



## **Episode Seventeen – Tools, transport and storage**

Welcome to episode 17 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 **tools, transport and storage**. 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.

**Tools-** I am concentrating on tools used in the field to grow and harvest produce. Tools used in the pack shed are covered in that episode. Knives, scissors, snippers, a sharpening stone, rubber bands, are all used in the field to harvest equipment. Shovels, rakes, hoes, trowels and a variety of short handled weeding tools are also used in close proximity to produce. There is a wide range of tractor driven equipment including plows, discs, packers, and drags, used for preparing a seed bed and many different types of mechanical cultivation equipment that comes in close contact with produce as it is growing and close to harvest. Mechanical harvesting equipment for digging, or picking is also used and offers its cleaning challenges. Many different types of harvest belts and conveyors are popular on farms where workers hand harvest and place the produce on a suspended moving belt 30 or more feet from the wagon.

**Hand equipment-** Consider keeping the most used short-handled tools in a closed tote, so they are all in one place and available to easily travel back and forth to and from the field. At the end of each day, the tote can be emptied and it, and its contents, can be cleaned and sanitized as appropriate. Long handled tools should be cleaned when appropriate and stored in a place and in such a way as to lessen contamination in storage. Hanging tools in a covered shed, above a concrete floor that can be swept, away from livestock housing, is one such method.

**Mechanical tillage and spreading equipment-** Be aware when using equipment to spread manure, or travel through manure on a road, or in a field with recently spread manure, this equipment should be cleaned before going to a produce field or the packing shed. A quick equipment cleaning with a hose away from these two areas, prepares them to be used in the future around produce. Pay attention to get into cracks and crevices to get all of the manure and bedding removed.

**Mechanical harvest equipment-** The many moving parts can present a risk of worker injury. Make sure those operating and working near this equipment are knowledgeable of the dangers and you have taken the time to make sure shields and other safety equipment are functioning. Take the time to understand where in the equipment debris or water might be held for a period of time and determine the ways to get into those areas to remove the debris where bacteria can multiply and spread onto your produce. At times, you might consider modifying the equipment so reaching into those areas is easier. Older equipment can be especially difficult to thoroughly clean. Store this equipment where birds and other pests cannot poop in or on it. Deterrents like



odiferous laundry dryer sheets or highly perfumed soaps can drive away some pests from the interior, and tarping equipment when not in use, even in a shed, can keep off the bird poop.

**Transportation-** Garden carts, wheel barrows, UTVs, trailers, pickup trucks, and farm wagons are all used to transport harvested produce and containers from the field to the packing area. Vans, pickup trucks, straight trucks and semis used to transport produce off the farm can be owned by the farmer or can be hired to take the produce to the buyer. In every situation, there should be consideration of produce safety and prevention of contamination. Cleanable surfaces are preferred. If you have an old farm wagon with pitted and splintered wood boards, this is going to be much more difficult to clean. Consider putting a metal or smooth plywood covering over this, or even a tarp or other large sheet of heavy plastic can be useful to keep the produce from any bacteria lurking in the many crevices of those aged boards. If using the equipment for multiple uses where there could be a risk of contamination, the cleanability is even more important. If previously transporting iced produce and the floor becomes wet, squeegee dry that surface as soon as practical. Keep pets and livestock out of pickups and other vehicles where produce will be transported.

Make sure refrigeration units are working to your expectations and there is not condensation falling on boxed produce. Keep vehicles in good working order to prevent breakdowns where produce could be held longer than wanted, heat up and lose quality. Review hired transportation visually for cleanliness and smell the truck when it first opens to discover any contamination problems. Verify only food is being transported and ask about the previous load too. Train employees to be careful when loading to not puncture boxes and the produce inside, and to wash their hands when they had previously touched something that was dirty.

**Storage-** For coolers, consider keeping a log in or near the cooler to document the temperature in that specific cooler is meeting your expectations. If the temp starts going up, you can quickly take action and save a lot of produce from potentially rotting. Various types of produce hold their quality best in temperatures close to 32 degrees F and others prefer temperatures around 50 degrees F. You can make different temperature zones in your cooler with plastic curtains to have different temperatures, or multiple coolers to provide various optimum temperatures. There is a link on the food safety bites webpage to help you find the preferred storage temperatures for various types of produce. Make sure there is no condensation dripping onto the produce and when the cooler floor gets wet, squeegee it dry and if it gets dirty, sweep out that dirt. If you use a root cellar type storage, which has venting to the outdoors, cover the outdoor and indoor ends of the pipe with screen and/or hardware cloth to keep out insects and rodents. Keep the area near the outdoor vents free of vegetation and debris, so you can monitor the screen remains in good condition.

There are produce types that do not hold quality in cooled temperatures, such as winter squash. Ambient storage areas should not allow roosting of birds overhead, nor entry of pests or domestic animals, when this area is being used for produce. Storing produce on pallets so they are up off the floor. Store these pallets a foot away from the wall and place pest retained ketchall or tin cat traps along the wall where rodents tend to run. This will help you both monitor and control those sneaky rodents, who are known to escape from snap traps. Baited baits



should not be used inside a food holding facility, since it can attract pests into the facility. Poison bait can be used on the outside of the facility, but strongly consider not using the poison option. If your farm is certified organic you cannot use poison bait. Even if you are not organic, Sick mice could crawl into your produce box and die, and also can be eaten by birds or other cats, sending the poison through the food chain. Non poison options work and do not have these negative side effects. Remember, mice only need a hole the width of a pencil to enter into a building, so having traps is important. As is keeping your pack shed as sealed as possible and keeping the outside free from piles of debris and tall grasses and weeds. If you intend to keep the produce for winter sale, use storage areas that can be heated or are well insulated to prevent freezing and rodent intrusion.

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