

Large-Scale Production of *Osteospermum*: Ten Years of Development Effort

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INTRODUCTION

In 1980 we began to grow *Osteospermum* using a pink and a white cultivar obtained from another nursery where they had been grown without success. Our production was until 1985 based on these two cultivars. During this time we often had a large percentage of dead plants during the propagation and production phases. Propagation occurred by cuttings which were planted directly in the sales pot with one cutting per pot. After approximately 14 days the cuttings had formed roots and the acclimatization could be started. A weak root system, especially in the pink cultivar, resulted in sales problems and we had many complaints. Despite warnings from the sales organization we considered, however, that *Osteospermum* had the potential to become a success.

In 1985 we collected the cultivars available in English nurseries and gardens in order to test their production potentials. These plants were of very variable quality and became the basis of our first breeding attempts. These were made in 1986 and we observed a relatively large variation in the offspring. Two years later we realized the potential of these crossings, as the mortality was much less than in the old cultivars. We have since 1990 in cooperation with Linda Noack, Team Grow-how, had an intensive breeding program within *Osteospermum*. At the same time we have improved production methods.

Today we have 10 to 12 cultivars which are all protected by plant breeders rights within EU. They all have the trademark SUNNY, and they are the result of 10 years breeding work. Three years ago we started a new chapter in the production of *Osteospermum* by getting all cultivars tested and freed for specific diseases. We have now approximately 30 cultivars approved in the AAE system (classmark used only for propagation material from an approved elite plant station) located at Dan-Elite in Snoghøj, Denmark. The work is done with skill by Dan-Elite and we feel well prepared for future demands to propagation material.

PROPAGATION SCHEDULE

First, I will briefly describe a production season with build up of stock plants and propagation by cuttings. During August and September we obtain elite cuttings from Dan Elite for our stock plants. Cuttings are treated with Floramon A and rooted in 40-mm peat blocks which we make ourselves. After sticking, cuttings are sprayed with *Verticillium lecanii* for biological control of white flies and are covered with plastic. Temperature during root formation is 19 to 20C and ventilation is given at 22C. During root formation 360 cuttings per m² are planted.

Roots are formed within 10 to 14 days and acclimatization starts. We are very careful during this phase and start with only very small punctures in the plastic. During the next 4 to 6 days punctures are increased gradually whereafter the plastic is removed. After a further 12 to 14 days the plants are pinched to 4 to 6 leaves, and

they are then ready for potting in 13-cm pots. Temperature is still kept at 19 to 20C to keep the plants in a vegetative growth stage. Stock plants are grown at a density of approximately 30 m⁻², and they are trimmed weekly until we start harvesting cuttings. The stock plants have to be trimmed as we do not want very large cuttings and further the leaves should not be too large. After taking cuttings, 3 to 4 leaves should be left on the shoot so 2 to 3 new shoots can develop on the stock plant.

CUTTING QUALITY AND HANDLING OF CUTTINGS

- 1) A cutting has 3 to 4 fully developed leaves and a strong stem with short internodes, so new shoots can develop as near to the soil surface as possible after the plants have been pinched. In this way the end product becomes as compact as possible.
- 2) Cuttings are placed in boxes at approximately 5C until delivered to nurseries.
- 3) Cuttings of *Osteospermum* can, depending on cultivar, be stored at 5C for 14 days without any increase in mortality.

Plantlets for sale and for our own production are rooted in 40-mm, Ellegaard peat pots. Stock plants are treated with Cycocel in order to continuously be able to harvest strong compact cuttings. *Osteospermum* needs relatively large amounts of growth retardants during the growing period. Growth retardation starts immediately after pinching by watering with Cycocel.

FINAL COMMENTS

Much emphasis in our breeding work has been on cultivars giving few problems during production, i.e., cultivars that can be produced on a large scale. Production of cuttings and plantlets in Denmark is restricted to a few nurseries which work on a contract basis. In addition, only a few nurseries are allowed to produce end-products. This gives a stable and high quality production of cuttings and plantlets. All stock plants are renewed each year by cuttings from Dan-Elite and the number of units produced is controlled by Gasa Plant License International (GPL International). The production of AA cuttings (classmark for plants originating from AAE material and grown under strict control) in Denmark is restricted to three nurseries, which, since 1997, have been approved for AA production. Our results show that *Osteospermum* SUNNYTM can be produced on a large scale.