

**FARM FOOD SAFETY FACT SHEET**

# Reducing Food Safety Risks in the Packhouse

Here are some basic sanitation recommendations for keeping packing areas clean and appropriately sanitary.

## Packhouse

- An enclosed packing area is preferred, but open-walled structures are acceptable if measures are taken to keep birds and rodents out.
- Keep packing area clean, uncluttered, and well lit.
- Have a regular cleaning schedule for all areas, including equipment, walls, floors, and overhead structures. Assign a specific person to this task and regularly check records to make sure it gets done. Develop standard operating procedures that designate how and when the packhouse is cleaned and what sanitizer is used.
- Inspect interior walls and floors for signs of water entry or holes. Fill cracks with grout or other appropriate filler materials.
- Water should drain away.
- Lights should be shatterproof or covered.
- Look for overhead places where birds can perch. Prevent perching with methods such as covering rafters, installing bird spikes, or installing steep-sided pyramids on beams.
- Areas outside of the packing buildings should be cleared of tall grass, weeds, and idle equipment that can provide hiding places for rodents.
- Allow sufficient space between equipment and interior walls to make inspecting for pests easier.
- Walk the perimeter of your packing building. Check for damage to the roof and cracks or holes in exterior walls that could allow pests to enter. Repair these areas before the season begins.
- Trees provide cool shade, but they are perching sites for birds. Consider ways to reduce the risk from these birds.
- Keep pests out. Mice need only a quarter-inch hole to get into a building, and rats need only a half inch. As much as is practically possible, refit doors or use rubber stripping to seal up cracks and holes.



Remove bird nests.



Use bird spikes to prevent nesting and/or place plastic over exposed produce areas.

## Packing Materials Storage

- Store packing materials on pallets. This provides better visibility and protects the products from dirt and contaminants on the surface of the floor.
- Cover packing materials to prevent contamination.



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Steep-sided pyramids of cement on top of beams dissuade birds from making nests.



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Covering the ceiling in the packhouse with plywood is one way to keep birds out of rafters. Lightbulbs should be shatterproof or covered with shatterproof materials.

## Prevent Contamination from Tables, Wash Tanks, Conveyors, and Other Surfaces That Contact Produce

Make sure surfaces that contact food are smooth, do not absorb water, drain easily, resist corrosion, and are easy to clean and sanitize. This is important for packing materials, preparation tables, conveyors, wash tanks, knives, and other utensils used for produce packing. These are all considered food-contact materials and it is important to keep them clean and sanitary. Water used to clean and sanitize food-contact surfaces must meet microbial standards for drinking water.

- Make sure workers have washed their hands before starting work, after breaks, and after using the restroom.
- Avoid wood or other porous materials for equipment, tables, etc., that contact food. Cracks and crevices in packing benches can absorb and retain moisture. Remember that moisture is the friend of microorganisms and therefore our enemy!
- Replace wood food-contact surfaces with plastic or stainless steel, or cover them with plastic sheeting that can be cleaned at the end of the day. Food-safe paint can also be applied to seal wood surfaces, but you must maintain it and make sure it does not flake off.
- Include equipment, tables, and other food-contact surfaces in your cleaning schedule.
- Once you have packed boxes with produce, continue to keep them off the floor. Boxes are often stacked and restacked several times during shipping. Boxes stacked directly on a packhouse floor can inadvertently contaminate other boxes if they are restacked on top of cleaned, packed boxes. Bacteria or pathogens could move with contaminated boxes onto the boxes below.



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The nooks and crannies in packing equipment can harbor pathogens. Make sure to have a policy and schedule for frequent cleaning and sanitizing.



The grout in this tile countertop used in a wash station can harbor pathogens. Use surfaces that can be thoroughly cleaned.



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Unsealed wood surfaces that come into contact with produce, such as this screen table, are not recommended. Pathogens may multiply in the cracks.



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The holes in the table move water into a channel under the table and into a drain that is away from workers' feet. Stainless steel makes it easy to clean and sanitize.



Tama DuPont, Penn State Extension

Stainless steel and washable walls, while not always feasible, are important in packhouses such as this one that grows and packages sprouts.

## Hygienic Practices in the Packhouse

Here are a few points to consider for keeping your workers from becoming a source of contamination.

- Regular handwashing
- No glass, metal objects, or jewelry that can fall into product
- Hair protection—tied back, hats
- Clean clothes, good health
- No eating or drinking in work areas
- Clean and well-maintained toilet facilities
- Adequate handwashing facilities
- Correctly used toilet and handwashing stations

For more information, see Penn State Extension Farm Food Safety “Worker Health, Hygiene, and Personal Practices” at [extension.psu.edu/food/safety/farm/gaps/2012-gap-training-presentations/health-and-hygiene](http://extension.psu.edu/food/safety/farm/gaps/2012-gap-training-presentations/health-and-hygiene).

## If You Use Ice for Cooling

Ice is used in some crops such as broccoli and some leafy greens for rapid cooling and extended storability. If you are using ice, make sure it does not become a source of contamination. In a hepatitis A outbreak several years ago, the contamination was traced back to the ice used to cool green onions packed into boxes. It is thought that ice was placed over a con-

taminated “hot spot” of green onions, and as the ice melted, it spread through the boxes, causing widespread contamination.

- Use only ice that is made from potable water.
- Transport and store ice in covered plastic or plastic-lined bins or bags—never in moisture-absorbent wooden or paper containers.
- Shovels and scoops used for dispensing ice should be made of noncorrosive aluminum, plastic, or stainless steel. Label them so they are never used for any other purpose.
- Clean and sanitize ice bins on a regular basis and store them off the ground so they do not become a source of contamination.

## For Produce That Is Washed

- The water source must meet U.S. Environmental Protection Agency (EPA) microbial standards for drinking water (potable).
- Use a sanitizing agent in batch washing tanks.
- Use test strips or ORP (oxidation reduction potential) meters to regularly check concentration (for chlorine).
- Change water when dirty.
- Clean and sanitize tanks between uses.
- Clean hands and equipment regularly!
- Be sure sanitizers are EPA approved for food-contact use.



Designate a separate area for eating and drinking. For example, here the farmer has a specific shelf in another area of the building for water bottles.



Notice the simple sign on the wall reinforcing the need for frequent and proper handwashing. The handwashing station has soap, single-use paper towels, and a place to dispose of them.



One-hundred-gallon horse troughs are inexpensive, easily cleanable, and deep enough to allow soil to settle. They are often used for triple-rinse systems.



A dual- or triple-compartment sink can be used to wash and sanitize produce. Start with an overhead rinse to remove adhering soil, then immerse in water containing a sanitizer.

## Remove Surface Moisture

Moisture allows bacteria to grow and decreases shelf life.

- Do not use a reusable cloth or towel to dry produce.
- Allow tomatoes, berries, and tree fruit to drip or air-dry.
- Spin leafy greens.

## Cold Storage

Most microorganisms grow slowly or not at all under refrigerated conditions (i.e., less than 41°F). But one pathogen, *Listeria monocytogenes*, can grow faster than others at low temperatures. Make sure your cold storage areas are kept clean and sanitary to minimize postharvest and food safety risks.

- Make sure your cold storage areas are running well and kept clean.
- Monitor temperatures.
- Keep your coolers clean! Before the season starts, clean and sanitize walls and floors. Work with a chemical supply company to select appropriate cleaners.
- Smooth, washable wall paneling is recommended for coolers. Look for products with names such as dairy panels, sanitary wall board, or fiber reinforced plastic (FRP) board. Many home product box stores have this material available and other suppliers can be found online.
- Keep walls and floors as dry as possible.
- Condensation from cooling units should drain directly into the drain and not onto the floor. Don't ignore those drain pans. They provide an excellent place for *Listeria* to thrive. Clean and sanitize them before the season starts. Add a slow-release disinfectant to the pan to keep microbial growth at a minimum and prevent drainage lines from clogging and overflowing onto boxes of produce.

## Shipping and Transportation

The last stage in the packhouse process is loading boxed produce into trucks. What do we need to think about here? Regardless of whether the trucks to be loaded are yours or another company's, make sure you continue to consider food safety risks and take measures to prevent contamination and microbial growth.

- Before loading refrigerated trucks, inspect them for cleanliness and record the air temperature.
- There should be no signs of the previous load left in the truck.
- Never use trucks that were previously used to transport animals or other contaminated materials.
- Avoid damaging the product during loading. Not only does this lower its value, it also creates opportunities for pathogenic and spoilage microorganisms to grow.
- Refrigeration units on trucks are designed to keep the product cool, not to cool it. In order to ensure that the proper temperatures will be maintained throughout the trip, pre-cool the produce and the truck before loading.
- A loading dock is a busy place and truck drivers are often rushed, but it is still important to properly label your boxes and keep good shipping records for traceability purposes.



The drip pan is located directly under the refrigeration unit, fairly accessible, and can be removed and cleaned (first move those cases of vegetables below it). Also notice that the drip line exits the room before discharging. This helps keep the cold storage dry and doesn't give pathogens a place to thrive.



Pallets keep produce containers off the floor. Notice the cooler floor is clean and dry. Wet cooler floors can harbor *Listeria*.

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