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Harvest is upon us and getting a storage ready for the new crop includes several steps that consist of cleaning, servicing and repairs, and ensuring proper adjustments and placement of equipment. Each step is important to collectively maintain quality of your stored crop.

Cleaning

The cleaning process is important, especially to minimize disease and foreign material carryover from one season to the next. This is a critical initial step in storage facilities that had tuber breakdown due to rot or “hotspots” where tuber decay had occurred the previous storage season.

Remove plant debris and foreign material. Before harvest, prepare the storage facility for receiving potatoes by eliminating foreign material. Clean up trash such as old tubers, duct tape, wood, metal and insulation inside the storage. After removing all visible foreign material, pass a magnet over the floor and in corners to collect remaining metal contaminants. Don’t forget about removing unwanted material from the plenum and duct pipes.

Remove 1- to 2-inches of dirt floor and replace with non-potato soil. This step is often difficult to accomplish in a timely manner and one that can be often overlooked. If silver scurf infection or bacterial ring rot is of great concern, this is an important step to reduce disease spread.

Wash the entire facility with soap and hot water, then rinse with water afterwards. Washing is probably best accomplished with a pressure washer using hot water and detergent. Soap-based detergents are often fairly effective disinfectants in their own right, but are particularly effective at dissolving dried potato sap or other residues that might be adhering to floors, walls or equipment. Thoroughly rinse all cleaned surfaces before disinfecting. Disinfection will be a lot less effective if the facility has not been cleaned and rinsed prior to application.

Apply a disinfectant to all surfaces, and keep them wet for 10 minutes. Thoroughly apply a disinfectant solution to all surfaces (walls, plenums and duct pipes) and continue to apply the disinfectant, if necessary, until the surfaces being treating have been wet with the disinfectant solution for at least ten minutes. This length of exposure has been shown to effectively kill pathogens likely to be on equipment and in the storage facility. Check the label of the disinfectant to see if rinsing is required. Before using any disinfectant be sure that the product is labeled and registered in the state you are using it.

It is important to combine the washing and disinfecting procedures to reduce the risk of disease. This is because the organisms that cause disease in potatoes are capable of surviving on storage surfaces and on equipment under some fairly harsh conditions. They

do so in clumps or films of cells surrounded and protected by dried bacterial slime, dried plant sap or other materials. These structures are referred to as "biofilms." Biofilms not only allow some bacterial cells to survive, but can also be very difficult to dissolve and remove. That is why using a soap-based detergent is absolute critical in the cleaning step. Disinfection alone will not adequately clean a storage. Exposure to sunlight would be a good final step in the cleaning of equipment or duct pipes, after they have been thoroughly washed and disinfected. It is not a replacement for cleaning.

Storage inspection and repairs

Inspect the storage for any needed repairs. Repair all worn or missing insulation materials to minimize the potential for condensation. Check for corrosion on all metal surfaces and broken wood structures that may limit the life of the storage facility.

Replace worn humidity equipment and high-pressure nozzles. Service the relative humidity supply evaporative cooling pads. Check for mineral-deposits and eliminate clogged flow paths.

Check and calibrate and/or replace all computerized sensors that are used for control functions. Controlling your storage environment is based upon the accuracy of these sensors, so ensure they are functioning properly. An outside temperature sensor that is 2°F off can make a tremendous difference in the amount of run-time during the warm harvest and loading season.

Repair or replace worn components on air louvers or doors, both fresh air and exhaust. Murphy's Law states that louvers will fail you when it is sub-zero temperature and on a holiday if not properly serviced.

Service the air system and check all fans for proper balance. Check the air delivery system by adjusting all ports or ducts for optimum and consistent airflow.

Operate your storage for conditioning before the potato crop is delivered. If harvesting in warm conditions and refrigeration may be needed, service units to be ready. Initiate air on the crop as soon as the 1st or 2nd ducts are covered.

Tape all duct seams to optimize the ventilation performance of your storage system. Open seams will reduce air delivery consistency. Theoretically, a 2 inch gap between pipe sections is equivalent to leaving the end cap off the entire line. Poor or sub-optimal air delivery makes managing your stored crop difficult. Disease and sprout control can be compromised, and processing and fresh quality impacted.

Know the quality of the incoming potato lot and the potential problems that might arise in storage. Protecting the quality of the stored crop is the goal of all storage management decisions. If possible, place suspected problem lots (stressed fields, low spots, etc.) in a location where they can be monitored regularly and removed if quality starts to deteriorate.

