



UNIVERSITY OF ALASKA
FAIRBANKS

College of Rural Alaska

Cooperative Extension Service

Small Scale POTATO STORAGE MANAGEMENT

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Each year Alaskan potato growers place potatoes into storage that may last a few months to a full year. Several factors determine the quality of these potatoes when removed from storage; temperature, relative humidity, air circulation, ventilation, and exclusion of light. It is important that the home gardener understand the factors involved in proper potato storage.

THE CURING PERIOD

The curing period for Alaskan grown potatoes is very important because the crop is generally harvested while the vines are still green and the skin of the tubers is very tender.

Separating vines from the tubers and bruising while digging initiate numerous physical and chemical changes in the tubers, that cannot be seen at storage time. Bacteria and fungi cannot penetrate healthy potatoes, but they can penetrate potatoes damaged by bruising and skin slippage. So, the first requirement

after potatoes are placed in storage is to accelerate skin healing, or **suberization**.

A temperature of 55°F to 65°F (13°C to 18°C) and a relative humidity of approximately 90 percent promote rapid healing of bruised areas. Maintaining these conditions for 10 to 20 days immediately following storage promotes rapid suberization.

Closing the potato storage area is an easy way to achieve the conditions needed for suberization. But unless large quantities of potatoes are available and releasing heat of respiration, the 55°F to 65°F (13°C to 18°C) temperature may not be reached. Artificial sources of heat may be required. Circulating heated air is important and any air needed for fuel fired combustion chambers should be drawn from the outside; this ensures that the oxygen supply needed for suberization is not decreased. During the first 10 days of storage, air circulation within the storage area

is more important than air exchange to the outside. This is necessary to maintain the high relative humidity needed for suberization. Avoid condensation and dripping in the storage area because it provides an environment for rapid growth of microorganisms if it accumulates on the tubers.

If storage temperatures cannot be raised above 55°F (13°C) then the curing period should be maintained for three weeks because healing is much slower at lower temperatures. Temperatures above 75°F (24°C) promotes the growth of bacteria and fungi more than wound healing.

Tuber diseases such as ring rot, black leg, fusarium rot, scab, and soft rot will require more diligent storage management. Rotting potatoes will affect other potatoes.

Frost damaged tubers will leak water which can allow rapid growth of bacteria

and fungi on the frosted tubers as well as on surrounding tubers. With diseased or frost damaged tubers, it is more important to keep the stored tubers dry than to be concerned with potential dehydration since wet tubers will rapidly decompose.

Cooling

Cooling the potatoes to storage temperature is accomplished after the curing period has been completed. Lowering of temperatures should be accomplished over a period of several weeks or even longer if the only other alternative is bringing in very cold air. The use of very cold air increases the risk of condensation forming and dropping on potatoes. To avoid condensation, do not decrease temperature more than 0.5°F to 1°F per day.

Potatoes stored at temperatures between 35°F to 39°F

(2°C to 4°C) will remain dormant the longest. Moisture loss shrinkage can be reduced by maintaining humidity and by following proper curing procedures. Cooling can be accomplished for smaller storage areas by allowing air to enter the storage area during nights and cool days and closing vents during warm outside temperature periods.

Maintaining High Quality

Storage temperature should ideally be maintained within 1°F to 2°F (.5°C to 1°C) of the recommended limits. After several months in storage, potatoes have converted a considerable amount of starch to sugar which acts as a protective agent if temperatures decline to 32°F (0°C). Conversion of starch to sugar occurs in potatoes may cause an undesirable sweet flavor in the cooked product.

Storing potatoes at room

temperature in darkness overcomes this problem, reducing the sugar content and changing the potato to its original flavor. Temperatures below 45°F (7°C) will cause sugar levels to increase and darken the color of fried potatoes. Warming potatoes stored at 35°F to 39°F (2°C to 4°C) for a week prior to frying can lighten the color.

Light should be excluded from stored potatoes to prevent greening of exposed tubers. Greening may impart a bitter flavor to cooked potatoes. To avoid excess illumination, low-wattage shielded lights should be used in the storage area and used only for short periods of time.

For further information on potato production and storage, contact your local Cooperative Extension Service Agent.

The use of trade names in this publication does not imply endorsement by the Cooperative Extension Service.

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