STORAGE OF POTATOES FOR FRENCH FRY PRODUCTION

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PRE HARVEST AND HARVEST

Storage starts with harvest timing, potato maturity, and field conditions. For processing, we like slightly immature external qualities (bud end skin slip) but mature for sugar. We need to harvest when the total sugars are at their lowest point. This occurs sometime in the month of September if the plants are still growing, according to data by Dr. Iritani at Washington State University. (Potatoes harvested with low total sugars at harvest store with less sugar accumulation).

On dead plants, low sugar occurs earlier or never occurs depending upon what killed the vines. Plants that die prior to late September are never a good storage commodity and are highly risky to store. Based upon our experience, bruise increases dramatically on potatoes which die early.

Immediately prior to harvest the vines should be beginning to yellow off and the moisture level good. Careful control of the nitrogen level prior to harvest is very important to make this maturing or yellowing phase occur.

Areas in fields which are low lying and have had standing water or extremely wet conditions should not be placed in storage because they are highly vulnerable to rot. These low areas which collect run-off should be filled or adequately drained prior to planting for best results.

In general, the most ideal dates for harvest in the Columbia Basin for fry processing occur between September 15 and October 10 each year. Do not place potato tubers into storage at temperatures above 65°F or below 45°F for best results. A potato with a high pulp temperature will bruise much less than a potato with low pulp temperature provided the potato is still alive and growing at harvest time and does not die on its own accord.

STORAGE

Non-forced air storages are very poor for processing potatoes because of non-uniform temperature control and resulting sugar buildup so we will talk only of forced air storage management.

The potatoes should be placed into storage dirt-free, trash-free, and the air ducts placed correctly in line, spaced and joined properly.

Air should be forced under the pile the first night after loading begins even if only one or two air pipes are covered. These potatoes will rot in one or two months if this is not done. The air should be at least 95% R.H. for best results.

Most storages have enough dirt and trash piled with the potatoes that intermittent air is highly risky.

By using continuous air we reduce the risk of hot spots caused by dirt, trash and rotten potatoes; we keep the potatoes adjacent to the hot spots cool, thereby lessening shrink and rot losses. If the R.H. is kept high, continuous air will reduce potato loss over the long pull.

The continuous air movement principal should only be used as long as the tunnel or air duct temperature is at or below the tuber temperature. If the tunnel air temperature is above the tuber temperature the fans should be turned off until such time as the available air is cooler.

When cooling the pile of potatoes from field temperature, the pile temperature should never be pulled down faster than 1/2 degree per day, while cooling to the wound-healing temperature of 50°F. In general, November 15 to December 15, is early enough to have the pulp temperature to 45°F. The pile temperature should never be allowed to increase above the lowest temperature attained in the pile on a day by day basis.

The storage temperature should be maintained at 45°F for the long pull. Temperatures, lower will increase reducing sugar buildup and a higher temperature will increase the rate at which rot develops.

In late spring, the pile temperature will rise due to outdoor conditions and is not extremely detrimental excepting that rot will increase. It is important at this point, to keep the fans running as much as possible as long as the air is at or below pile temperature.

SPROUT INHIBITOR

The most common sprout inhibitor is CIPC. A single application of CIPC will last for about 75 days under continuous air movement. The first application should be made between December 20 and February 1 for best results. If you plan to hold potatoes longer than May 1, a second application should be made between March 1 and March 15, so that a minimum of internal sprouting will occur. Internal sprouts can cause total loss as far as fry processing is concerned.

Storage keeping quality is only as good as the potatoes and management you put into your storage.

CHECK YOUR STORAGE DAILY !