

Current Practices for Kumara Curing and Storage

Harvested kumara need to be cured to protect internal tissues from rots and ensure produce can make it through storage. Some growers are set up to take kumara directly from the fields to a store house, where the produce sits in a temperature and humidity controlled environment. Where such facilities are not available, some other method is required. This will generally be curing in the field, with or without assistance.

Kumara 'Post-Harvest Science'

In 1911, Dr J Malcolm told the Otago Institute that kumara were two thirds water and up to 19% carbohydrate and only 0.27% fat. He noted the sweet taste was due to saliva converting starch to sugar. Mould grew quickly due the presence of sugar which is lacking in ordinary potatoes.

What more do we know about kumara curing and storage?

Curing

The goal of curing is to turn on special enzymes that protect and sweeten the kumara, and help seal in its natural moisture.

Curing involves warming the tubers to improve storability. It allows the kumara to heal themselves from any minor cuts, bruises and skinned areas they may get during harvest and provides a barrier to prevent bacteria and fungi from entering wounds.

What do we need to do to cure a kumara?

Studies say that immediately following the harvest, tubers should be kept at around 30° - 35°C and 85% humidity for 5 -7 days. This process helps form a layer of "suberin" - a waxy substance covering the tuber. Suberin serves as an organic plastic bag, keeping moisture in and helping to heal wounds.

How can you keep the temperature at 30 -35 degrees and prevent moisture loss?

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Creating a mini controlled-environment store.

We wonder if we can use simple plastic cloches (mini tunnel houses) to elevate kumara tuber temperatures in the field. The sun will raise the air temperature through the greenhouse effect, and the polythene cover should allow us to manipulate the moisture of the air inside the

cloche tunnel.

Some growers are already using cloches to produce their tipu in spring. It could well be that the same cloches can be used again in late summer to cure the tubers before storage.

Storage

After curing the kumara are stored until needed for market. Any kumara intended for sale or storage must be properly cured. Properly cured tubers will store for 12 months or longer with 15-25% losses under the best conditions.

Temperature must not drop below 12°C or kumara may get cold damage to which they are particularly susceptible. And it should not exceed 20°C to avoid sprouting. This means some control is required.

The traditional methods achieved the required storage temperatures by half burying store houses in the earth. This provides a large amount of insulation, and the mass of soil keeps the temperatures in the store reasonably stable.



A newly built traditional storehouse - photo H. Kerckhoffs

Relative humidity should remain between 80% and 90% to prevent dehydration. The living storage roots continue to respire, so they continue to lose water.

'Te Pānui Tips' are simple fact sheets that cover topics designing organic crop production systems on the East Coast.

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