

## Developing New Australian Plants

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### INTRODUCTION

The Australian flora is fascinating and diverse. It is estimated that there are some 25,000 plant species in Australia (Elliot and Jones, 1989) with over 12,000 species in Western Australia alone (Hopper, 1997). The development of the Australian flora for cut-flower production and amenity horticulture has primarily focused on those plants that are interesting and relatively easy to propagate from seed or vegetative cuttings.

The Australian export flower industry is small by world standards, but has grown gradually since the early 1980s. In 1981-82 the export of cut flowers and foliages was valued at \$1.5 million, increasing to \$27 million in 1996-97 (Australian Bureau of Statistics, 1997). The three main export lines are Geraldton wax (*Chamelaucium uncinatum*), kangaroo paw (*Anigozanthos*), and banksia (*Banksia*).

Since 1994-95, the growth rate of Australian cutflower exports has been slowing, with overall exports declining from \$30 million in 1995-96 to \$27 million in 1996-97. Reasons for this decline include a general world oversupply of cutflowers with a downward pressure on prices, a continuing recession in Japan—the main Australian export market (Anon, 1998)—and currency fluctuations. In addition, there has been a specific oversupply of some cut flowers from Australia such as traditional cultivars of Geraldton wax and kangaroo paw (Kim James, pers. commun.). This last factor has led to a search by the local industry for new lines, including selections and hybrids of the main export lines with variable flower colour and harvest times, and other plant species not yet commercially cultivated.

New and novel plants are the key to the continuing success of the floriculture industry worldwide. Generally, the appearance of a completely new plant species for commercial production is uncommon (Wilkins and Erwin, 1998), and most “new” plant introductions are hybrids or selections of traditional plants. However, there are exceptions to this rule, with many Australian plants unknown both within Australia and overseas and, therefore, potentially of interest to the market. Plants such as *Brachycome multifida* and *Scaevola saligna* have been successfully introduced into Germany (von Hentig, 1996) and Geraldton wax is a highly successful cut flower in Israel and the U.S.A., with production in Israel over ten times that of Australia (Shillo, 1996).

Generally, the domestication and marketing of Australian flora has been ad hoc and not well coordinated. The recent emergence of plant brokers and nursery cooperatives has seen a more coordinated approach, at least on domestic markets. The establishment of the Centre for Australian Plants in Western Australia (WA) has seen a more collaborative and coordinated approach by partner agencies and industry to new plant development and introduction.

## CUTFLOWER PLANTS

Generally, the development of native cutflowers in WA has been through serendipitous activity. Plants were collected from the conservation estate because they had interesting floricultural features. The systematic survey and collection of target plants, and subsequent breeding of those plants, was first done for *Chamelaucium uncinatum* (Considine et al., 1994) in the early 1990s. This process has since been followed for a number of other WA plant species including *Boronia* (Plummer et al., 1998), selected *Conospermum* spp. (Seaton and Webb, 1997), and *Pimelea physodes* (Seaton, pers. commun.). A process for introducing and commercialising new taxa has been adopted by the Centre for Australian Plants following guidelines developed by other researchers (Armitage, 1998; Wilkins and Erwin, 1998).

Today, there are over 25 species being developed by the Centre for Australian Plants for the domestic and international cut-flower markets. These include *Boronia* spp., *Chamelaucium* spp., *Conospermum* spp., *Verticordia* spp., *Ptilotus* spp., *Pimelea physodes*, and *Corynanthera flava*.

A major cut-flower breeding program (Centre for Australian Plants) was started in 1995 and involves Agriculture Western Australia, the University of Western Australia, and Kings Park and Botanic Garden. Using Geraldton wax as the model, four genera are now included in an intraspecific, interspecific, and intergeneric hybridisation program. The first cultivars from this program, Esperance Pearl (*C. uncinatum* × *C. megalopetalum*) and Jurien Brook (a *C. uncinatum* selection) were released in 1997. At least two cut-flower releases will be made each year for the next 5 years through the Centre for Australian Plants.

## POT PLANT, BEDDING PLANTS, AND AMENITY PLANTS

From 1995 to 1997, over 797 species from 1042 provenances were tested by Agriculture Western Australia for suitability as pot plants or amenity plants. These plants were germinated, grown, and initially assessed without any pinching, variations in fertiliser or watering, or the use of branching or growth retardant hormones. The first selections from this program are being commercially tested in WA in 1998.

## INTERNATIONAL DEVELOPMENT

The national and international development of Australian native plants has generally been opportunistic and not well managed or coordinated (Anon, 1998). Prior to the introduction of the Australian Plant Variety Rights (PVR) legislation in 1987, any significant and ongoing financial reward to plant selectors or breeders was generally not realised. Plant Variety Rights and subsequent changes have provided the opportunity for plant breeders and selectors to receive an ongoing benefit for their activity. Nevertheless, the production of Australian native plants is greater internationally than in Australia.

It has been estimated that the domestic production of Australian native plants is \$85 million, compared to world production of \$400 million (Australian Horticultural Corporation, 1996). Furthermore, the rate of planting of WA native species for cut-flower production is greater in other Australian states and overseas than in WA (Anon, 1998). These factors will mean that, to maximise the return on investment, local plant breeders and selectors will have to consider the worldwide release of any new material. The Centre for Australian Plants has developed a policy to guide the international testing and commercialisation of new cultivars.

## CONCLUSION

The uniqueness and variability in the Australian native flora provides many opportunities for selecting and breeding new material for domestic and export markets. Maintenance and protection of genetic variation in the conservation estate is critical to any selection and breeding program. The increased research outputs that will result from collaborative activities such as the Centre for Australian Plants will see the ongoing development and release of new and exciting cut flowers, pot plants, bedding plants, and amenity plants.

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