

STORAGE MANAGEMENT

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Storage management begins in the summer with the checking and repair of the following items:

- 1.) Level the cellar floor. This aids in placement of the air ducts and minimizes damage of tubers at removal time.
- 2.) Check the fan and humidifier and order new parts early to assure delivery.
- 3.) Repair the storages; fix or replace damaged air ducts, and check for holes in the walls and in the insulations.

After all repairs have been made and about three or four weeks before the beginning of harvest, the floor should be flooded with two or three inches of water. This should be done early enough to allow the floor to firm up before trucks and tractors are driven on it. This water does two things: (1) it helps to cool down the storage and (2) acts as a source of humidity to reduce tuber shrinkage.

An air flow of -17-20 cfm/T is desirable in a storage for both rapid cooling and in emergencies. However, 10 cfm/T is adequate for most storages and any is better than none. If this excess air is not needed, the system can be shut down. It is much easier to do this than to try and add additional air supply.

Seven to ten days before the storage is to be filled, the doors should be closed in the daytime and the fan and humidifier operated during the cool period of the day. Operating the system in this manner will help to cool the structure and dry the floor if it is still wet.

Fan operation during the storage season should be such that the fans are in operation only when the outside air is cooler than the pile temperature. Pile temperature can be measured by putting 8-10 foot lengths of 1/2 inch or larger pipe in the pile and dropping a thermometer on a string into the pipe and reading the temperature periodically.

As the potatoes are brought into the storage the temperature should be lowered to 48° - 50° as rapidly as possible. This temperature slows down bacterial growth, reduces tuber respiration, and yet is warm enough to promote rapid healing of the bruises and cuts. Relative humidity should be maintained at 90-95% if possible.

After a healing period of one to two weeks the temperature can be reduced to 45° for storage. If possible, regulate the air flow so that the majority of the air is available to cool the most recent deliveries, thus reducing storage loss and maintaining the tuber quality.

After the storage is filled leveling the pile helps to reduce the number of wet spots that form in the peaks of the pile. By placing the pipe and thermometer in the pile during the filling operation an accurate record and readings can be kept by checking the temperatures 3 or 4 times weekly. This record will enable the operator to determine how long to operate the fans and at what temperatures to have the incoming air. Air temperature should be a maximum of 2° below the desired pile temperature.

During winter operations the storage should be checked daily for the following:

- 1.) fan operation
- 2.) temperature of incoming air

3.) temperature inside the cellar

4.) humidifier and humidity of incoming air

Three or four times weekly the operator should walk across the top of the pile and check the tuber temperature and for formation of wet spots, or excess water on the ceiling.

Many times problems can be prevented by proper management. When the desired temperature is reached, shut the fan off. Excess operation only causes dehydration. When the temperature begins to rise, turn the system back on. In the winter months operation during the daytime may be more practical from a time and convenience stand point.

In periods of cold weather recirculate the air within the cellar and use portable fans on the top of the pile to force air from the center of the pile to the end of the storage. With proper management in a good storage it is seldom necessary to use heaters to warm the storages.

Good storage management is much like good money management. It requires constant attention and careful planning.