

## WHAT'S NEW IN PROPAGATION AT BOSKOOP, HOLLAND

ARIE VAN VLIET

C. Klyn & Co.

Zuidkade 97

2771 DS Boskoop, Holland

**Boskoop.** The nursery center of Boskoop is about five centuries old. In the old days mostly fruit trees and small fruits were grown. In the last 100 years only ornamental trees and shrubs, coniferous and broadleaf evergreens have been grown.

Today Boskoop is a nursery center of about 900 hectares (2200 acres). In this center we have 1000 nurseries, of which 900 are strictly growers, and 100 are growers and exporters. Of these, 45 percent have a nursery of about half hectare (a little more than one acre). They are full-time nurserymen and are one or two person operations. The average exporter has more employees which he needs in the packing and shipping season. In the summer they work in the exporter's nursery in which specialty items are grown for customers in the countries shipped to. Most exporters only ship to one or two countries and they will visit their customers once or twice a year.

**Export.** About 75 percent of the nursery stock grown in Boskoop is exported to about 75 countries. West Germany gets 30 percent, England 20 percent, France 10 percent, Canada 3 percent, and the U.S.A. 2 percent.

The total export of nursery stock from Holland from July 1, 1980 to June 30, 1981 was about 100 million dollars Canadian. The export to Canada in the same period was 3 million dollars Canadian and to the U.S.A. was 2 million dollars Canadian.

**Climate.** Boskoop has a sea climate, which means an average temperature in July of 17°C and in January -2°C, which is most suitable for growing nursery stock. Moreover, due to the many small canals in our area we seldom have late night frosts in the spring.

**Soil.** Boskoop is a peaty area, but what is above the watertable is a man-made soil, consisting of about 1/3 peat, 1/3 clay and 1/3 sand, with a pH of 4.5 to 5.5, which is suitable for all ericaceous plants, and a lot of other kinds of trees and shrubs. Due to a closed drainage system the watertable is constantly 50 to 60 cm below the surface. Figures show that by the introduction of the closed drainage system production was raised by about 30 percent. Due to shrinking of the topsoil and digging rootballs of nursery plants every three years the top layer must be raised by about 10 to 15 cm. In former times this

material was dredged by hand out of the canals, nowadays it is brought in by barge or truck.

**Transportation.** In the old days transportation was by barge through the canals. Now, many canals have been filled in and most transportation is done by small trucks; transportation by truck is a great time-saving improvement compared to transportation by barge.

**Plant Propagation.** In former times many softwood and evergreen cuttings were stuck in cold frames under double glass. This method of propagation is still used on most nurseries; it is an easy way to propagate in summer as it does not take much investments or room and does not cost energy at all. Today the second layer of glass is often replaced by plastic, in the greenhouses as well as in the coldframes outside. On the outer side of the coldframes we use an extra sheet of plastic to prevent dripping of rainwater on the inner plastic layer. Nowadays plastic is also used as a tunnel in greenhouse and in the open. Concern for timing in taking cuttings and the use of growth hormones is advised by the Research Station. One of the latest developments is the use of Captan powder on the base of hardwood and evergreen cuttings to prevent fungus at the base of the cuttings.

Another development is taking hardwood cuttings in the wintertime (from early January until April) in a greenhouse kept frost-free (+5°C). The cuttings are stuck in plastic pots and the pots are placed on top of the soil, and covered with plastic tunnels. Beside propagation by cuttings many plants are still grafted because many cultivars cannot be rooted from cuttings. Grafting is done through the whole year.

In late winter and early spring a lot of grafting is done on bare-root rootstocks (understocks) which have been kept in cold storage. Many rootstocks are also potted and grafted right after potting, or kept in pots half the growing season, or kept in pots until the next spring. Latest developments in grafting are grafting of miniature tree roses, rhododendrons, *Salix caprea* 'Pendula', *Populus canescens* in cultivars on unrooted hardwood cuttings, *Rosa multiflora*, *Populus alba*, *Salix smithiana*, as unrooted rootstocks without leaves, and Rhododendrons ('Cunningham's White', 'Catawbiense Grandiflorum', 'Roseum Elegans'), with some leaves kept on the unrooted cuttings. It might be of interest, too, that the unrooted cuttings of the *Salix* are 2 meters long (6') and for roses 60 cm (2'); in all cases results are very good.

**Growing in Containers.** During the last 10 years there has been a new development in growing plants in plastic pots, mostly in 7 or 9 cm pots. One of the reasons for doing this is to

extend the planting season, as well as transplanting time. Moreover, in our area, as I pointed out before, the average nursery is about 2½ acres in size and by switching from field-grown to container-grown material, the number of plants per acre can be increased substantially. This is another reason by which a small nursery in the Boskoop area can survive. This new development, which originally came from the U.S.A., is very important for the existence of Boskoop as a plant production area.

**Watering Plants in Containers.** Small units are watered with nozzles. Larger units are watered with overhead sprinklers. Larger pots are watered by trickle irrigation. When using trickle irrigation the water has to be of very good quality, otherwise the small tubes will be clogged. Capillary watering is of no interest in our area, the lower part of the plant is kept too wet (fully soaked).

**Fertilizing Plants in Containers.** Most plants in pots are fertilized with a total soluble fertilizer called Kristalon, based on 17N-6P-18K, in quantities of 20 grams per square meter per week. When we use granular fertilizer we mostly use the eight month Osmocote, three grams in the potting mixture when potting early spring, and another three grams in middle July.

**Assortments.** Although individual growers and exporters will try to obtain new cultivars, the most important work in this field is done by the judging committee of the Royal Boskoop Growers' Association. They will judge collections and new cultivars brought together at the trial grounds of the Research Station to examine their possible use in gardens. Judging of plant collections is the most valuable. The plants will be criticized several times and provided with merit stars as follows:

Excellent ★★★ (three merit stars)

Very Good ★★ (two merit stars)

Good ★ (one merit star)

S = for special purposes (for instance for a botanical garden)

O = can be eliminated.

During the judgment of the collections, attention is paid to their growth, flowering, resistance to diseases, winter hardiness, etc. Moreover, attention is paid to the reduction of the number of species and cultivars; this is important as well. There is no sense in growing very extensive collections. Too many cultivars closely resemble another one.

Cultivars recently under cultivation in nurseries in Boskoop are:

<i>Amelanchier lamarckii</i> 'Ballerina'	<i>Magnolia</i> 'Susan'
<i>Rhododendron</i> ( <i>Azalea</i> ) ( <i>viscosa</i> - hybrid) 'Jolie Madame'	<i>Mahonia aquifolium</i> 'Smaragd'
<i>Buddleia davidii</i> 'Nanho Blue'	<i>Malus</i> 'Red Sentinel'
<i>Caragana arborescens</i> 'Walker'	<i>Pieris japonica</i> 'Debutante'
<i>Cercis canadensis</i> 'Forest Pansy'	<i>P. japonica</i> 'Red Mill'
<i>Cornus nuttallii</i> 'Monarch'	<i>Populus balsamifera</i> (Syn.: <i>P.</i> <i>candicans</i> ) 'Aurora'
<i>C. nuttallii</i> 'Ascona'	<i>Potentilla fruticosa</i> 'Red Ace'
<i>Clematis tangutica</i> 'Aureolin'	<i>P. fruticosa</i> 'Royal Flush'
<i>Cotoneaster</i> ( <i>dammeri</i> hybrid) 'Eichholz'	<i>P. fruticosa</i> 'Goldstar'
<i>Cedrus deodara</i> 'Golden Horizon'	<i>Spiraea japonica</i> 'Shirobana'
<i>Elaeagnus pungens</i> 'Goldrim'	<i>S. nipponica</i> 'June Bride'
<i>Genista pilosa</i> 'Goldilocks'	<i>Ulmus elegantissima</i> 'Jacq. Hillier'
<i>G. tinctoria</i> 'Golden Plate'	<i>Viburnum plicatum</i> 'Cascade'
<i>Hamamelis intermedia</i> 'Diane'	<i>Wisteria floribunda</i> 'Issai Perfect'
<i>Hedera colchica</i> 'Sulphur Heart'	<i>Dicentra</i> 'Luxuriant'
<i>Hydrangea arborescens</i> 'Annabelle'	<i>Hosta</i> 'Royal Standard'
	<i>H. sieboldiana</i> 'Frances Williams'

## GROWING CERTAIN AUSTRALIAN NATIVE SHRUBS AND TREES FROM SOFTWOOD CUTTINGS

EDWARD J. BUNKER

*Redlands Greenhouses*

*Redland Bay, Queensland, Australia*

All of us know that many plants in our gardens are hard to propagate, and yet are very desirable. Amongst this group of plants are many of the Australian native shrubs. Selections of our Australian native plants have been made by enthusiasts and nurserymen and some hybridization has been carried out. Also some hybridization has happened in gardens. Many of these plants in flower are very spectacular but many of them are very hard to propagate in commercial quantities.

This paper is aimed mainly at rooting cuttings in the genera *Grevillea*, *Melaleuca*, *Callistemon* and *Leptospermum*, but I will finish with one or two observations and thoughts on micro cuttings of some foliage plants.

Of course it goes without saying that without the right cutting wood from parent stock, one has very little chance of getting good results. In work carried out in our nursery over the last ten years, we have developed some techniques in managing stock plants and getting very good results in the rooting of plants in these genera. However, we still have some exceptions in very hard-to-root cultivars.

It is essential to use juvenile cuttings and juvenility needs to be induced and maintained in stock plants to have any