

Potato Storage Sanitation

**Sastry Jayanty, Potato postharvest physiologist
Assistant Professor and Extension Specialist
San Luis Valley Research Center, Colorado State University**

To prepare a satisfactory storage environment before the loading of fresh harvest of potatoes into storages, a variety of “disinfectants” are used for cleaning the potato storage facilities and potato handling equipment. Some pathogens, such as the silver scurf pathogen, may survive from one season to the next and ring rot from 3 to 7 years depending on the surface in the storage facilities. Storages and handling equipment should be cleaned and sanitized or “disinfected” after the storage is emptied and before handling and storing the new crop. Disinfection of storages and handling equipment is a three-step process. Important steps in preparing the storage:



Cleaning the storage and surroundings

- Removing dirt and debris from the storage and equipment. Pathogens thrive on organic debris
- Remove potato debris and other trash from within and around storage facilities from the previous crop.
- A cull pile is a potential source of many diseases (soft rot, ring rot, late blight, viruses). Instead, burn, chop, compost, freeze or bury discarded potatoes. Wind gusts in the early spring or early fall may bring inoculum into the storage or packaging facilities.
- If the storage is with dirt floor it is advisable to remove 1 to 2 inches of soil and replace with soil from healthy non potato growing field.
- Clean dust and dirt and sprout inhibitors from fan blades.

Washing with steam and soap

- Effective sanitation requires a thorough cleaning of all surfaces before a disinfectant is applied.
- Wash the storage bins, walls, and machinery floor with hot soapy water using a high pressure washer and followed by rinsing with water
- Soil, clay particles and organic material quickly neutralize the biocidal properties of most disinfectant materials.
- Steam exposure time should be five seconds for fresh, wet bacterial material and 20 seconds for dried bacterial material.
- Disinfect equipment and storage structure with recommended materials (see below).

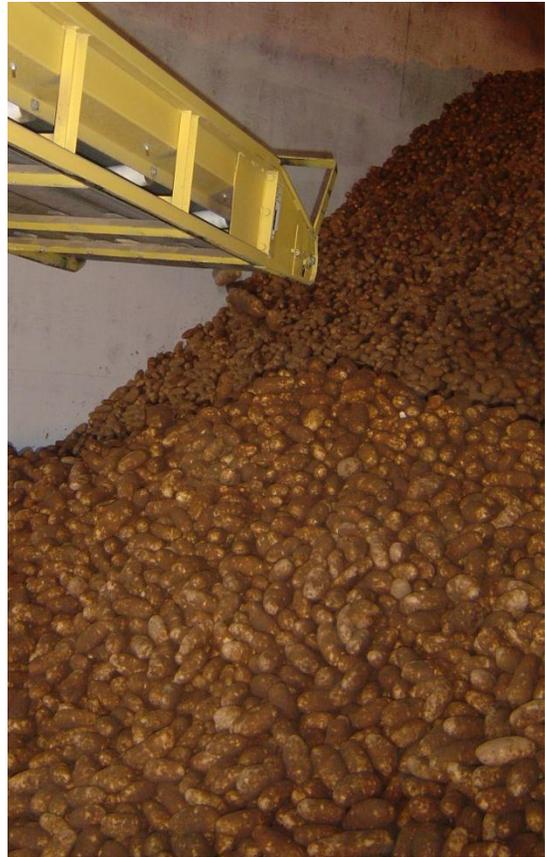


Disinfection

In general, disinfectants must be in contact with the surface to be disinfested for a minimum of 10 minutes to kill bacteria. A foaming agent can be added to some disinfectants to help the chemical stay in place, such as on a wall, for 10 minutes to penetrate the fungal cell wall or dissolve the bacterial slime and kill the pathogen.

- Spray areas using a high-pressure jet (up to 4250 kPa pressure) to penetrate cracks, etc. in floors. Careful to use on equipment as it may take paint also.
- Wood surfaces can be treated with a wood preservative such as copper-8-quinolinolate, which is fungicidal and somewhat bactericidal.
- After disinfection rinse well with cold or hot water and remove excess water
- Choice of disinfectant depends upon the specific pathogens to be and the type of storage structure (i.e. wood vs. metal) and other factors.

Commonly recommended for disinfecting potato handling equipment and storage structures for both seed and commercial operations¹.



Material	Inactivation		Corrosiveness to metal	Safety	Recommended Exposure time
	Organic matter	Hard water			
Quaternary Ammonium compounds	Some	No	Slight	Use caution	10 min
Hypochlorites 5.25% bleach	Yes	No (except Iron)	Yes	Irritant & Caustic	10 min
Chlorine Dioxide	No	No	No	Non toxic	10 min
Iodine Compounds	Some	No (except Iron)	Yes	Caution	10 min
Phenolics	Some	No	No	Poison	10 min
Formaldehyde	No	Yes	No	Unsafe vapors	30 min
Copper Sulfate	No	Yes	Yes	caution	30-60 min

¹Materials may not be labeled for all producing areas; read labels carefully before using. Registrations may vary
 Adapted from: Disease Control Guidelines for Seed Potato Selection, Handling, and Planting, Extension Publication PP-877, North Dakota State University. Cleaning and Disinfecting Potato Equipment and Storage Facilities
 By Nora Olsen and Phil Nolte, CIS 1180. University of Idaho Extension.