

Storage checklist

Although the growing season is just getting underway, it is not too early to think ahead to the end of the season when you'll be harvesting your potatoes and putting them in storage. Get your storage season off to a good start by making sure you have good emergence and a uniform stand. Properly managed irrigation and nitrogen applications can also go a long way to ensure a storable crop. As we have all seen during the previous two summers, stress during the growing season can cause tuber malformations, sugar accumulation, lower specific gravity, and shorter dormancy once in storage. By maintaining uniform growth during the season and taking steps to ensure proper tuber maturity by harvest time, storing your crop should be relatively trouble-free. In-field disease and insect scouting, in conjunction with proper cultural practices and timing of pesticides, will help reduce the chance of problems showing up at harvest or in storage as well. By the end of the season, have an idea of what kind of crop you are putting in storage and that will help make storage management easier, or at least lower the potential for unpleasant surprises.

The first step to getting the storage ready for this year's crop involves cleanliness. To clean your storage and comply with good food safety management, remove all plant, potato and unwanted material from the storage, floor, plenum, and pipes. Inspect the storage for any needed repairs such as loose insulation or metal, or broken wood. Cleaning and disinfecting your storage will help minimize disease carryover from one storage season to the next. The whole storage needs to be thoroughly cleaned including walls, beams, insulation, cement, dirt floors, plenums, pipes, and ventilation and humidification systems. Thoroughly wash all components of the storage facility with soap and hot water or steam using a high-pressure sprayer and then rinse. Next apply the disinfectant and allow the surfaces to remain wet for at least 10-15 minutes to be fully effective. Close up the storage facility for 2 weeks and then reopen to air and dry out the facility.

If you have had a perennial problem with silver scurf, proper storage cleaning and application of the appropriate disinfectant will help decrease the survival of silver scurf from last storage season to this year. Previous University of Idaho research has shown that silver scurf can survive on foam insulation and soil floors for up to 9 months and on sheet metal up to 3 months. Disinfectants can vary in their chemistry and application use, so check the label to make sure the disinfectant is appropriate for your storage facility. For additional information and updates on registered disinfectants contact your state Department of Agriculture.

If you plan on bringing in seed potatoes into a storage that has been previously treated with CIPC, proper storage cleaning and disinfecting is important. But also, do not store seed until at least 1 year has lapsed since the CIPC application with a good warm summer season in between to air out the facility.

Here is a brief outline on the overall basics of storage management from what to do this summer through unloading the crop.

CHECK LIST FOR STORAGE MANAGEMENT

Facility Preparation

1. Repair all insulation materials to minimize the potential for condensation.
2. Clean plenum and duct ports thoroughly.
3. Remove all foreign material (duct tape, loose insulation, wood, etc.) and pass magnets
4. Replace worn humidity equipment and high-pressure nozzles.
5. Check for corrosion on all surfaces that may limit the life of the storage facility.
6. 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.
7. Repair or replace worn components on air louvers, both fresh air and exhaust.
8. Calibrate all computerized sensors that are used for control functions.
9. Service the relative humidity supply cell decks. Check for mineral-deposits and eliminate clogged flow paths.
10. Operate your storage for conditioning before the potato crop is delivered.
11. Know the quality of the incoming potato lot and the potential problems that might arise in storage. Protecting the quality of the stored tuber lot is the goal of all storage management.
12. Tape all duct seams to improve system performance. Open seams will reduce air delivery consistency.

Potato Delivery

13. Harvesting and handling operations should deliver a minimum of 75% bruise-free potatoes for both short and long term storage.

14. Check pulp temperatures of potatoes going into storage. Temperature minimum of 48°F to maximum of 60°F should be maintained. Suspend harvest operations, whenever possible, until pulp temperatures in the field are in this temperature range.
15. Limit potato pile height to 16-18 feet to minimize pressure bruise (Remember that pressure bruise can be variety dependent).
16. Operate fan and humidity systems as soon as the first few ducts are covered. This early operation helps to remove pulp temperature differences between fields, truckloads and time of day.
17. Clod and debris removal from the incoming loads is important to achieve optimum air circulation performance from the mechanical system.
18. Fill each storage structure with potatoes destined for similar end uses. Close storages as soon as filled to rapidly achieve temperature equilibration of the pile.
19. Maintain pulp temperatures between 50-55°F for two to three weeks for proper wound healing. Relative humidity of 95% is always recommended for the wound-healing period and for continued short or long term storage.
20. Reduce pile temperatures slowly, approximately 2-3°degrees per week, to a holding temperature of 45-48°F for processing, 42-45°F for fresh pack, 50-52°F for chipping stock.
21. Continue to monitor the storage daily for operational continuity and for any potato problem that might occur. Circulation times should be set to maintain the pile temperatures less than 2°F from bottom to top. Continuous fan operation at reduced airflow or speed is capable of maintaining the desired temperature control of the pile while reducing energy costs of fan operation.
22. Sprout control should be done by certified applicators. The type of inhibitor or time of application may change with different varieties.

23. Maintain storage air supply during storage unloading to minimize quality losses. Remember that good storage management during the unloading operation includes adjustment of duct airflow to maintain consistent supply to all parts of the remaining pile.

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