

HISTORY

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SUMMARY

- Rapeseed production began in the late 1960s and was severely affected by blackleg in the early 1970s.
- Breeding programs began in the early 1970s and slowly produced canola quality varieties that had better blackleg resistance and yield.
- Canola production began to increase in the early 1990s assisted by Canola Check, better varieties and improved agronomy.
- By the late 1990s, canola has become a major crop in rotations for Australian farmers, with the future availability of additional herbicide resistances likely to see further increases in area sown.

INTRODUCTION

Rapeseed was cultivated by ancient civilisations in Asia and the Mediterranean and its oil used for lighting. It was recorded in India as early as 2,000 BC and was grown in Europe in the 13th century. It was first grown in Canada in 1942 for use as a lubricant by the ships of the allied navies. Rapeseed use for edible purposes was not fully exploited by western nations until the end of World War 2. For example, edible oil was first extracted in Canada in 1956.

Rapeseed was first trialed in Australia in the early 1960s and was first grown commercially in 1969, following the introduction of wheat delivery quotas. The first commercial seed, of the variety Target, was imported from Canada in 1967 by Meggitt Ltd.

THE EARLY VARIETIES

The early varieties were all of Canadian origin. By today's standards their quality was poor. Their oils were high in erucic acid (20-40% compared to less than 0.5% now) and their meals were very high in glucosinolates (70-120 compared to less than 20 micromoles now). In 1973 the Canadian industry decided that erucic acid should not constitute more than 5 per cent of the total fatty acids in cooking oils and other oil based products. By this time the Canadians had developed varieties which were much lower in erucic acid than Target and Arlo, but they were also lower in yield so they never really became popular in Australia. For the same reason the first double low (low erucic and low glucosinolates) varieties were not widely grown in Australia.

Both *Brassica napus* (Target) and *B. rapa* (Arlo) species were grown in the early years; *B. napus* in the medium to high rainfall areas and *B. rapa* in the drier, shorter season areas. However, New South Wales was the only state where *B. rapa* varieties continued to be grown. By the late 1970's Span (*B. rapa*) was the dominant variety in New South Wales, while Midas (*B. napus*) dominated in the other southern states.

Both Span and Midas started out as low erucic acid varieties but after a few years Span's erucic acid level had crept up to a point where its oil had become difficult to market. Both varieties were also quite susceptible to blackleg and farmers were suffering increased disease losses. The growth of the industry was being limited by a lack of suitable varieties.

AUSTRALIAN VARIETIES

Soon after the industry began in the late 1960s the need to develop improved Australian varieties became obvious. Victoria set up the first breeding program in 1970, followed by Western Australia and New South Wales in 1973. Their initial objectives were to develop varieties which were blackleg resistant and were low in erucic acid and glucosinolates, while maintaining or increasing yields.

Blackleg had become a major problem very early in the 1970s and the disease soon became widespread. In Western Australia, where the disease was most severe, yield losses of up to 80 per cent resulted in plantings crashing from 49,000 ha in 1972 to 3,200 ha in 1974. Even though resistant varieties were developed, the Western Australian industry only started to produce significant quantities of canola again from the early to mid 1990s.

The first Australian varieties were the low erucic acid, blackleg resistant varieties from Western Australia, Wesreo (1978) and Wesway (1979). The name canola was introduced in Canada in 1979 and is used in Australia to denote varieties which have an erucic acid level below 2 per cent and have less than 40 micromoles of total glucosinolates. The first canola quality *B. napus* varieties to be released were Wesroona (released in Western Australia in 1980) and Marnoo from Victoria in 1980. Marnoo was higher yielding and had much lower glucosinolate levels than earlier varieties and so it became a popular variety, particularly in Victoria. Its limited blackleg resistance was a handicap in New South Wales. As New South Wales growers had been mainly growing Span at the time they quickly adopted Jumbuck (also *B. rapa* variety, released in 1982) because of its better yield, quality and disease resistance.

It wasn't until 1987, with the release of Maluka and Shiralee from New South Wales, that really high quality canola varieties became available. These were the first varieties to combine canola quality with blackleg resistance and high yields. They also resulted in a complete swing back to *B. napus* varieties. The other significant development on the variety front about this time was the release of the first hybrid canola, Hyola 30, by Pacific Seeds in 1988, followed in 1991 by Hyola 42.

Triazine tolerant canola was first commercialised with the release of the variety Siren in 1993. Siren was late maturing with low yield and oil content but had a place where Crucifer weeds reduced the chances of success with canola. New triazine tolerant varieties rapidly followed Siren, both early maturity (Karoo and Drum) and mid season maturity (Clancy and Pinnacle). This resulted in the rapid spread of triazine tolerant canola across Australia, especially in Western Australia where triazine tolerant canola now comprises about 90% of the total crop. Triazine tolerant canola continues to have a yield disadvantage of 10-15% and about 3-5% lower oil content

than conventional varieties but is accepted by farmers because it allows canola to be grown where it could not be considered before.

Since the early 1990s, canola production has extended into lower rainfall areas in all states, with production occurring where rainfall is even as low as 325 mm per year. This expansion has caused plant breeders to select earlier maturing varieties, with the release of Monty in 1998 and Mystic in 1999. Early maturing varieties currently have lower oil contents than mid season types and often have slightly lower resistance to blackleg but further work is being conducted to improve these types.

IMPROVED CROP AGRONOMY

Several important developments in canola crop agronomy that occurred mainly through the 1990s, can be identified as having a major impact on yield and profitability of the crop for farmers and hence were important factors in the rapid expansion of the crop in Australia.

The crop monitoring program Canola Check was introduced in New South Wales in the late 1980s and was taken up in other states in the early 1990s. It played a major role in giving new growers the confidence to take on a crop that had the reputation of being hard to grow. It also brought their crop agronomy and marketing skills up to speed quickly and had them achieving high yields and practicing price risk management at an early stage.

The growth of the canola industry provided a major impetus to the use of lime to ameliorate acid soils. This is particularly so along the central and southern slopes of New South Wales where aluminium and manganese toxicity were becoming more common. Canola proved to be a crop which was adversely affected by soil acidity but was profitable enough to provide good returns, even after the cost of applying lime. Most longer term canola growers on these soils have now limed their whole farm and are enjoying increased productivity from all their crops and pastures.

Regular application of sulphur fertilisers became a normal part of managing the crop in the early 1990s when growers raised nitrogen inputs to target higher yields and widespread sulphur deficiencies began to show up.

The use of bare earth miticides just after sowing proved to be the answer to crop establishment failures caused by earth mites through the 1970s and 1980s.

PRODUCTION AND MARKETING

The availability of much better varieties and crop agronomy packages and good prices through the 1990s made the crop really attractive to growers and led to rapid expansion. The area sown to canola in Australia rose from 150,000 ha in 1991 to 1.2 million ha in 1998, with an estimated area in 1999 of about 1.6 million ha. Production rose from 99,000 tonnes in 1990-91 to an estimated 1.85 million tonnes in 1998.

Apart from small exports from New South Wales in 1983 and 1984 the industry did not begin its export focus until 1992 when exports from each of the four producing

states began. In 1998-99 almost 1.3 million tonnes were exported to China, European Union, Japan, Mexico and the Indian subcontinent.

Australia has a national oilseed crushing capacity of about 1.2 million tonnes per annum predominantly on the eastern coast. Crush capacity expanded considerably during the 1990s, reflecting strong growth in production and domestic demand.

As the canola industry has expanded there has been strong growth in the number of companies competing to market the Australian crop. These range from state based statutory authorities, some with compulsory acquisition powers, to local companies and multinational trading corporations.

FUTURE DIRECTIONS

The area of canola grown in Australia is expected to continue to increase, with the release of additional herbicide resistances in *B. napus* and later in *B. juncea*. In addition the imminent release of canola quality *B. juncea* will see canola spread further into lower rainfall areas. As well as canola quality *Brassicas*, the future development of different specialty oil *B. napus* types could result in a further increase in area sown. The rapid increase in canola area has seen more private breeding companies enter the Australian market in recent years, and the number of private breeders is likely to increase further in future.