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Preparing Onions For Harvest and Storage

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NOV 3 1978

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Raising onions is an art because onions are a difficult crop to grow and store. Jumbo yellow sweet spanish onions require even more special skills and cultural practices to prepare them for successful storage and to help reduce storage shrink.

Yellow sweet spanish onions contain almost 95 percent water and lose about 5 percent moisture the first month of storage. Overall storage shrink has ranged from 18 to 31.5 percent, averaging 22.6 percent over the last 7 years. To limit these serious weight losses and help reduce losses from storage diseases, you must handle onions so they will mature in the field and retain the protective, dry outer scales.

A mature onion is one that has stopped growing. When it is lifted, the roots dry down readily and no new roots develop. No new leaves are produced after it is lifted or stored. Its respiration rate is less than that of an immature onion, and, as a result, humidity will be easier to control in the onion storage. The mature onion also has more wrapper-scales and will cure in a shorter time than an immature onion.

The dry outer scales of the onion are important not only because they make the onion more attractive to consumers. These scales provide protection against invasion of storage rots and also contain a natural sprout inhibitor that is necessary for extended storage periods. The more dry scales retained, the better the onions will store.

Field Conditioning

The first step in field conditioning is to stop late applications of nitrogen fertilizer. Do not apply nitrogen after July 15. High residual nitrogen rates in the soil delay maturity of the onions.

Then stop irrigation about August 10 to 15 on white onions, August 15 to 20 on yellow onions.

Since onions are usually grown on loam or silt loam soils which have good water-holding capacities, the onions will continue to size even after the irrigation water is withheld. However, drying up the field will hasten onion maturity and will lead to more even maturity throughout the field.

During the maturing period, nutrients in the onion leaves continue to move into the bulb and increase solids content of the onions. This movement of nutrients to the bulb continues even after the tops fall over.

Irrigation continued after the onions have matured may allow rot organisms in the soil to separate the dry wrapper-scales from the root plate. These scales fall off during harvest and result in many bald onions.

Harvest Operations

Proper harvest practices must also be followed for storage onions, because storage rots start in the field before the onions are moved into storages.

An onion field is ready to harvest when 25 to 50 percent of the tops have fallen over. If a field matures early, especially early varieties, harvest it early. Leaving onions in the field too long after they mature can result in loss of outer wrapper-scales and more bald onions.

After the onions have been lifted, allow the tops to dry before topping. The degree of drying depends on your method of topping. For hand-topping, the tops should be well wilted but still tough enough — not brittle — that the toppers can handle the onions and top them easily. For machine-topping, the onions should lay in the windrows 10 days or longer until the tops are quite dry.

Rapid drying is necessary to seal out rot organisms. When onions are topped before they are properly cured, the plant juices are still running in the neck. The juices provide the needed environment for several storage rots, especially neck rot, to get started.

Onion fields should be as free of clods as possible because hard clods can bruise onion bulbs in the harvest operations. Many growers use a drag under their mechanical onion topper to help provide a soft bed of dirt for the onions to fall on after they have been topped. Onions that fall on hard, sharp-pointed clods often suffer punctures or other skin breaks. Neck rot and other rot organisms readily enter the onion bulb through such wounds.

Growers follow several other practices as well. Some use maleic hydrazide (MH30) to help increase storage life of onions. This chemical should be applied when about 50 to 60 percent of the tops have fallen over or have soft necks and the onions have at least 5 actively growing leaves. The more leaves fallen over, the better the chance that the onion will absorb enough MH30 to prevent sprouting.

Some onion growers also use heavy rollers to knock the tops over, supposedly to hasten maturity. This practice has never been proven. Actually, the bruising of tops that occurs during this operation may spread storage rot problems.

Bulking Operations

Onions should cure in the fields for at least 3 weeks before they are bulked into storages. Be sure the onions are thoroughly dry before lifting them off the ground. Let all dew evaporate before bulking them.

If onions are to be stored outside for a short time before shipping, store them in shaded areas. The shaded areas should allow for good air movement around the bins and through the onions. Do not store them on the south side of buildings. Onions stored in direct sunlight can get too warm and may exhibit translucent scales. Translucent scales can cause arrival problems and can cause serious losses if the onions are eventually stored before shipping.

After topping, onions can be cured in bulk storages if 1 to 1.5 cfm of air can be forced through the pile. Start the air flow as soon as onions cover the first air duct.

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STEPS TO PREPARE ONIONS FOR STORING

1. Stop applying nitrogen after July 15.
 2. Stop irrigating:
 - (a) White onions by August 10 to 15.
 - (b) Yellow onions by August 15 to 20.
 3. Lift onions after 25 to 50 percent of the tops have fallen over.
 4. Allow onions to properly cure before topping.
 5. Remove or cover clods to prevent bruising onions after topping and during the bulking operations.
 6. Allow onions to field cure at least 3 weeks before storing.
 7. Do not stack onions in bins in direct sunlight for a period before shipping or storing.
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