

9 Other forest products

9.1 APICULTURE

Various factors combine to make conditions in south-west Western Australia favourable for apiculture. The Mediterranean climate with short, mild winters, together with an abundant native plant resource which is rich in nectar and pollen, provide for nectar flows for most of the year. This enables honey production to occur for up to 11 months of the year. The absence of economically-important bee diseases such as European foul brood disease, chalkbrood and *Varroa*, as well as development of a quality queen bee breeding program, have also led to the success of the industry.

Size of industry

During 1995-96, the total farm-gate value of the beekeeping industry in Western Australia was \$7.03 million (Agriculture Western Australia 1997). The total value of Western Australian apiculture exports during this period is estimated to be more than \$3 million. Approximately 1300 tonnes of honey (half of that produced) valued at \$3.1 million were exported to Germany, Singapore and other Asian and European countries.

In that year, there were 1025 registered beekeepers operating in Western Australia, using approximately 2500 apiary sites. An additional 72 beekeepers operated almost 1000 apiary sites solely on private property (Agriculture Western Australia 1997). The key apiculture zones within the RFA area are shown in Map 10. Although a beekeeper is considered to be operating a commercial operation when managing more than 50 hives, to remain economically viable a single full-time operator needs to maintain approximately 400 hives. Using this definition, during the 1995-96 financial year, there were approximately 226 commercial beekeepers managing 47 860 hives in Western Australia. Of these, there were approximately 39 full-time apiarists managing 24 704 hives.

More than 75% of the commercial honey production comes from registered apiary sites on public land (Manning 1992). Four honey packers handle the bulk of honey produced in Western Australia, including two packers initially set up as co-operatives. Honey is pre-packed for the domestic market into containers ranging from 300 gram jars to three kilogram plastic buckets. Honey supplied for export is provided in small pre-packed containers and in bulk quantities. There are numerous other small honey packing and processing operations in Western Australia.

9.2 FLORICULTURE

The Western Australian floriculture industry is concentrated around the northern sandplains and the southern forests, primarily between Mount Barker and Nannup (Atkins et al. 1993). The local industry is unique because an important component of total production comes from native vegetation. Up to 1500 species of native flora have been used by the floriculture industry in Western Australia (CALM 1993). Harvested components include flowers, blossoms, bark and foliage including stems, leaves, fruits and nuts. The products marketed include both fresh and preserved cut flowers and foliage and oil.

The floriculture industry is presently evolving from an industry based on bush picking to an industry based on cultivated wildflowers. The total production from bush harvesting has remained stagnant over recent years, while production from cultivation is increasing with the area of cultivated wildflowers being established. Map 11 depicts the relative quantities of material harvested during 1996 in forest districts in the RFA area and the relative dependence on Crown land of the total harvest.

Size of the industry

Australian wildflower production accounts for approximately 10% of the world wildflower trade. The floriculture industry in Western Australia is a major component of the wildflower industry in Australia, contributing 57% of the value of cut flower exports during 1992-93 (Karingal Consultants 1994). The farm-gate value of Western Australian wildflower production in 1992-93 was estimated to be more than \$7 million, which included a bush harvested component valued at \$3.7 million. The retail value of total production was estimated to be between \$16.3 and 17.3 million (Karingal Consultants 1994).

During 1992-93, there were approximately 700 registered pickers operating in public native forest and approximately 350 registered pickets undertaking commercial harvesting on private bush (Karingal Consultants 1994). Picking occurs throughout the year according to the flowering period of targeted species, but most pickets operate part-time or only pick during a short period of the year for certain species. Less than 10% of registered pickers harvested wildflowers for more than half of the year during 1993 (CALM 1993).

Prospects

Wildflowers harvested from Crown land add significant value to the industry by providing product diversity. Denying access to public native forest would impact heavily on some sectors of the industry, since it could stop the availability of some species which are not yet cultivated. It has been argued, however, that a reduction in bush picking might stimulate some marketable products into cultivation which would benefit the industry in several ways. A cultivation-based industry would have a higher global profile and may receive higher prices for exports, which are currently reduced by some poor quality bush-picked produce (Karingal Consultants 1994). With the increase in export demand, cultivation is a preferred way of ensuring continuity of supply and quality.

Western Australian has natural competitive advantages which could see the industry strengthen into the next century. The climate enables native flowers to be harvested for longer periods, including during the northern hemisphere out-of-season periods. Western Australia is also closer than eastern states and northern hemisphere competitors to Asian markets and there is a large gene pool of unusual species. Native flower breeding programs undertaken by Agriculture Western Australia have been successful in developing varieties suited to current markets and which have a long vase life (Boylen 1997).

9.3 THE SEEDS INDUSTRY

The native species seed industry in Western Australia mainly services land rehabilitation programs, particularly for mining and local government projects. Seed is usually collected from local provenances for these uses, so native vegetation continues to be an important seed source.

The seed industry is highly competitive with five main traders and a number of small operations based in the south-west. The administration and regulation of seed collection is the same as for the harvesting and picking of floriculture material.

The seed collection industry responds directly to highly variable wholesaler demands, and therefore requires access to a wide geographic range of resources. The industry could be vulnerable to any decisions to increase the area of conservation reserves and restrict access to harvesting areas.

9.4 BIOTECHNOLOGY

A biotechnology industry based on Western Australia's south-west forests and woodlands is an evolving possibility. The south-west forests contain many species of native plants known to have desirable horticultural and chemical attributes, including essential oils and pharmaceutical products (Armstrong and Abbott 1995). Less is known of the microflora and microfauna.

Research into natural products as a source of commercial products has been increasing over the past decade. Western Australian forests are internationally recognised for their biodiversity and high level of endemism and consequently, are a potentially rich source of novel compounds.

A recent commercial arrangement demonstrates the potential for this industry. Species of *Conospermum* endemic to Western Australia have been found to contain a natural compound, conocurvone, which kills the AIDS virus in test tube trials (Armstrong and Hooper 1994). Conocurvone is still under investigation as a potential treatment for AIDS and the Western Australian Government will receive a royalty from the sale of any pharmaceutical developed from the project. The company licensed by the conocurvone patent holder to develop the compound has already paid the State Government \$1.65 million for work undertaken by local scientists and for supply of the isolated compound.

The collection of biota on public land is regulated by licences issued by CALM. Specific land management requirements for biotechnology are not documented at this stage. However, increased forest reservation could have an impact on the biotechnology industry, as collecting flora for commercial purposes is not permitted in national parks and nature reserves.

9.5 BASIC RAW MATERIALS

Basic raw materials are sand, limestone, lime sand, clay, hard rock and gravel. For each of these materials, several sub-categories have been established by the respective industries according to the physical properties and final end use of the product.

Table 9.1 Classification of basic raw materials

Basic raw material	Basis of division	Categories
Sand	end use	filling, concrete, building and silica
Limestone	grade	high grade – cement and lime production low grade – road base and building blocks
Lime sand		modifying soil acidity in agriculture
Clay	plasticity	plastic, semi-plastic and non-plastic (varying end uses by plasticity)
Hard rock	type grade	granite and dolerite for concrete asphalt and road base/surfacing hard rock A + B relative to crushing and screening process with B grade being fines from production of A grade

The major uses of basic raw materials as detailed in Table 9.1 are the housing and construction industries.

Size of the industry

The market value of the basic raw materials industry in Perth and outer metropolitan region was assessed at \$768 million in 1994. There were also 4127 jobs directly associated with the industry (Chamber of Commerce and Industry 1995). This assessment did not include road construction which is another major use for limestone, shale, granite and dolerite.

The value of basic raw materials used in the South-West Forest Region has not been estimated. However, these materials are essential for the development of domestic housing and roads in the region and the industry will have a substantial impact in regard to both revenue and jobs.

Land management and access

The major uses for basic raw materials are in the housing and construction industries. The major costs of these materials are associated with extraction and transport. Consequently, access to resources close to the point of use has a significant impact on the cost of housing and construction. An increase of 25 kilometres in haulage of hardrock would add approximately \$550 to an average residence and associated infrastructure.

Resources close to population centres may be affected by the expansion of urban areas and also by the expansion or the establishment of new conservation reserves.

The National Parks and Nature Conservation Authority's policy on access to basic raw materials recognises the importance of resource protection, but recommends that other areas such as already cleared land be targeted before CALM-managed conservation reserves are considered. This policy can result in a significant restriction in access to raw materials especially for shires which are largely covered by publicly-owned forests.

Multiple and sequential land use planning

In controlling encroachment of other land uses around quarries, as well as when considering quarry development applications and associated rehabilitation proposals, consideration is often given to the final use of the quarry site after extraction activity is completed.

Forward planning of this nature permits quarry rehabilitation to be tailored to the land use needs of the locality and the expectations of the local community.

The range of potential uses for rehabilitation quarries is extensive and can include urban subdivision, sanitary landfill, water storage, lakes, wetlands, farming, wood production, natural vegetation and recreation.

Prospects

Demand for basic raw materials will increase in line with the population growth in Western Australia. However, this same population growth, plus additional legislation to conserve areas of natural vegetation, will place significant pressure on resources.

If resources close to urban developments are not used, then the cost of providing alternative, more remote resources can substantially increase building and accommodation costs.

Planning is required to ensure that the importance of resources security is clearly understood and is addressed in management plans developed by government and shires.