



Wash Stations and Vegetable Cleaning for the Small Vegetable Farmers

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Figure 1: Stainless steel vegetable wash station (provided by the UVM Ag Engineering)

Introduction

Wash stations are an important part of any vegetable farm, but they can also be a focal point for cross-contamination if not properly built, handled, or cleaned regularly. Knowing the correct way to design, implement, and build a wash station can alleviate many potential future problems. This publication covers the importance, components, scale, and principles to consider before setting up a station for small farmers along with vegetable cleaning techniques to best clean vegetables before storing or packaging.

Importance of wash stations

The significance of a well-placed and well-maintained wash station cannot be understated for vegetable production. Here are reasons to consider creating a wash station:

- Raises the quality of the vegetables by having a clean, safe product.
- Removal of dirt and contaminants from harvested vegetables to improve their value.

- Helps to meet Good Agricultural Practices (GAPs) set by the United States Department of Agriculture (USDA) Food Safety and Modernization Act (FSMA)
- Helps with record-keeping and maintaining a standard operating procedure (SOP) for cleaning/sanitizing properly each time.
- Can help to organize the workflow from harvest to packaging.

Setting up a wash station

These components will help to start planning a better wash station and work area.

1. Wash stations come in various sizes and shapes based on the scale of the operation. Whether it is outside or inside, the washing station can be set up for success. Follow these steps to find a suitable space for you.
2. Determine the water source for cleaning. Water should be potable (drinkable). If the water source is non-municipal, water testing is not needed but the water bill should be kept with your record-keeping documents. Non-municipal sources (groundwater, personal wells) should be tested three times a year; at the beginning of harvest, during harvest, and after harvest. Surface water (irrigation ponds, lakes, rivers, or ditches) should not be used to clean vegetables. Having the wash station close to the water source can save on plumbing costs, hoses and pipes, and help to ensure proper water pressure.
3. Be sure to use clean water. Test your water's pH and turbidity levels regularly to ensure that it is pathogen-free or below the recommended organism indicator thresholds. Know how to add sanitizer to the wash water for disinfecting. Think about temperature regulation, depending

on the vegetable, more on this topic later in this publication.

4. Be sure the space identified has proper drainage, is non-slip, and washable. Proper drainage means that water cannot become stagnant or sit on the floor. Establishing the wash station on concrete with floor drains or on a very small angle, allowing wash water to flow away is the best way. This will help prevent pooling water from creating any contamination, help avoid slippery floors, and will be easy to clean. If concrete is unavailable, look for a spot where water can easily leave the wash site or when plumbing drains can be installed.
5. Use stainless steel materials for sinks, tables, and cleaning tools. This material will be easier to clean, disinfect, and is non-absorbent. If stainless steel is unavailable, there are other options. However, when looking do not choose wood, anything that is absorbent, or could rust.
6. Have proper lighting in the work area. Use light fixtures that do not contain glass, or if you have to use glass make sure it is shielded or otherwise shatter-resistant. If working inside, do not place fixtures directly above the wash station. Dirt, dust, glass, or other debris may descend on the products.
7. Table height and movability can be a consideration if the station needs to be moved due to workflow and comfortability.
8. Mark a clear entrance, an area for harvested vegetables, the washing area, and the air-drying space for the station. Create a specific workflow for dirty produce to enter and will not cross or contact with the clean produce.
9. Having a standard operating procedure (SOP) in place and training employees to follow it can ensure vegetables are cleaned properly.
10. Handwashing station before and after washing vegetables.
11. Clean and sanitize all containers and surfaces used for transporting vegetables before and after use. When not in use cover the station and containers to prevent contamination.

Handwashing stations

It is important to complete handwashing before and after cleaning or handling vegetables. Handwashing will consistently lower the chance for contamination the more it is completed. Building a handwashing station is not difficult. Consider these actions when building and placing a handwashing station:

- Handwashing technique consists of wetting hands with drinkable water. Scrubbing for 20 seconds, cleaning under fingernails, between fingers, thumbs, top of the hands, and down to the wrists. Rinse and let hands drip water downward, with fingers down towards the ground. This step will stop possible contaminated water dripping back onto the wrists. Dry off with cloth towel or dry paper towels. Used cloth towels and paper towels should be placed into a trash receptacle or a separate container. Cloth towels should only be used once.
- Placement of all handwashing stations should be convenient for workers, near all toilets, in packing sheds, and produce handling areas. OSHA requires one handwashing station for every twenty employees, however the more placed the better opportunity to complete handwashing.
- Components should consist of a clean enclosed container to hold potable (drinkable) water with a spigot that can be turned on and off (not a push button) to allow for a continuous stream of water. Either liquid soap or a bar of soap and it does not have to be antibacterial. Containers for catching used water and an enclosed receptacle for used hand-drying materials.
- Handwashing stations can either be stationary or transported. For example, stations can be placed with the same components on the back of a vehicle or on a trailer for transport to the field.



Figure 2: An example of a handwashing station. (Provided by UMN Extension)

Cleaning the vegetables

There are different ways to clean vegetables, so it is important to correctly identify the best cleaning option. Vegetables can be cleaned by submersion or spraying and brushing.

Submersion is the method of filling the wash station with clean water and allowing the vegetables to sit in the clean water, while you clean the vegetables. The temperature of the water is important because the water may begin to infiltrate the leaves and absorb the dirty water internally. Temperature regulating and constantly changing the water will help to lessen potential contamination when it comes to submersion washing. Sanitizing the water with this method will help to kill microorganisms and bacteria on the leaves. Avoid letting the vegetables soak too long. Rinse vegetables off after submersion. Submersion will work for the following vegetables: lettuce, spinach, microgreens, kale, collard greens, cabbage, turnip greens, peppers, cucumbers, squash, and zucchini.

The spraying and brushing methods can work for vegetables with harder exteriors. Rinsing underwater while brushing the exterior of the vegetables will help to diminish the number of microorganisms on vegetables that may be peeled or cut. Removing dirt and brushing will help to dislodge any contaminants. Always clean and sanitize the brush between each use. Wipe cleaned vegetables dry with a disposable paper towel to remove any excess moisture after washing before storing or packaging. This method can be applied to cucumbers, yellow squash, zucchini, carrots, turnips, beets, yams, potatoes, green beans, and onions.



Figure 3: Farmer cleaning kale at wash station. (Provided by UVM Ag Engineering)

Conclusion

While no single washing method is 100% effective for removing all contamination and organisms, establishing a washing program for vegetables can significantly reduce any potential hazards. A knowledge of safe washing practices and an understanding of the needs for a well-established wash station will help set up vegetable growers for success. Food safety is a critical need for our food systems and all farmers should consider their part in growing clean vegetables.

Resources

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