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

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.

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.

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.

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