



## **Episode Twenty Eight - Pack shed construction and layout**

Welcome to episode 28 of Food Safety Bites, brought to you by the University of Wisconsin-Madison, and funded by the USDA Food Safety Outreach Program. This is your host Harriet Behar. This episode is **pack shed construction and layout**. In these podcast episodes, I will identify issues, and provide suggestions for how to reduce various fresh produce contamination risks and keep your customers safe. We will not talk in detail about what is required for a GAP audit or a FSMA inspection. If you want more information on those, please see the links on the website where you found these podcasts.

**Size considerations-** Packing areas can be of any size and type, and not all of the areas used for preparing produce post-harvest is in an enclosed building. A permanent, well-built and enclosed structure can give you more control over the effectiveness of your post-harvest handling and ultimately your produce quality. When planning your packing area, plan for sufficient area to allow for enough space between dirty produce areas and clean produce areas to prevent contamination from dust in the air or splashing water. Cluttered areas can provide harborage for pests.

The work areas for holding dirty produce including the first rinse, dunk tanks, trimming counters, drying areas, packaging and finished packaged produce staging should be large enough to handle the volume of produce you want to process. You should not be tempted to use a dirty counter to stack boxes of clean produce because there is not sufficient space in your clean produce area. Have a place for workers to wash their hands in the packshed - it is best to locate the handwashing sink right near the entrance.

**Waste water-** Consider where the water from spray tables and dunk tanks will drain, and setup systems to keep the floor as dry as possible to prevent the dirty water from splashing onto clean produce, as well as preventing workers from tracking water from the dirty area to the clean area. Review local and state requirements for the disposal of wash water to a location that will not cause environmental problems nor have the risk of running into your fields.

**Outside the pack shed-** Slope any gravel or dirt away from the building to prevent water from seeping inside and lessen the presence of puddles. Mow the grass around the pack shed regularly, at least a few feet around the building. Don't store pallets, tubs full of culled vegetables or plant debris adjoining your packing area. Basically, review the area and set it up so you are not providing a place where rodents and other animals can find food, shelter and a hiding place from predators. First step is to prevent contamination, the second is to monitor the area and discover any problems, which should then lead to developing both short- and long-term solutions. The outside of the pack shed should be monitored periodically and what was found should be fixed as soon as possible and documented. Repair holes, leaks, torn screens, cracked walls and floors; and remove standing water when needed. This helps to prevent vermin from entering and lessens the buildup of bacteria in crevices and water.



**Doors and windows:** Close your doors at night and have someone stand on the other side with a flashlight, scanning the edges. This is one way to see if the door seals are sufficient to keep out flying insects and rodents. If there are gaping holes, close them up. Mice are especially well adapted to squeezing through small areas. When motivated they only need a hole as big as the width of a pencil if there is something attracting them into your building, like food, water or warmth. There are screens that you can hang in entry doors, or areas as large as garage doors. Even open sided portable canopies can have screens held in place on the side with Velcro or tracking and with weights on the bottom.

**Walls and Floors-** Dirt floors should be avoided; they will turn into a muddy mess after a short amount of washing and provide the risk of splashing that mud on produce, packaging and workers who are handling produce. Gravel floors can make it difficult to remove debris and can harbor standing water. Smooth concrete floors, sloped to the drain are the best. If you can, try to have walls and floors able to be cleaned and sanitized periodically. A washable fiberboard sometimes called dairy board, or steel siding are two possible choices. If the types of crops you grow do not use lots of water at post-harvest, like onions, tomatoes, or squash, you could get away with white painted drywall, but consider the washable walls if you might ever be spraying or dunking produce in water when it could splash around.

**Overhead-**If the packing area is not enclosed- make sure that birds cannot roost and therefore poop above your washing and packing areas. Use scary eye balloons, anti-roosting plastic or steel spikes on the rafters to discourage birds, or bird netting stapled to the bottom of the rafters to exclude the birds from reaching those areas. If you have a ceiling, consider having a cleanable surface like tin or “dairy board”. Consider hanging water hoses or compressed air hoses from the ceiling to keep them off the floor. This is useful to prevent contamination and biofilm accumulation at the end of the hoses and makes moving wheeled equipment around the pack shed easier. Check for any openings in the gables of the shed, and enclose or cover with screen, to keep out the wildlife. Any lights should be covered with a shatterproof cover, or be shatterproof themselves, to avoid broken glass from accidentally broken light bulbs.

**Equipment-** Inspect your equipment routinely. If it is rusty or has broken parts especially with sharp edges make this a priority to fix. Coolers should have correctly fitting catch pans and drain lines under the cooling unit. Review any areas where condensation could drip onto a food contact surface, produce or packaging. In a separate episode, I will discuss cleaning food contact surfaces and the various packing shed zones in relation to produce safety.

**Pest control-** Insects, spiders, birds, rodents, your cats and even snakes will all probably want to get into your pack shed at some point, if they live on your farm. All can carry unwanted microorganisms. Consider the types of interior and exterior trapping for the types of pests you are having, as well as where they are located. Fly tape should not be directly above work areas, packaging or produce storage. Rodent traps should be setup along the edges of walls on the interior of packsheds, since that is where the poorly sighted mice will run. Traps where live mice are retained and do not contain any baits or poisons are known as ketchalls or “tin cats”. Look to purchase ketchalls with a clear top so you can see if something was caught. These types of traps are preferable to glue boards or snap traps since mice can escape from



these traps and then the injured rodent will leave a bloody trail and die someplace in your building.

Set up a monitoring system to monitor for pests in the produce and packaging storage areas. Make a map which shows where all pest management traps are located, and number the rodent traps. Have a corresponding pest control log to use when monitoring the numbered traps and fly tape at least weekly. This log should document when and where mice were caught in the traps using your numbering system. This is one way to ensure the traps are being checked, and also is your best way to monitor where they might be getting in your packshed and when the pest pressure is the strongest.

Clean out the traps and replace tape when needed and use the log to help you determine hot spots. If certain areas have activity, look for holes where the pests may enter. There may be an opening in the wall behind the stack of produce boxes or a hole in the screen above the ice machine. Start to do rodent trapping before the growing season, to deal with a possible resident population, and then continue throughout the season to trap out the new visitors. Even though there are many more of them than us, we have the bigger brain and good management can keep pests from contaminating your produce.

So that's it for this episode of Food Safety Bites, the next episode is recordkeeping. This is your host Harriet Behar brought to you by the University of Wisconsin Madison, talk to you next time!