Developing a Plan for Third-Party Audits

Good Agricultural Practices (GAPs)

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Part 3 — House Packing Facility

This is a critical area for food safety. Whatever was done to keep the produce safe during harvesting and transportation to the packing house can be undone in the packing house. Good handling practices that include water testing, disinfection of work areas, worker hygiene, etc. must be addressed to sell a safe product.

Receiving

Harvested product should be properly stored after delivery to the packing house. Product should not be stored in the shade under trees (this is a primary source for contamination from roosting birds) or just covered with a mesh material. Product that will be packed several hours or days later should be properly stored under refrigeration or other controlled storage appropriate to the commodity. This prolongs product shelf life and protects it from contamination.

Washing/Packing Line

Source water used in the packing of fresh fruits and vegetables, either for washing or as a way to disinfect or apply waxes, must be potable. Municipal water is regulated and must be tested for potability on a regular basis. If using municipal water, obtain a copy of their test results at least once a year. Farm wells should be tested at least twice a year to determine if potable (See *Water source testing log*). Test results must be available for review by the auditors. Surface (ponds, lakes, streams, etc.) water is not considered potable for a packinghouse and cannot be used unless the water source has a treatment system and the water is tested on a regular basis.

If using water, the temperature should be monitored on a regular basis in dump tanks, flumes, etc. It can be checked automatically or with a standard thermometer at the same time as the disinfectant concentration. This should be done hourly. Temperature is critical because if the water temperature is cooler than the produce, water can be drawn into the produce. This is of special concern for tomatoes, peppers, apples and potatoes, cantaloupe and peppers (See *Produce disinfection* log). The water should be

within 10°F of the product pulp temperature. When water is taken in, it is possible for microorganisms to be taken in at the same time.

Reusing wash water may result in the build-up of microbial loads, including undesirable pathogens from the crop. Consider practices that will ensure and maintain water quality. There are several practices which will help reduce cross-contamination and maintain water quality. These include:

- Perform periodic water sampling and microbial testing,
- Change water as required to maintain sanitary conditions,
- Develop standard operating procedures for water quality,
- Clean and sanitize water contact surfaces including dump tanks, flumes, wash tanks and hydro coolers on a regular schedule,
- Install backflow devices and air gaps to prevent contamination of clean water,
- Routinely inspect and maintain equipment designed to assist in maintaining water quality.

At the end of each day, packing areas should be cleaned. Also, the washing, grading, sorting and packing lines should be cleaned and/or sanitized to reduce the potential for microbial contamination (See *Packing house and storage cleaning recommendations*, *Packing house and storage facility-daily inspection log*, *Packing house and storage facility-monthly inspection log* and *Packing house and storage facility-quarterly log*). Procedures for carrying out these practices must be documented in the Grower Food Safety Plan. Make sure to include a copy of all logs used to address cleaning and sanitation in the packing house.

The best way to reduce pathogens is to keep them off the produce in the first place. Once a product is contaminated, it is very easy for this contamination to be transferred to other produce during the packing process. This makes it critical that the water used to wash, move or disinfect produce is monitored closely. There are several antimicrobial chemicals labeled to treat water in the packing operation. The effectiveness of these agents depends on the chemical, physical state, treatment

conditions (water temperature, pH and contact time), resistance of the pathogen and nature of the fruit or vegetable surface. Some of the products used are chlorine, ozone, ultraviolet radiation and hydrogen dioxide. There are other products under investigation which will be available in the future. Select the product which will fit best for the packing house operation and follow all manufacturers' recommendations.

If using chlorine to disinfect produce, make sure the concentration of free chlorine is correct [i.e. 100-150 parts per million (ppm) for lettuce, cabbage and leafy greens, apples and melons; 200-350 ppm for tomatoes, potatoes and peppers] at pH 6.0-7.0 and contact time of 1-2 minutes.

No matter which method is used to disinfect produce, the system must be monitored. Growers who have an automated system think there is no need to check it on a regular basis. This is not true. Develop a manual monitoring system, even if the system is automated. For example, chlorine levels, pH and contact time should be checked manually each hour if the system if not automated (See *Produce disinfection log*). The procedure used to disinfect the water along with logs should be included in the Grower Food Safety Plan. If an outside firm is employed to handle the disinfection system their logs should be available for review.

Areas of possible contamination also include open mesh steel catwalks, motors without shields, overhead dripping, leaking pipes, and ceilings dripping from condensation and box conveyors to second floor storages. Product in flow zones running under these mentioned areas could be subject to contamination from dirty shoes, dripping lubricants and water, cobwebs or dust hanging from ceilings or light fixtures. Shield the flow zone to keep the area contaminant free.

Ice or cold water (hydro cooling) is often used to reduce the temperature of a product. Water used for this must be potable in order to reduce the risk of food contamination. If ice is purchased, a water report should be obtained from the source to ensure the water is potable. If using farm well water, the well should be tested twice a year for fecal

coliform and E. coli (See *Water source testing log*). Ice making facilities must be sanitized on a regular schedule. This includes the production and storage area and any conveyors, augurs or bins used to transport the ice. If ice is purchased, obtain the schedule from the seller. The schedule should be documented in the Grower Food Safety Plan.

Ice must be transported in covered containers. If bins are used, either transport in a closed truck or cover the bins with plastic. At no time should ice be placed in wood boxes/bins or moved over wood surfaces. There is a chance wood will get into the ice then be introduced into the produce. Bins used to transport ice should be sanitized before filling.

Packing House Worker Health and Hygiene

Facilities used by employees to take breaks, prepare for work and/or eat meals must be clean and separate from the packing areas. This area may be within the building away from the packing area or be an outside-designated area. All places must be kept clean to the extent that the nature of the work allows. Workers cannot eat or take breaks within the packing area. Water can be allowed on a packing line, but the container must be plastic and located below the packing line.

If the packing house has a written policy related to hairnets, beard nets and any restrictions relating to jewelry, it must be written down. Personal hair follicles and jewelry such as watches, earrings and rings can harbor microorganisms. The same policy must be enforced for employees and visitors (See *Please note hairnet, beard net and jewelry policy*). Make sure to post the policies where everyone can see them.

Packinghouse General Housekeeping

Food-grade approved lubricants must be used on all packing equipment. Lubricants such as WD-40, Liquid Wrench, etc. used in other parts of the packing area are not acceptable in areas that come in contact with the product.

Food-grade and non-food-grade lubricants/chemicals must be stored separately either in separate rooms or segregated within the same room. The intent is that the two are sufficiently separated and prominently marked in order to prevent cross contamination or mistaken use of non-food-grade for food grade. Include a written policy in the Grower Food Safety Plan related to where food-grade lubricants are used and stored.

Grounds surrounding the packinghouse should be kept clear of waste and litter to discourage breeding of pests and rodents. Garbage receptacles/dumpsters need to be maintained regularly and located a reasonable distance from the packing house entrance. This includes emptying on a regular schedule and closing the lids when not in use. If the dumpster is located adjacent to the packing house, it must have a lid. Areas surrounding the ground around the dumpster should be reasonably free of debris. All garbage containers in the packing facility must be covered.

Areas around the packing house should be graded to allow water to drain away. If obvious long-standing water is observed the auditor cannot award these points.

Packinghouses that cannot be enclosed during non-working hours will not be considered an enclosed facility. When operating, it is normal and acceptable to have some doors open. All glass materials i.e. lighting equipment must be covered in case of breakage. Any overhead lighting regardless of height above the product must be protected or have shatter proof bulbs.

The packing house interior must be clean and maintained. During packing operations some evidence of dirt and debris will be visible, but there should be no evidence that it has accumulated over time and been ignored. Drains for wash water must be clear to prevent water from running onto the packinghouse floor. All wastewater from toilets and hand washing must drain away from the packing area in case of a spill.

A written policy must be included in the Grower Food Safety Plan on what will happen to open finished product that is spilled or comes in contact with the floor. A statement like

the following could be included in the manual. **All product that is spilled will be collected and disposed of in the dumpster.** Another example – **When water is used to disinfect produce the spilled product will be examined for damage. If not damaged it will be run through the disinfection system prior to repacking.**

Only new or sanitized containers are to be used for packing. If containers are sanitized, maintain a log and describe how the containers are sanitized in the food safety plan (See *Container sanitization log)*. All containers must be stored to protect from birds, rodents and other pests.

Pest Control

Inside the packing house, an established pest control program must be maintained and documented with service reports available for review by the auditors (See *Bait station control log*). All traps and bait stations should be numbered, flagged and marked on a map for easy identification. Bait stations containing poison must be located outside the packing house. Traps and non-poison means can be used inside. Document the pest control program in the Grower Food Safety Plan. Walls, floors, ceilings, doors, etc. should be checked for holes and repaired where pests may enter. In addition, there should be no loose insulation materials protruding from walls or ceiling where pests may hide. Consider using screens, wind curtains, bird deterrent tape, traps, etc. to discourage pests. Pet dogs, cats or other animals should not be allowed to run free in the facility.

Traceability

The food safety plan must contain a system for tracing all incoming and outgoing product. This can be accomplished with stickers, ink stamps or writing on each container. Records must be maintained in case of a recall. This can be done with a log or electronically. See the introduction section for an example of a traceability system.