

Disease Free Plants as Basis for Production of *Kalanchoe*

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BACKGROUND

Knud Jepsen A/S produces 15 million *Kalanchoe* pot plants per year. Production started in 1963 with an area of 1200 m²; current *Kalanchoe* production covers 80,000 m² of glasshouses.

The nursery has a special section for development of new products where the tasks are: product development, new cultivar breeding, propagation of new clones, and improvement of existing cultivars. Last, but not least, stockplant material free of specific diseases is being produced in this section.

DISEASES

Kalanchoe plants are attacked by a number of diseases.

Bacteria. The most important bacteria is *Erwinia* which causes soft rot. Hygienic measures are used to prevent *Erwinia*.

Fungi. *Pythium*, *Phytophthora*, and *Fusarium* cause root rot. These fungi as well as mildew on leaves are also prevented by the use of hygienic measures.

Viruses. Five to six different viruses cause problems with *Kalanchoe*. Prevention is done by means of hygienic measures and virus infected stock is cleaned by thermotherapy and meristem culture.

MEASURES AGAINST REINFECTION

Because of all these potential diseases it is very important to our nursery to use stockplant material free from specific diseases. Therefore, we use propagation material from the Danish Elite Plant Station at Lunderskov or from our own research section with elite plants.

As a producer of only one plant species health is of supreme importance. Our production system with moveable tables is completely mechanized and makes it impossible to enter the production area. This increases the demand for keeping a high hygienic standard during production. We, therefore, pay close attention and use a lot of energy to maintain the nursery free from diseases. The irrigation water is biofiltered and tested before and after use. Growth substrates are never reused and the climate during production is kept optimal for the plants.

Our most stringent measures are taken in the propagation area. New cultivars are tested intensively before they enter the production area. Plants are kept in quarantine under observation and every second month sent to a laboratory and tested for specific diseases.

Our elite stockplants which are the basis for our whole production are grown in a special area of the nursery which has no physical contact with the production plant area. This restricted area is equipped with drip irrigation for each plant and the incoming air is filtered. Additionally, a positive pressure is maintained to keep spores and other pests from entering the propagation area. The propagation area is divided into six separate rooms.

Cuttings are excised from the stockplants with knives that are disinfected before the next plant is handled. The conditions in this area are more like a laboratory than a nursery.

In the breeding of *Kalanchoe* we aim at healthy cultivars and are always starting the production with plant material as clean as possible. It is far too expensive to cure problems and there is no doubt in my mind that healthy plant material is a requirement for future horticultural production.