Floriculture: a blooming business

Department of Agriculture and Food, Western Australia

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Over the past 10 years, Western Australia's ornamental plant industry has experienced significant growth in value.

The industry has expanded and adopted new technologies, but some enterprises have closed. There have also been major changes reflecting the economic climate and conservation pressures.

The ornamental plant industry in this State is valued at more than $70 million annually. It encompasses three areas: nursery production, exotic cutflower production, and native cutflower production. The native cutflower industry is by far the largest growth sector.

Nursery production in Western Australia extends from Kununurra to Esperance, with nurseries scattered everywhere in between. Most however, are located within the Perth metropolitan area, particularly around Wanneroo and Canning Vale. This reflects consumer population density and land values. Nurseries specialising in the production of farm trees comprise a large proportion of those in rural areas.

The value of the nursery industry in this State has grown nearly fourfold in the past 10 years to $37.7 million in 1989-90, owing to both an expansion in the industry and increased production. Since the Australian Bureau of Statistics only records enterprises with a value in excess of $20,000 annually, it is likely that both the value of the industry and the area of production (425 ha) are underestimated.

Many of the businesses are family concerns. Some are small backyard operators, while others are large and sophisticated, employing the latest technology.

Exports
The value of nursery plants exported from Australia has more than doubled in the past two years to $3.3 million, of which, Western Australia's contribution was $687,000.

Although in dollar terms this is only a small part of the industry, there is considerable potential for expansion. As with cutflowers, Japan and the Netherlands are our major export destinations, and these markets are particularly interested in flowering potted plants. To capitalise on this, Australian scientists have started developing some Australian native species, such as waxflower and kangaroo paws, for this purpose.

Domestic markets
The domestic market, however, remains the predominant focus of the nursery industry. Each year Australians spend on average only $4 per person on nursery plants. In comparison, nursery sales in Europe in 1989-90 were worth about $A80 per person.

Although there are opportunities for improvements in domestic sales, the difference in magnitude of per capita expenditure between Australia and Europe probably reflects some major differences in life style, living conditions and attitudes to buying plants.

Australians have traditionally been used to large, established gardens. During the 1970s and 1980s, the emphasis was on easy-care gardens with plants of Australian origin. The late 1980s and early 1990s have seen a move away from this unkempt style towards cottage gardens with old fashioned plants, herbs and colourful annuals. This trend to small plants is associated with increased urbanisation.

Compiled by the Department of Agriculture's floriculture team

Flower exports from Western Australia and Australia, 1980-81 to 1991-92.
Relatively cheap, plastic-covered greenhouses could control our mild climate enough to enable top quality blooms to be grown year-round. This lead to a rapid expansion in greenhouse production of cutflowers, particularly roses and carnations. In addition to roses and carnations, which

Exotic cutflower production

The Western Australian exotic cutflower industry is also centred around Perth and supplies a wide range of flowers, mostly to the local market. Carnations, roses, chrysanthemums, gerberas, statice and gypsophila are major crops.

Before the 1980s, exotic flowers were all field-grown in this State. Commercial production of roses was limited and demand was mostly met by imports from interstate and overseas.

Department of Agriculture research in the early 1980s demonstrated a big potential for greenhouse production of roses and carnations in the south-west of the State.

It is likely, therefore, that the European trend to what is virtually disposable colour, in the form of flowering potted plants, will follow in Australia.

The nursery industry is a fashion industry and like other industries of this nature, new products in the latest colours are sought after. The release of new plant lines from breeding and selection programs is essential for the continued success of the industry.

The bedding plant sector of the nursery industry is particularly interested in novel plants and is constantly introducing new selections and colour forms of plants such as petunias and marigolds. The Australian bedding plant industry is worth about $55 million, but there are virtually no Australian species developed for this purpose.

One of the Department of Agriculture's projects is to develop several small, annual Western Australian native species for use as bedding plants. This project has the potential to expand the range of bedding plants available on the domestic market, and to develop a new export-earner based on the sale of selected seed and production technology.

Two other potential bedding plants, Calandrinia polyandra (below left) and Velleia roses (right).

This unnamed Lobelia species is a potential bedding plant.

Lisianthus is well established as a greenhouse crop.
represents about 60 per cent of greenhouse cutflowers in this State, major crops include chrysanthemums, gerberas, statice, gypsophila, alstroemeria, lisianthus and liliums.

The greenhouse sector of the industry continued to grow throughout the 1980s. Developments included cultivation of a wide range of crops and the adoption of new technologies in greenhouse management and post-harvest handling.

The use of lighting and shading, plus greater control of temperature and humidity, has allowed growers to produce a range of exotic cutflowers throughout the year, as well as targeting specific markets such as Valentine's Day and Mother's Day. Greater knowledge of nutrient requirements and pest and disease control, plus better post-harvest handling including cold storage and use of chemicals to prolong vase life, have resulted in significant improvements in quality.

In 1992, exotic cutflower crops in Western Australia occupied about 80 ha, of which 36 ha or 45 per cent was under greenhouse. The greenhouse sector contributed $19 million, or 76 per cent of the State's total value of domestic production of $25 million.

Most exotic cutflowers are sold on the domestic market, both local and interstate. The value of exotic cutflower exports is still small, but is growing steadily ($1.6 million f.o.b. in 1991-92). Major markets were Japan, Hong Kong and Taiwan.

Native cutflower production

Western Australia's unique wildflower heritage is the basis of a major new export industry. In recent years the haphazard harvesting of species from natural stands has given way to the more formal production systems associated with other forms of horticulture.

This step into large scale, row-cropping production has seen tremendous expansion in production in crops such as waxflower (Chamelaucium uncinatum). In 1981, a mere
The selection of new cultivars and species, understanding how to grow them, and how to cope with their flowering characteristics, are essential in developing new cutflower crops. By constantly having new and improved flowers being promoted on world markets, Australia's cutflowers will be able to maintain a competitive edge.

Current research is quantifying the flowering characteristics of existing waxflower cultivars, determining the environmental factors that control flowering, and determining the flowering response of cultivars at different locations. The aim is to provide a strategy for spreading the production season to prevent marketing gluts and deficiencies, and thereby securing the best price on export markets.

Conospermum (smokebushes) and the families Cyperaceae and Restionaceae (the sedges and reeds).

The range of wildflowers picked from the bush will probably be reduced. Already several species, including Banksia coccinea, have been banned from bush-picking owing to disease considerations. In addition, access to Crown land is being restricted for conservation and quarantine considerations. Cultivation, therefore, is essential for the long term viability of our native cutflower industry.

Exports from Western Australia have been increasing tremendously. The increase between the past two years alone was more than 50 per cent. In fact, the growth in value of cutflower exports from Western Australia for the past five years has been $10.74 million, accounting for almost 100 per cent of the total growth in cutflower exports from Australia. In 1991-92, the State's native cutflower exports were well over two-thirds (68 per cent) of the Australian total. Japan has consistently been our biggest customer in the past five to ten years (see Table).

About two-thirds of flowers and foliage are sold fresh with the balance being processed in some way, either by air-drying, standing in glycerine, or bleaching and dying. Processed flowers are sold in bulk or made up into value-added bouquets and arrangements. Research by the Department of Agriculture has taken much of the mystique out of the various processing methods and made the information available to growers, which has resulted in a much improved product.

Growth in value of cultivated native cutflowers and foliage is particularly strong and they now represent 65 per cent of total cutflower exports. Much of the growth is from an expansion in cultivation of our native flowers and improved quality of product. Today, only 35 per cent of cutflower exports are picked from natural stands on private property or Crown land.

More than 150 species of flowers and foliages are still picked from the bush. Some of the most significant genera exploited are Stirlingia, Agonis (ti-tree), Podocarpus (emu bush), Verticordia, Banksia, Dryandra,

Value of cutflower and foliage exports from Western Australia in 1991-92 to the top ten countries of destination

<table>
<thead>
<tr>
<th>Country of destination</th>
<th>Value (A f.o.b.)</th>
<th>Market share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>8,490,000</td>
<td>50.33</td>
</tr>
<tr>
<td>USA</td>
<td>2,258,000</td>
<td>13.38</td>
</tr>
<tr>
<td>Germany</td>
<td>1,413,000</td>
<td>8.38</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1,295,000</td>
<td>7.68</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>838,000</td>
<td>4.97</td>
</tr>
<tr>
<td>Canada</td>
<td>474,000</td>
<td>2.81</td>
</tr>
<tr>
<td>Switzerland</td>
<td>470,000</td>
<td>2.79</td>
</tr>
<tr>
<td>Italy</td>
<td>467,000</td>
<td>2.77</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>213,000</td>
<td>1.26</td>
</tr>
<tr>
<td>Taiwan</td>
<td>181,000</td>
<td>1.07</td>
</tr>
<tr>
<td>Other</td>
<td>771,000</td>
<td>4.57</td>
</tr>
</tbody>
</table>
Overseas markets

Overseas markets are particularly discerning with respect to quality. Flowers bought at auctions are constantly being compared with top quality flowers from all over the world, including exotic flowers like chrysanthemums, and Australian native flowers being grown in Israel or Colombia.

Once a flower is picked it can deteriorate quickly, therefore, correct post-harvest handling is necessary to ensure flower quality is retained during processing and packing for export.

The Department of Agriculture is continually conducting research to improve various aspects of the production line from picking to export. A protocol has been developed for our major export crop, waxflower, to ensure flowers maintain top quality for export. However, each flower type has specific requirements, and so this protocol will be adapted for other species as they are brought into production.

To gain entry into markets such as Japan and North America, strict quarantine requirements must be met. Essentially flowers must be free of insects. One live insect in an export box can cause rejection and fumigation of a whole consignment, at a high cost to the exporter. However, flowers and insects are both living organisms, and invariably the procedures used to kill insects can cause unacceptable damage to flowers.

Research has evaluated a wide range of innovative as well as conventional methods for disinfection of Australian native flowers. Procedures for field and post-harvest control have been developed to take into account insect loads on the plants because insect levels can vary with both the cultivar and the season. Disinfection is now an integral part of quality management for export native flowers.

Future research

For the small band of floriculture scientists in Western Australia, the hardest part is deciding which crops to work on next. Research in the past few years has focussed on waxflower and kangaroo paw and these two crops now form the backbone of the plantation industry.

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