

“Food Safety Considerations for Packing Sheds”

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Packing sheds is where the action is once produce is harvested. Much activity takes place here from simple cleaning to thorough washing to packaging to storage and shipping. There are many places along the way where we need to be conscious of where implementing food safety practices are important.

Food safety practices aren't just for large facilities. These practices can be used at any scale for any type of facility. Packing sheds can be an actual building, a space in a barn, a garage, under a tree, or under a canopy – four sticks and a lid set up.

It isn't the size of a facility that matters. The principles are all the same and the practices will match the scale. The important factor is doing what is necessary to minimize microbial risk of contamination so that the produce remains free from food borne disease.

Design is a good place to start. Again, the size of the space where you work in the packing area isn't important. Having enough space to work, where equipment/tables are located, and how produce flows through is important. Efficiency is critical to save time (which saves money). Incorporating food safety practices does add labor so being efficient is necessary to cover these costs. Having the proper design is one part of this efficiency.

A schematic diagram for basic pack area guidelines can be found at the Cornell Vegetable website. A number of publications are there concerning wash lines, produce washing and handling. Wash table design and various SOPs. http://cvp.cce.cornell.edu/submission.php?id=119&crumb=food_safety|food_safety

Product Flow

The flow of produce through a wash line area needs to be set up in a manner that allows for separation between unwashed and washed product. (see facility design paper on website). The design of the wash line needs to allow for a designated area for harvest products coming in from the field to sit prior to emptying harvest containers onto the wash line for rinsing and packing.

The entrance of the wash line should face where field produce comes in. An area for the full containers that are off-loaded from truck or wagon should be made with pallets to keep the bins off of the ground.

Once washed, the produce should move away from the “dirty” side of the facility over to an area where the product can drip dry while awaiting packing.

Pallet(s) should be placed close enough to the wash line to place bins of clean produce. A table for packing/packaging should be nearby.

Finished packed produce then can be moved out to a designated spot on a pallet for moving to storage or packed onto a vehicle for further transport.

An area for cleaning out the produce transport vehicle needs to be designated offering enough space and separation to not allow for tracking in of contamination to the wash line facility.

Tables

A “dirty” table could be in place for containers to be moved to for easy access by the wash crew to reach into the bins or unload them into the wash basins. Pallets could also be used should be close enough to the wash line for easy handling.

If pre-washing is necessary to remove excess mud or dirt, this should be located either right outside of the wash line area or far enough away to avoid splashing onto the wash line.

As the containers are unloaded, the empty harvest bins can be moved over to another pallet beside the “dirty” table where they are stacked. From here they can go back out to the field for more harvesting or moved to another location for storage.

Wash tables or wash lines should be placed in a location where there is easy access to the harvest bins coming in from the field and to the side where the cleaned produce can drip dry, be packed, and moved to either delivery or storage.

Floor

This set up needs to allow for a floor where water does not pool, quickly drains off, and doesn't create mud. A cement pad that slopes to a floor drain is ideal. This allows for quick drain off, no mud, and easily cleanable. Have the floor drain lead out away from the working area.

Bare ground can work but should be covered with a heavy fastened-down landscape fabric. This will reduce mud. Once the ground becomes compacted, pooling might occur. Having a gravel trench under the wash table or line would greatly reduce the water pooling issue. Design the trench like a French drain with gravel and/or perforated pipe. Slope the trench away from the wash/packing facility. Avoid having the water drain into surface water or streams etc.

Discharge of Used Wash Water

There may be county dept. of health ordinances governing wash water discharge. Used wash water must not be discharged into septic or sewer lines. Used wash water must not be allowed to drain into surface water ways. Discharged water can be drained off into vegetative buffer strips (in NY). Pipes or gravel lined ditches should be used to reduce erosion. Sludge from drains, pipes, or tanks should be spread out into fields or buffer strips and never into municipal landfills.

Pre-cooling

During hot weather a portable pre-cooler could be set up to remove field heat from box/crates/bins before reaching the wash line.

Wash Line

Have appropriate SOPs in protective clear covers or laminated to keep from getting wet. Have the SOPs placed either in binder in close by spot for easy access or have each SOP hanging in spot by designated area for quick reference.

Workers who are washing produce should have clean clothes or wear a clean apron. They need at least to be able to wash the produce without themselves contaminating it during the process. Workers who are involved with washing and handling clean produce should themselves be clean if they have worked with livestock prior to the handling of produce. This means clean clothes and footwear.

Wash basins, tubs, or sinks, need to be clean at the start of the day's operations. Potable water is to be used. Sanitizer needs to be used in the basins etc. to reduce any microbial contamination that might enter the water. (see Sanitizer SOP for details on using, measuring, and monitoring sanitizer usage). If cleaning and sanitizing of area is done at the end of the day, food contact

surfaces should be covered with a clean tarp etc. Before the next wash cycle, inspect the surface areas to make sure pests or anything has contaminated them.

Triple rinse set ups are a good set up for produce with field dirt. The first basin is for getting the heavy soil off. The second is for minor material removal. The third basin is the finish rinse. It is suggested that each tub/basin/container have sanitizer added to the water.

For crops like tomatoes, peppers, melons, and apples, water temperature needs to be within 10 degrees of the pulp temperature of the produce. If the produce is hot from field heat and the water is cold, the water can get “sucked” into the fruit through the cut stem. Without sanitizer, the water could harbor microbes that can pass into the produce. This would contaminate the food. Pre-cooling the fruit or warming the water would be necessary to reduce the chances of the water entering the fruit. Sanitizer is critical in reducing the potential contamination.

For heads of lettuce, greens, or picked leaves/stalks/stems of greens can be dumped into the basins to loosen any field soil from between the leaves. Soaking, agitating, or dunking can help remove the soil and debris.

Another procedure for cleaning heads of lettuce or other greens is to set heads in a rack and use a water hose with spray nozzle to wash out heads rather than dunking them into tanks of water.

Root crops may require hosing first to remove heavy caked on soil. This should be done in an area away from the main wash line so as not to spray soil and water all over. Use of a brush may also be necessary. Keep the brush clean and sanitized before using. Barrel washers can be used though it is suggested that sanitizer be injected through the water line.

As the soil and debris accumulates in the water, the less potent the sanitizer becomes. Chlorine weakens quickest (see SOP on using chlorine bleach). Other sanitizers work well but will need to be monitored (see SOP for monitoring sanitizers). The water will darken as more soil is washed into the water. At some point the water will have to be dumped out and fresh water added. A turbidity Secchi disk test (or dirty water test) can be used (see dirty water SOP). The water can be dumped out into a septic system or approved area that keeps the dirty water from moving into a crop field.

A drip drying area is set just beyond the washing area where the produce can lose much of the water from the washing before it is packed. The dripping water should not be allowed to pool on the floor at all.

From the drying area, produce is packed into preferably new (or extremely clean) containers (depending on buyers’ demands). These can be stacked on clean pallets until moved into storage or delivery or go straight into a truck.

Clean-Up

Once wash line and surrounding post-harvest area is set up, keeping it clean and ready to go is important. Cover the tables with a tarp to reduce bird or rodent contamination. Turn basins upside down. Inspect tables, basins, racks, pallets, work surfaces etc. prior to starting a washing batch. Clean and sanitize work areas at the end of a day’s use or at least rinse off surfaces and then sanitize prior to start up on another day.

Clean tools and put away in designated area.



Easily washable table set up (R. Hadad)
(R. Hadad)



Wash line, packing, and cold storage facility