

## Environmental Control at Proteaflora®

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Proteaflora is a wholesale nursery producing potted Proteaceous plants for cut-flower growers, retail nurseries, garden centers, and landscapers.

Production is from cuttings and plants are grown in many size containers for between 6 months and 3 years.

The traditional method of growing motherstock plants for the supply of cuttings is to establish an in-ground orchard. The drawbacks of this method in our climate are:

- Periods of prolonged rainfall make conditions favorable for leaf fungal pathogens such as *Elsinoe* and *Coleroa*.
- No control over growth.

Proteaflora has established motherstock in containers grown under plastic cover. The plants are grown on wire benches and are irrigated with drippers. This ensures the foliage always remains dry. The greenhouses in which the plants are grown have roll up sides and roof ventilation. This helps reduce humidity build-up and minimize *Botrytis*.

The advantages of growing motherstock using this system are:

- Dry foliage virtually eliminates all the troublesome fungal pathogens.
- The structure can be closed in cooler weather to create a favorable growing environment.
- The structure provides both hail and frost protection.

The disadvantages of this system are:

- The protected environment favors insect pests such as scale and aphids, but these are easy to control.
- The cost is higher than producing open-field cuttings.

The next production challenge is to harvest the cuttings and rooting them. To do this we have established propagation houses with a computer-controlled environment.

The structures:

- Are double-skinned plastic.
- Have Ludvig Svenson shade screens.
- Have benches heated with hot water through rubber tubing.
- Are humidity controlled with high-pressure fog.
- Are temperature controlled by roof ventilation.

We set the bed temperature at 22 °C and the humidity at 70%.

Once the cuttings have rooted they are removed from the propagation houses for potting on to 0.4-L pots and then grown on under a retractable roof plastic house. The plants are potted up in the autumn and grown in the house over winter before being potted up in the spring. The advantages of this method of growing under retractable roof are:

- Young plants are protected from frost.
- Prevention of over-wetting in cold winter months.
- On fine and sunny winter days the structure is open, hence producing hardened plants.

When plants grown this way are potted up and placed outside in the spring there is no set back due to changed environments.

The final stages of our production are always in the open because this is the situation into which our customers will be growing the plants.