

## **THE NEW ZEALAND ESSENTIAL OIL INDUSTRY : ITS PAST, PRESENT AND FUTURE**

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New Zealand, because of its latitude and climate, should be an ideal area to develop a viable commercial essential oil industry. Since the early 1970s attempts have been made to develop an industry, with the focus on exotic flora.

### **Background**

New Zealand is situated in the southwest Pacific Ocean between the latitudes of 34° south and 48° south and longitudes 166° east and 178° east.

The country consists of two main islands, the North Island with an area of 115,000 square kilometres and the South Island with an area of 153,000 square kilometres. The landscape is beautiful with snow capped mountains and green lowlands.

The South Island has rugged mountain ranges with glaciers and coastal fiords that rival scenic beauty of any other country. To blend in with these major tourist attractions, the South Island has extensive fertile plains that are the residue of major volcanic activity, past and present.

The North Island, although not as mountainous as the South Island, has its share of beauty and attractions with the extensive thermal areas that feature geysers, an activity only shared by Iceland and USA, and volcanoes that are active, dormant or extinct. The North Island also has extensive areas of fertile plains formed by volcanic activity.

A warlike people from nearby Polynesia settled New Zealand in the 1300s. Emigrants from the British Isles began settling New Zealand in the late 1700s and established a European style of government and approach to agricultural development and commerce through the 1800s. Agricultural development was based on cattle for meat and dairy products, sheep for meat and wool and crops to meet the requirements of the growing population and as fodder crops for the livestock population. With the advent of the chilled meat export trade during the 1800s, New Zealand became a major exporter of meat to Europe.

Because of the emphasis on livestock production and related agricultural industries, New Zealand farmers became experts in areas related to intensive agriculture that had as its basis the support of the meat and dairy industries. Up until the 1970s little attention was paid to the development of any new agricultural industries. With the change in attitude by the UK with regard to trade with Commonwealth countries and the start of the European Community, the New Zealand government authorities began investigations into the viability of agricultural pursuits that were unrelated to the then New Zealand traditional agriculture.

### **Essential Oils Production**

#### **The 1970s**

Because of worldwide shortages and the natural elevation in price in the 1970s, essential oils assumed some prominence for consideration as possible alternate crops for New Zealand. The Department of Scientific and Industrial Research (DSIR) and the Department of Agriculture

established divisions to investigate essential oil production from an agricultural and climatic stand point.

Because of the similarity of the South Island climate to the Mediterranean region and the US Northwest, investment in commercial operations for the production of the oils of peppermint, dill and fennel commenced during this period. The industry had its base on the Canterbury Plains near Christchurch on the East Coast and the approximate annual production levels for the 1970s are shown in the table below.

**Table 1 : Commercial production on South Island during the 1970s**

	tonnes/annum
Peppermint oil ( <i>M. piperita</i> )	10
Fennel oil	20
Dill seed oil	5

During the same period, some small quantities of coriander seed oil and cilantro oil were produced.

In the late 1970s the major investor in essential oil production in the South Island withdrew its support, claiming that the change was the result of a corporate restructuring of the company. Production by private individuals continued but at a reduced scale that dropped output of these oils by half.

The DSIR endeavoured to lift the interest in essential oils and related products by the establishment of the Redbank Research Station at Alexandra in the centre of the South Island. Research was carried out involving a range of products that included :

- Clary sage oil
- Lavender oil
- Lavandin oil
- Melaleuca oil
- Thyme Oil
- Jasmin absolute
- Rose absolute

The research stimulated interest in the commercial production of essential oils, but few viable projects followed.

### **The 1980s**

During the early 1980s, a corporation - Bay Boronia - was established in the Nelson Bay area of the South Island to produce *Boronia megastigma* flowers for extraction to Boronia Concrete and Boronia Absolute. When commercial production was achieved in the late 1980s, the group was faced with the problem of establishing a market for its product. The group lacked expertise the market and had not addressed this important subject prior to commencement of production. It ceased production recently.

Another South Island company, Westchem, developed and commercialised the extraction of manool from the dead wood of the tree *Halocarpus biforme*. Manool is used as an intermediate in the manufacture of synthetic musks. Westchem also established a project to produce high quality clary sage oil and sclareol.

The New Zealand Government, in the late 1980s, encouraged the development of an industry based on the production of an essential oil from the leaves of the indigenous tree *Leptospermum scoparium*, commonly known as manuka. Initial production of manuka oil was subsidised by the Government and I understand that production has reached in excess of 1,000kg per annum. The oil is being sold into the supplementary medicine market, mainly in Germany. Research into the efficacy of manuka oil as an antibacterial substance has been carried out.

### Today

During the 1990s, essential production has been gradually decreasing and some former products had disappeared.

**Table 2 : Commercial production in the mid-1990s**

	kg/annum
Coriander oil	300
Cilantro oil	400
Dill herb oil	2,500
Boronia concrete	7

As mentioned earlier, Boronia production has now ceased and the only other commercial producer of essential oils for the flavour and fragrance industries has closed his operation.

Westchem continue to produce manool but has recently encountered problems with ecologists, who complain about disturbing the forest by removing the dead trees that have been lying around for 200 years. However, Westchem intend to revisit their clary sage project in the near future.

The only production of essential oils occurring in New Zealand at present arises from the Manuka Oil Project and from small cottage-farm producers who are distilling lavandin, melaleuca and other oils for the alternate therapy market.

### The Future

The original interest in the commercial production of essential oils in New Zealand was sparked by the problem farmers were having with changes in the market place for their traditional products, meat, wool and dairy. Experience has taught the agricultural industry that the production of essential oils is a very specialised operation for supply to a specialised market. Essential oil production is now recognised as comparatively complicated by involving the two stages of growing the crop and then distillation of the biomass. Additionally, most farmers find it difficult to accept that the fact that just producing an oil is not enough; the essential oil must be of a marketable quality and it requires marketing.

Some now consider that the way to proceed is production of essential oils from annual crops. This is seen as less risky than establishing plantations of perennials at high capital costs and then being in the hands of the market fluctuations and quality variations. If an annualcrop fails on quality, only one year is lost.

I believe that the future of the industry in New Zealand will be restricted to a small cottage industry involving the type of oils that are in the aromatherapy market, a gradual increase in the production of manuka oil and the possible Westchem clary sage project. I have been told that the

research establishments are no longer focusing on any new essential oil work. Overall, the position is a great disappointment.

*The author, John Reece, has been involved in the essential oil industry for over 35 years. His expertise has been in market development and project management. During this period, he has had a close relationship with the development of the New Zealand essential oil industry. With two partners, he has recently purchased the largest tea tree oil production unit in Australia, Main Camp Plantation, and is the company's director in charge of operations, sales and marketing.*