

SUNFLOWER IN AUSTRALIA

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Abstract

This paper is a general review of the Australian Sunflower industry. It points out that in many respects, problems associated with production of the crop are peculiar to Australia. The crop is produced in different latitudes from the largest production areas of the world and thereby avoids some of the disease and insect pests which beset it in other parts of the world, but encounters other problems. There has been a resurgence of interest in sunflower, largely through the rapid acceptance of hybrids in Australia.

Usage of sunflower oil is shown to be increasing, especially with the greater use of high quality margarines of the 2:1 type, i.e., polyunsaturated : saturated oils.

The paper mentions the organizations involved in research and that a nationwide scheme exists to encourage further research into oilseed crops.

Production

The Australian oilseed sunflower industry is still in its infancy, but it is our leading oilseed crop, followed by soybeans, rapeseed, linseed and safflower.

The area planted to the crop reached a peak of close to 300,000 ha. in 1971, mainly due to the introduction of quotas on wheat production and the desire at that time of growers to find an alternative crop.

In the years since that peak, production has declined each year until 1976 to a low of 133,000 ha. The area in the past season increased, however, to 211,000 ha., and had a drought not occurred, the area could have again reached a figure of 300,000 ha. The main stimuli to this increased interest have been access to improved technology and improved cultivars and better prices.

The peak production, to date, has been 147,500 tons, and in the year of low production, only 65,000 tons were produced.

Production areas occur from the extremes of 22 degrees south latitude to 37 degrees south. In North America, for example, this is equivalent to an area

TABLE 1

Period	Area Planted (hectares)	Production (tonnes)
1970/71	75,569	58,947
1971/72	295,011	147,525
1972/73	241,840	102,069
1973/74	150,578	84,324
1974/75	209,632	113,375
1975/76	136,880	80,442
1976/77	133,400	64,966
1977/78	209,000	128,000

TABLE 2

Period	Exports (Tons)
1971/72	45,105
1972/73	33,419
1973/74	8,379
1974/75	15,142
1975/76	40,442
1976/77	155

* These statistics are difficult to relate to those in Table 1, because of the overlap in production years and times of export.

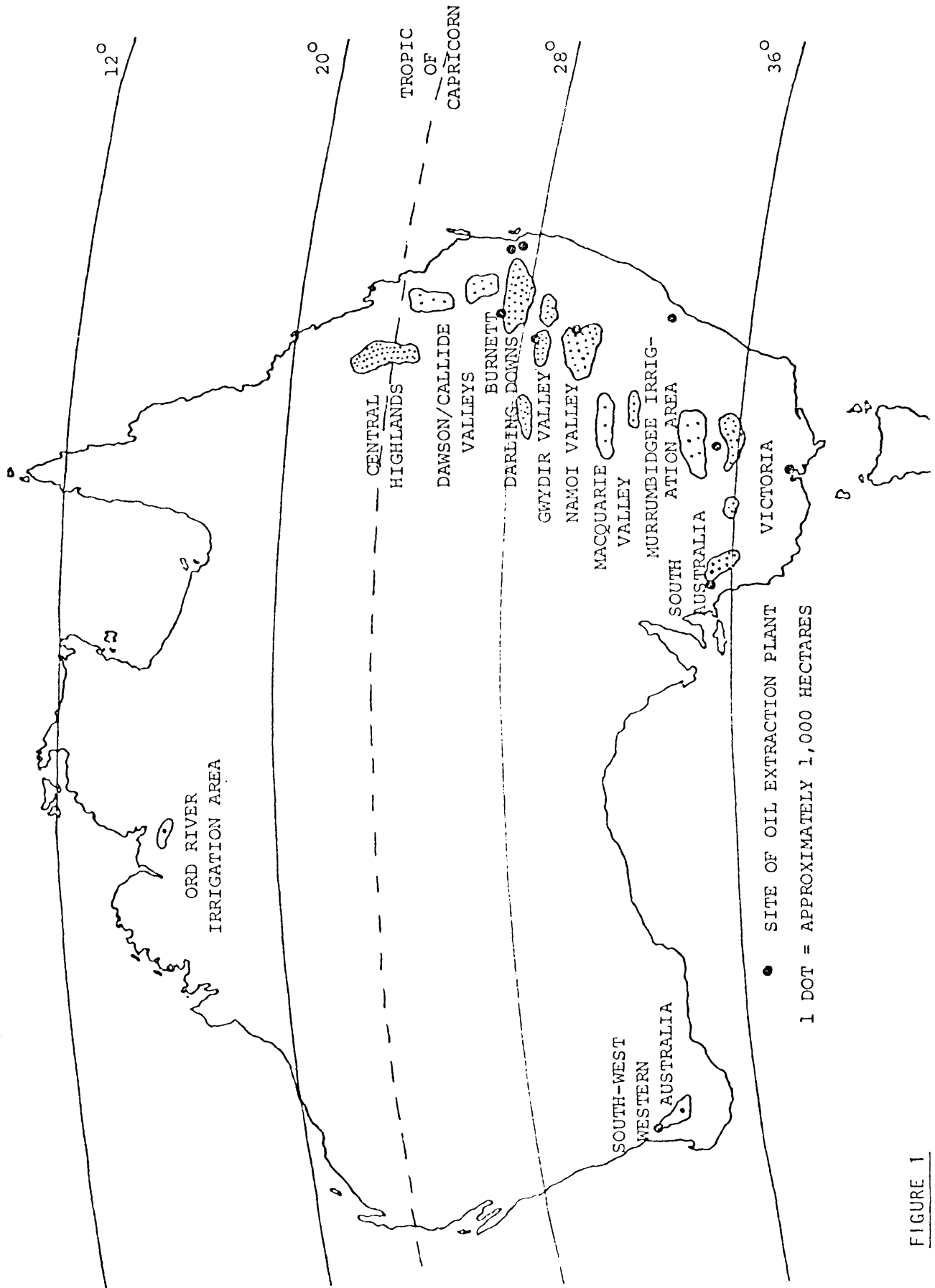


FIGURE 1

from Central Mexico to the extreme north of Texas, where only a small percentage of United States sunflower is produced.

The latitudes of Argentina and Brazil are more akin to the major production areas of Australia.

Room for expansion of the crop exists in both dryland and irrigated situations and this is likely to occur now that new technology has been more largely accepted by farmers. Sunflower has to compete with a number of other crops which vary according to regions. In some it is sorghum, in others maize or soybeans, and in others it has to compete with Australia's largest grain crop, wheat.

There has been a rapid change in the cultivars grown now that hybrid sunflowers are marketed in Australia. Where in 1975, almost all sunflower grown was from selections of PEREDOVNIK, in our last production season, almost two-thirds of growers used hybrid material. Had planting seed not been in short supply, this proportion would have been even higher. It is likely that the trend to planting hybrids will continue.

At present, the best crop produced has been 3.753 tons per hectare, under irrigation, with an oil content of 49.1 percent. The Australian average is far lower than this figure as only a minority of sunflower is irrigated, probably close to five percent and it has only been in the last two years that irrigation of sunflowers was commenced.

Exports of sunflower from Australia has been erratic, but have been as high as 45,000 tons.

Because of the isolation of some of the major production areas from crushing facilities and high internal freight costs, it is sometimes more profitable to sunflower producers to export. Exports to date have been as seed, and because of a relatively small domestic meal market, this is likely to be a continuing trend.

Usage

Extraction plants, both expeller type and solvent type, exist in a number of locations but none of these has been specifically designed to handle sunflower. All would handle at least two other oilseed crops, and some four (see Figure 1).

Usage of sunflower oil in Australia has increased, mainly through the increased use of the product in a range of polyunsaturated margarine products.

In the period from 1968/69 to 1976/77, the usage of table margarines increased from 15,600 tons to 69,100 tons.

This has been partly at the expense of the butter industry. In 1968/69, there was 9.5 kg. of butter and 5.0 kg. of margarine used per head per year. In 1976/77, there was 5.8 kg. of butter and 8.7 kg. of margarine used per head per year. This represents a spectacular turn-around in consumption.

TABLE 3

Period	Table Margarine Production Figures (Tons)
1968/69	15,600
1969/70	16,600
1970/71	16,200
1971/72	16,800
1972/73	23,000
1973/74	24,200
1974/75	31,500
1975/76	41,500
1976/77	69,100

TABLE 4. Consumption of Table Spreads Per Capita (kg.)

Period	Butter	Margarine
1968/69	9.5	5.0
1969/70	9.3	5.1
1970/71	9.2	5.2
1971/72	8.6	5.5
1972/73	8.3	5.9
1973/74	7.8	6.1
1974/75	7.3	6.6
1975/76	6.8	7.3
1976/77	5.8	8.7

Disease and Insect Pests

Australia has no records yet of downy mildew, but does have problems from rust (Puccinia helianthi), Alternaria helianthi, head rot (Rhizopus oryzae) and Sclerotinia sclerotiorum. Quarantine restrictions have, to date, kept downy mildew out of Australia, and research/breeding is allowing the development of cultivars resistant to or tolerant to rust. However, no such resistance/tolerance is available with Alternaria, Rhizopus or Sclerotinia, and only crop husbandry practices can keep these to low levels.

Research information on these diseases would be of great assistance to our industry.

Insect problems are encountered occasionally. Establishment pests include False Wireworm (Gonocephalum macleayi, Pterohelaeus darlingensis and P. alternatus) and True Wireworm (Family Elateridae). Seed treatment and spraying of insecticides at planting time has been only partly successful in controlling these pests.

The major pests later in the development of the crop are Rutherglen Bug (Nysius vinitor) and Heliothis spp. Spraying with a range of pesticides after flowering has been partly successful in controlling plagues of Rutherglen Bug. Heliothis spp. are of major concern because they can pre-dispose plant tissue in the head to infection from head rot organisms (Rhizopus).

Research

A great deal of research is already being done in Australia, mainly by each of the five mainland State Government Departments of Agriculture and by the Federal group, Commonwealth Scientific and Industrial Research Organization (C.S.I.R.O.). The private seed companies, various chemical companies marketing insecticides and weedicides, and machinery companies, particularly those marketing planting equipment, are also making a contribution to service the industry which has some problems peculiar to Australia. Several of the Universities have research programs on sunflower and this is often of a basic nature. Research by these organizations covers all disciplines of production technology.

All Australian production of all oilseed crops is now levied one dollar per ton and this is matched by a Government grant. This is used for oilseeds research, and obviously a fair proportion of funds accumulated will go toward new research on sunflower. This fund is for new research, i.e., the existing funding which has been operating for several years will continue. This fund is controlled by an Australian Oilseeds Research Council with representatives from growers as well as research organizations.