

Cleaning and Sanitizing The Potato Storage

COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

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Dirt and potato refuse, aside from giving an unsightly appearance and unpleasant odor, can be a major source of disease infection for newly stored potatoes. Ring rot, *Fusarium* and *Verticillium* wilts, as well as other serious diseases, can be traced to unclean storage facilities.

WHAT IS CLEAN STORAGE?

A clean storage has a well-kept external appearance and on the inside is free from dirt, old tuber residue, molds, and disease-causing organisms. Good housekeeping practices apply in the grading rooms, as well as in the main storage area. Tools, potato handling equipment, crates, and boxes should be kept clean and stored in an orderly fashion.

WHEN SHOULD A STORAGE BE CLEANED?

Aside from day to day removal of refuse during grading, a good cleanout is needed after emptying the storage facility. During the summer the building should be vented and allowed to dry out thoroughly. Shortly before harvest, sweep out dust and dirt which may have accumulated. Scrub unclean surfaces and disinfect with chemicals.

HOW SHOULD CLEANING AND DISINFECTING BE DONE?

To clean off dirt and tuber tissue clinging to walls, use long-handled, stiff-bristled floor brooms.

Heavy-duty vacuum cleaners with long suction tubes are useful in dust removal. Power sweepers are more practical to use than hand brooms where large floor surfaces must be swept.

Proper cleaning of storage surfaces usually requires a strong detergent solution. This can be applied by brush or with a high-pressure sprayer equipped with hose and heavy-duty spray gun. After wash down, apply a suitable disinfecting solution on all interior surfaces to destroy mold spores and disease-causing organisms. A high pressure sprayer is suggested for this purpose; however, equipment with less pressure, such as a garden hose sprayer, is equally satisfactory in many cases.

These same cleaning and sanitizing procedures also apply to pallet boxes and all containers used for potatoes. Treat mechanical equipment coming in contact with potato tubers in the same manner.

CHEMICALS FOR DISINFECTION OF STORAGE, BOXES, BAGS AND EQUIPMENT

Spray or drench surfaces with **Chlorine** solution (**Sodium Hypochlorite**) 1000-2000 parts per million concentration. Commercial formulations vary in concentration; therefore, follow the manufacturer's recommendations in making up solutions. For example, Perchlorin is a granule containing 70 percent **Calcium Hypochlorite**. Five teaspoonfuls of this formulation in 3 gallons of

water are required to make a solution of 1000 ppm.

OR

Quaternary ammonium compounds may be used according to manufacturer's recommendations. The addition of a wetting agent with **Quaternary Ammonium** sprays or drenches is suggested, in order to get more uniform coverage of surfaces. Use only those wetting agents recommended by the manufacturer, since some are not compatible.

OR

Soluble Copper Sulfate (Blue Vitriol, Blue-stone, etc.) is suitable at a rate of 10-15 pounds per 100 gallons of water.

OR

Formaldehyde available as a 37 percent commercial formulation may be used at a rate of 2½ gallons per 100 gallons of water. Since this material is highly volatile and has a fumigating action, storages should be closed for 24 hours, then aired until there is no longer an odor. Do not use for bags.

Note: It is important to remove all dirt from surfaces to be treated, to permit the chemical to penetrate.

HOW TO PREVENT ROT AND DECAY IN WOOD AND FABRICS

Under wet or humid conditions, rot-causing fungi will weaken and decay unprotected wood in a comparatively short time. Leather and other

fabrics, including some types of electric wire insulation, are also destroyed by these organisms. Faulty wire insulation caused by the action of fungi increases fire hazard. The breakdown process is most rapid at higher temperatures, but it continues even at potato storage temperatures.

To protect the storage building and wood containers, treat with **copper-8-quinolinolate**. This product is sold by a number of manufacturers under different trade names, one being **Cunilate**, which is readily available through major agricultural distributors in Michigan. The product comes in two forms, one requiring dilution with mineral spirits (1 part of compound with 2 parts of mineral spirits) and the other a paste which emulsifies in water. After wood surfaces have been thoroughly cleaned with detergent solution and allowed to dry, copper-8-quinolinolate may be applied with a brush or sprayer. Containers may be treated by dipping 10-15 seconds. The formulation contains a wood sealer. A single treatment should provide effective protection for up to 5 years. Treating wood surfaces with copper-8-quinolinolate does not eliminate the necessity of cleaning and disinfecting the storage and containers every year, but it makes the job easier.

PRECAUTIONS IN HANDLING CHEMICALS

Avoid contact with skin and prolonged breathing of chemicals. Wear rubber clothing, including boots, gloves, and hat. Protect eyes with goggles and always use a respirator. Cover humidistats, instruments, and control panels when spraying. Turn off power in the area being sprayed to reduce danger of short circuits.