will need to be provided separately.
- Soap capacity: 1.3 gallons
- Foot pump system



Portable hand wash station #2:

- Time to build: 2 hours
- Cost of the equipment: \$106
- Trash can, paper towel, waste bucket are included in the cost.
- Clean water capacity: 7.1 gallons
- Wastewater capacity: 5 gallons

For more information about how to build this station:

Build a low-cost handwashing station for food safety on the farm | UMN Extension

Handwash station #1 is a portable solution that utilizes a foot-operated system to bring clean water from the bottom container to the top, reducing the risk of cross-contamination.

Handwash station #2, made of lumber, mostly was developed by the University of Minnesota and consists of a clean-water tank, a container to wash hands, a wastewater bucket and a trash can.

To significantly reduce cross-contamination on produce with food pathogens, workers must wash their hands frequently and follow the handwashing procedures recommended by the CDC and other regulatory agencies. By recognizing the variety of handwashing options available, farmers can implement effective hand hygiene measures without breaking the bank. Investing in suitable handwashing solutions not only promotes good hygiene practices but can contribute to improved productivity and a healthier overall environment.

References

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- Build a low-cost handwashing station for food safety on the farm | UMN Extension www.cdc.gov/clean-hands/data-research/facts-stats/