

Out-of season raspberry production at SCRI

A brief overview of the long-cane system

After cropping, the fruiting canes are cut back and the primocanes develop. These canes can be lifted when dormant and cold stored again or left to establish an annual plantation.



Primocanes are lifted (long) from spawn beds when the canes are dormant (from late October to early November).



Once the chilling requirement of the canes can be grown on under protection to have fruit prior to the main season or remain in the cold store for a longer period to have fruit at the end of the season.



The long-canes are bundled and wrapped to prevent dehydration of the roots. The packaged canes are then cold stored to fulfil their dormancy requirement.



Is a kilogram of fruit per cane possible?



Can this

Rather than this



Be achieved with long-cane raspberries?

We like to think so!

Three important factors affect the success of the long-cane system

1. Quality of the long-canes

An extensive root system of primary and fibrous roots is very important.

Good roots produce a happy plant and a happy plant gives a high yield.

These are roots from long-canes grown in a traditional spawn bed. The bare-root canes are dug directly from the soil, which can cause mechanical damage to the roots and root loss.



Roots like this produce...

...fruiting canes like this



Lateral buds break after storage, but the roots fail to establish and the laterals wilt and eventually die.

These are roots from pot-grown (module) long-canes. These have not been disturbed during the production of the long-cane. Notice the developing white feeding roots.



Whereas roots like this lead to...

...canes like this



As well as supporting the fruiting cane the roots are able to support the growth of new primocanes that can replace the fruiting cane in the next year.

2. Cold storage: temperature and duration

The temperature of the cold store is critical. It must:

- Be low enough to provide chilling required to break the dormancy of buds along the whole cane.
- Prevent dehydration of the canes and roots.
- Inhibit the growth of fungal pathogens such as *Botrytis cinerea*.
- Inhibit the growth of buds being stored for long periods to prevent bud break in storage and etiolated growth.



Botrytis cinerea



We have found that 7 weeks at -0.5 to 0.5°C is sufficient to fulfil the dormancy requirement of most cultivars and produce bud break as shown on the right.



3. Post storage care of the long canes

Roots need to establish before the laterals start to grow and transpire.

For canes grown on in a glasshouse the temperature needs to be increased gradually, starting at between 5-8°C and raised by 3-5°C every week for four weeks.

For canes planted outside the roots must be irrigated and fed straight after planting.