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Potential Crushing Margin for Linola: An Exploratory Analysis

by

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Contributed paper to the 38th Annual Conference of the Australian Agricultural Economics Society, February 7-11, 1994, Victoria University, Wellington, New Zealand.

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As a result of the rather parlous state of the world cereal and wool markets, oilseeds, which form a relatively small part of the Australian rural economy, are being examined by growers as a viable alternative to traditional crops. Consequently, Linola™ , a new CSIRO-developed oilseed, is being scrutinised as one such alternative. Despite claimed attributes, the future economic potential of Linola regarding its effects on returns to both farmers and crushers remains largely a matter for conjecture. Global competitiveness of Australian crushers will depend on the magnitude of their crushing margins. Whilst Australian farmers may be able to produce oilseeds competitively at export parity prices, the same may not be said for Australian crushers with the prevalent high concentration and lack of specialisation in the crushing industry. The multi-crush approach adopted by Australian crushers implies a similar crushing margin for Linola as for most other oilseeds.

Introduction

The incorporation of oilseeds into traditional rotation systems in Australia is a recent phenomenon triggered by factors affecting the traditional cereal crops as well as oilseed yield and price developments. To date, oilseeds have played only a minor role in Australian primary production despite an increased domestic demand for oilseeds and oilseed products. Generally, producers have been sluggish in their response to the increasing demand for oilseeds due mainly to the prevailing atmosphere of uncertainty both about proper techniques of oilseed production and the stability of seed, oil and meal prices.

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Being a price taker in the world market for oilseeds, Australian oilseed prices are dictated by the nature of world oilseed price movements. To a large extent, therefore, domestic prices will be within export and import parity prices. The prices of soybeans and soybean products, which are currently the most widely traded oilseed, have tended to be the basis for the pricing of other oilseeds and their products.

The influence of the world market price on the prices received by Australian oilseed producers is dependent on the extent of government intervention and the structure of the local market for oilseeds and their products. At present, the Australian government has minimal involvement in the oilseed economy and the free flow of the commodity implies, as indicated by Kraft and Piggott (1990), that growers will at least receive the import parity price for locally grown oilseeds.

The crushing margin is normally defined as the difference between the value of the oil and meal obtained from a tonne of oilseed and the price of a tonne of the unprocessed oilseed. The magnitude of the crushing margin so defined is largely a reflection of the physical characteristics of the oilseed and its oils and meals, the market structure and crushing efficiency. Such margins will be determined, to a large extent, by the price and meal yield of oilseeds, meal quality (protein and energy value) and crushing/oil extraction costs. Seed meal prices are influenced by plant capacity and the costs associated marketing, storage and inputs.

This paper examines some of the factors influencing the crushing margins that may be obtainable from a new oilseed, Linola. The future potential of Linola and other oilseeds as major players in Australian rural production are considered in this context. Some policy issues are also discussed in the light of recent developments in the Australian oilseed industry.

Oilseeds in the Australian Economy

Oilseeds, classified as part of the coarse grains group, are processed and used in a variety of ways that differentiate the market domestically and abroad. This group of crops have for some time, been identified as one means of diversification the Australian rural economy. Such diversification has become necessary to reduce the current fluctuations in national economic fortunes with world market fluctuations in the cereal and wool industries.

Oilseeds form a relatively small part of the Australian grain economy and as shown in Table 1, Australian production of oilseeds comprises a small proportion of the world trade in oilseeds. However, the apparently growing dependence of the oilseed growers on the export markets has implications for producer terms of trade based on world market developments.

There are seven main oilseeds that are of economic importance in the Australian oilseeds industry, which has an annual value of about $200 million. They are cottonseed, safflower, Canola (rapeseed), sunflower, peanuts (groundnuts), soybeans and linseed. Peanuts, safflower and linseed are the only oilseeds that have been historically cultivated in Australia to any appreciable extent. Sunflower, Canola and soybeans, which have a more recent cultivation history, have nevertheless jointly overtaken peanuts, safflower and linseed in terms of aggregate production. These increases in production have been due to varietal improvements stemming from increased demand for these oilseeds and consequent increased research outlay.

The distribution of oilseed production in Australia is provided in Table 2 with NSW and Queensland being the main oilseed producing states. Between 1981 and 1991, these states alone contributed, on average, just under 95 per cent of Australia's oilseed crop production.

The market for oilseeds and their products -oils, fats and high-protein meals - operates within a rather complex structure given the diversity of products represented as well as the high level of substitutability between the commodities. Figure 1 is a schematic representation of the structure of the Australian oilseed economy. The demand for oilseeds by other than crushers is independent of the demand for oils and fats and meals. But there is a strong interdependence between the supply of seed meals and that of vegetable oils since seed meals are a by-product of the oil-extracting process.

The usage of a variety of oils from different oilseed types is based on price, taste, quality and more recently, nutrition. Whilst the demand is currently highest for polyunsaturates, the growth area of the industry appears to be in the mono-unsaturates led by the Canola-based products (AOF 1993). For most products the oils have a high level of substitutability.

Table 1: Australian vs world oilseed production (million tonnes)

Oilseed Type		Year 1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Soybeans	Austr.	0.11	0.09	0.08	0.14	0.09	0.07
	World	97.47	98.11	104.39	95.75	106.90	103.37
Canola	Austr.	0.09	0.08	0.07	0.06	0.07	0.11
	World	18.83	19.82	23.61	22.84	22.12	25.32
Peanuts	Austr.	0.03	0.03	0.03	0.02	0.02	0.02
	World	14.40	14.81	15.15	17.30	15.85	16.01
Sunflower	Austr.	0.22	0.14	0.22	0.17	0.09	0.17
	World	19.56	18.77	21.13	20.64	21.64	22.03
Linseed	Austr.	0.01	0.007	0.005	0.004	0.002	0.005
	World	2 96	3.24	2.79	2.15	2.29	2.79
Cottonseed	Austr.	0.32	0.33	0.45	0.45	0.46	0.57
	World	31.09	27.36	31.83	32.57	31.09	33.59

Source(s): ABARE (1991)
Mielke (1991)

Table 2: Distribution of oilseed production in Australia, 1981/82 to 1990/91 ('000 tonnes)

Year	NSW	WA	Queensland	SA	Victoria	Total
1981-82	241.9	3.3	227.4	14.5	20.8	507.8
1982-83	170.7	2.8	177.3	5.1	3.4	359.3
1983-84	234.3	2.5	281.4	9.4	20.8	548.4
1984-85	494.4	2.8	384.2	13.7	30.1	925.2
1985-86	751.4	4.2	345.5	22.1	51.2	1174.4
1986-87	501.8	13.1	273.3	12.4	40.3	840.9
1987-88	678.0	4.0	439.0	12.0	48.0	1181.0
1988-89	752.0	3.0	419.0	11.0	46.0	1231.0
1989-90	520.5	3.7	221.0	8.1	40.3	793.6
1990-91	719.9	2.3	335.6	11.7	29.8	1099.3
Mean	506.5	4.17	310.40	12.00	33.07	866.1
Std Dev	224.2	3.20	88.5	4.50	15.00	312.2
CV (%)	44.26	76.74	28.51	37.50	45.36	36 05

Source: Derived from ABARE (1992)

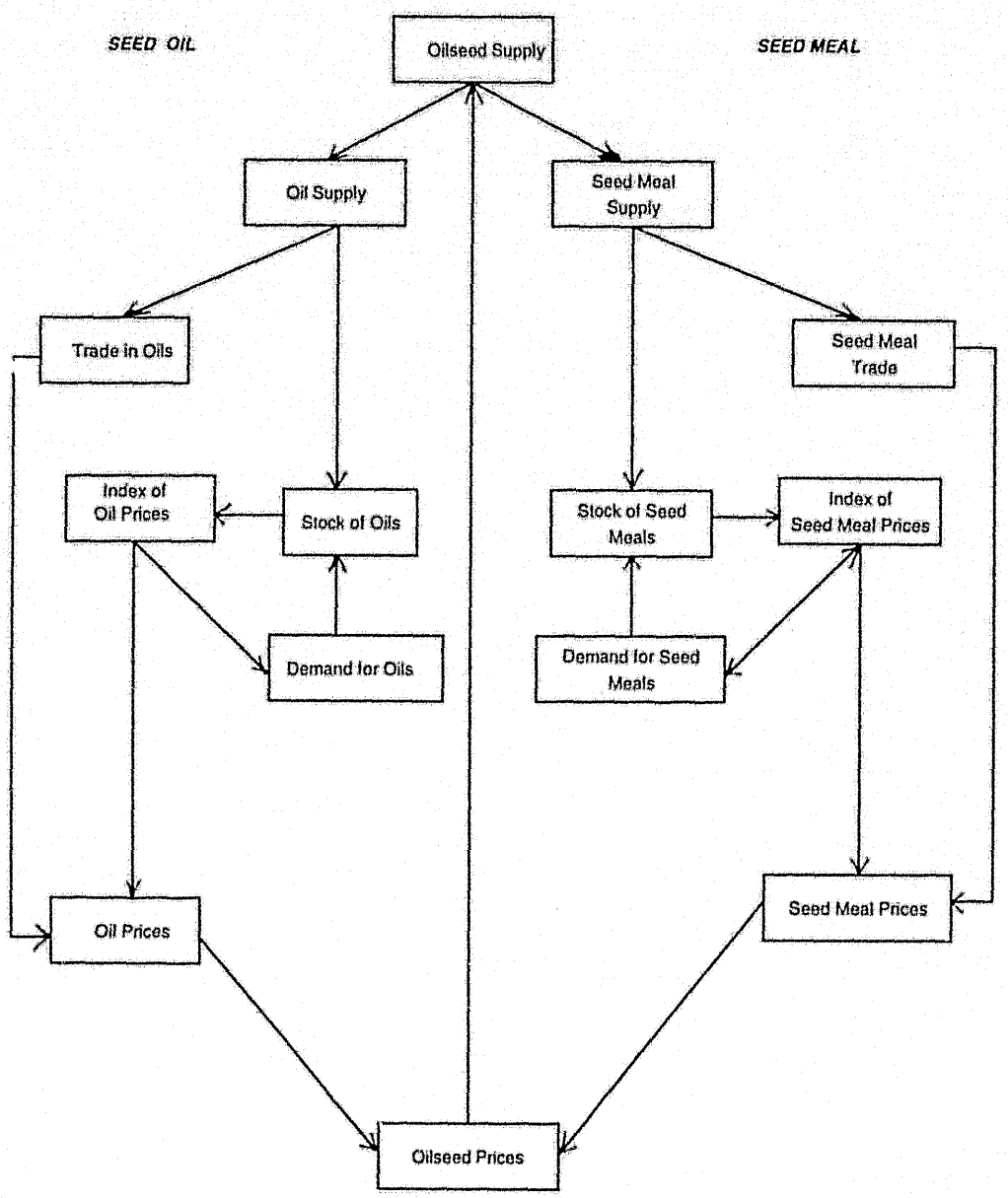

Figure 1: Existing interactions in the Australian oilseed economy

Source: Adapted from Augusto and Pollak (1979)

Linola: A New Oilseed Option?

Linola™ (a CSIRO-registered trademark) is a new oilseed crop developed in Australia by CSIRO by the conversion of linseed (*Linum usitatissimum*) from a source of industrial quality drying oil to one of multi-useable, high quality edible oil. Linola is similar in oil content to safflower and sunflower and therefore has the potential to become an important source of polyunsaturated oils for human consumption both in Australia and abroad (Batterham et al. 1991).

Linola seed contains up to 2 per cent more oil than linseed and consistently gives higher oil yield per hectare (Green 1993, Pers. comm.). The reduction in the content of linolenic acid in Linola oil was accompanied by an increase in linoleic acid content to between 60-70%. Hence the oil which has good oxidative stability, light-coloured and bland, is very similar in composition to sunflower oil (see Figure 2). Green (1992) indicates that Linola is apt to be a more reliable source than sunflower of high-percentage (>64 per cent) linoleic acid vegetable oil required in the manufacture of most soft spreads. Linola oil, like sunflower oil, finds wide application in the food industry and various types of cuisine due to its reported desirable organoleptic properties imparted by the increased content of linoleic acid.

Ralph (1986) reports that Linola can be grown over a wide range of agronomic areas in Australia and is particularly suited to the high rainfall areas of the wheat belt. The commercially available cultivars of Linola at present are *Eyre* and *Wallaga*, both with yellow seeds, and respectively developed from Glenelg and Croxton parents (Green 1992).

Field trials conducted by CSIRO in NSW, Victoria, Tasmania, the ACT, South Australia and Western Australia between 1989 and 1991 have indicated that, under certain conditions, Linola lines may be higher yielding than traditional Glenelg and Croxton cultivars of linseed (Green 1992) from which they were developed. They also yielded more oil - around 42-45 per cent (*cf.* 35-40 per cent for linseed) or 725-760 kg/ha of oil (*cf.* 675-730 kg/ha of oil for linseed).

According to Ralph (1986), extensive testing by CSIRO has established that Linola oil is equivalent, sometimes even superior, to sunflower oil in composition and processing quality. Another apparent advantage of Linola is that the crop is usually harvested in summer when Australian crushers usually

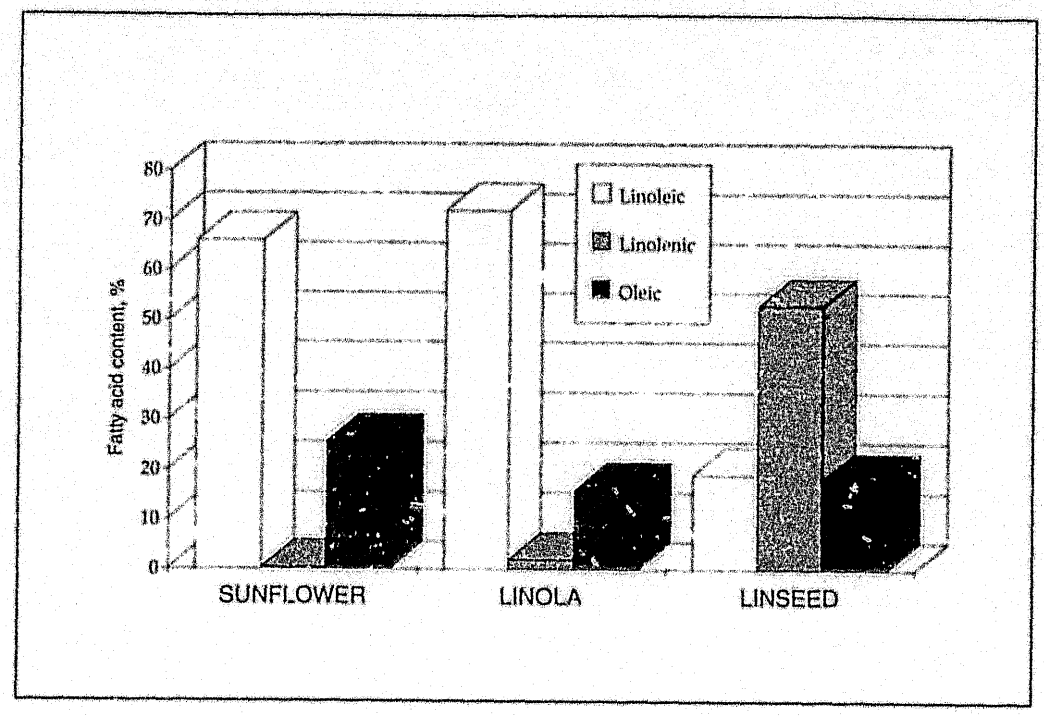

Figure 2: Fatty acid composition of Linoil relative to sunoil and linseed oil

face a shortfall of local sunflower supplies. Such shortfall is offset by sunflower oil imports to the value of up to $12 million annually. It would thus appear that the potential exists for Linola to fill local demand for quality edible oils with a significant export potential, particularly to Japan which imports large quantities of sunflower oil each year. By 1997, the AOF (1993) estimates an annual production of about 30 000 tonnes of Linola of which 10 000 tonnes will be domestically consumed.

Expansion of Linola production is currently occurring mainly in SA and Victoria where processing and seed multiplication are taking place. CSIRO expects that most of the Linola harvest in 1993 from about 2000 ha will be used as plant seed in 1994, by which year CSIRO and its commercial partner, Seedex Pty Ltd., envisage a larger crop (an estimated 30 000 ha) and the beginnings of a major new oilseed industry in Australia as a result of the continuing downturn of the traditional cereal and wool markets (Ralph 1986).

Linola meal (Linomeal) has been reported by (Green 1992) to contain a good blend of proteins, carbohydrates, minerals and fibre and is envisaged to become

a valuable ingredient in the intensive feeding of livestock. The meal contains about 35% protein and is particularly suitable for feeding ruminants. Batterham et al. (1991) have reported that in feeding trials for growing pigs, Linola meal is lower value than soymeal probably due to the presence of anti-nutritional factors. Compared with flax (linseed) meal, however, Linomeal contains less of the poisonous cyanogenic glycoside, linamarin, which has traditionally limited the use of linseed meal as a livestock feed ingredient. Linamarin can cause cyanide poisoning as a result of the liberation of hydrogen cyanide by the linamarase enzyme Batterham et al. (1991). Since linamarase is heat sensitive, however, it is likely that most of it is destroyed in current meal processing regimes.

Other potential benefits of Linola enumerated by Green (1992) include the use of its straw as a renewable source of fibre for the production of high quality paper. Linola straw (Linoflax) is rich in high-quality plant fibre just like flax (Linseed straw). While Linoflax fibres are too short for use in the production of linen, they are ideal for use in the production of paper products that require strength and lightness (Ralph 1986,1992).

Oilseeds and their Products:Price Discovery and Movements

The market for Australian oilseeds is generally characterised by a combination of international and domestic factors that determine price levels. The price discovery system for internationally traded oilseeds is as complex as the product differentiation that exists within the oilseed market. The market may be assumed to operate in fashion that approximates the perfectly competitive market in that prices are publicly established and rapidly transmitted to all potential buyers and sellers. Thus, there is should be some level of efficiency in the determination of a market clearing price as price discovery is through individual negotiators (Kraft and Piggott 1990 provide a detailed discussion of the oilseed price discovery system). Domestic factors, according to Jolly and Connell (1987), being the more important price determinants precludes crushers from using the Chicago futures market to insure against the uncertainties of seed, seed meal and oil price movements. The future prospects of the Australian oilseed industry will however, continue to be linked to world price movements given that the option exists for growers to sell on the export market.

In the short term, the observed trends of oilseed prices are a reflection of changes that occur in inventories held by major producers, exchange rates, weather, the prices of substitutes and recently the demand for seed meals. Many fats and oils and their products are by-products of oilseed processing rather than being primary products. As a consequence, the supply of these oils and fats depend, to a large extent on the demand for the seed meals. The joint recovery of the oils and meals which face independent markets forms a characteristic feature of the global oilseed economy.

In the main, the prices of oilseeds and their products are determined by market force interactions. Existing price differentials between oilseeds are a reflection of the relative strengths of the markets for vegetable oils and seed meals. Advances in crushing and refining technologies in recent years have increased the interchangeability between the various oil and meal types. This increasing substitutability has affected the prices of these products and reduced any existing price differentials.

The extent to which the various oils and meals can substitute, one for the other, is indicated by the strength of the correlation between their prices. Prices of oilseeds (oils and meals) that can readily substitute one another in their main uses are likely to show a high level of correlation as indicated in Tables 3 and 4. Noticeably, the prices of cereals and oilseeds are highly correlated for reasons that are not far to seek. The relative prices of these crops have usually tended to determine their inclusion in the cropping systems of most Australian farmers.

Oilseed Meal Production

Though all oilseeds are potential sources of high-protein seed meal, the most prominently traded are soymeal, sunmeal, Canola (rape) meal and cotton meal. In Australia, cotton meal was the dominant meal traded until the 1991/92 season (see Figures 3 and 4) when soymeal became the dominant seed meal. Increase in the demand for soymeal has mainly been a result of the increased intensification of animal production leading to the need for increased amounts of compounded livestock rations.

Increased exports of Australian beef in the near future is expected to cause an increase in the domestic beef prices consequently reducing domestic demand. This scenario is likely to result in increased demand for beef substitutes such as

Table 3: Correlation matrix for the prices of some selected oilseeds and coarse grains[1]

	Barley	Wheat	Sorghum	Canola	Sunflower	Soybeans	Safflower	Linseed
Wheat	0.904							
Sorghum	0.977	0.939						
Canola	0.855	0.905	0.921					
Sunflower	0.777	0.813	0.814	0.858				
Soybeans	0.875	0.889	0.926	0.929	0.881			
Safflower	0.886	0.888	0.920	0.917	0.788	0.913		
Linseed	0.915	0.952	0.947	0.938	0.861	0.919	0.925	
RottSoy[2]	0.520	0.489	0.485	0.516	0.682	0.598	0.530	0.478

[1] Price data obtained from NSW Department of Agriculture and Fisheries report on oilseed industry, 1990.
[2] Rotterdam US Soybeans.

Table 4: Correlation matrix for the prices of some selected oils (A) and seed meals (B)[1]

(A)

	Canola oil	Sunoil	Soyoil	Linseed oil	Cottonseed oil	Peanut oil
Sunoil	0.998					
Soyoil	0.972	0.962				
Linseed oil	0.431	0.449	0.478			
Cottonseed oil	0.971	0.970	0.968	0.478		
Peanut oil	0.709	0.712	0.705	0.620	0.806	
Corn oil	0.747	0.731	0.792	0.335	0.850	0.826

(B)

	Canola meal	Sunmeal	Soymeal	Linseed meal	Cotton meal
Sunmeal	0.814				
Soymeal	0.858	0.955			
Linseed meal	0.913	0.844	0.945		
Cottonmeal	0.835	0.898	0.861	0.793	
Peanut meal	0.711	0.873	0.833	0.772	0.740

[1] Estimated from international prices between 1984 and 1991 (Mielke 1991)

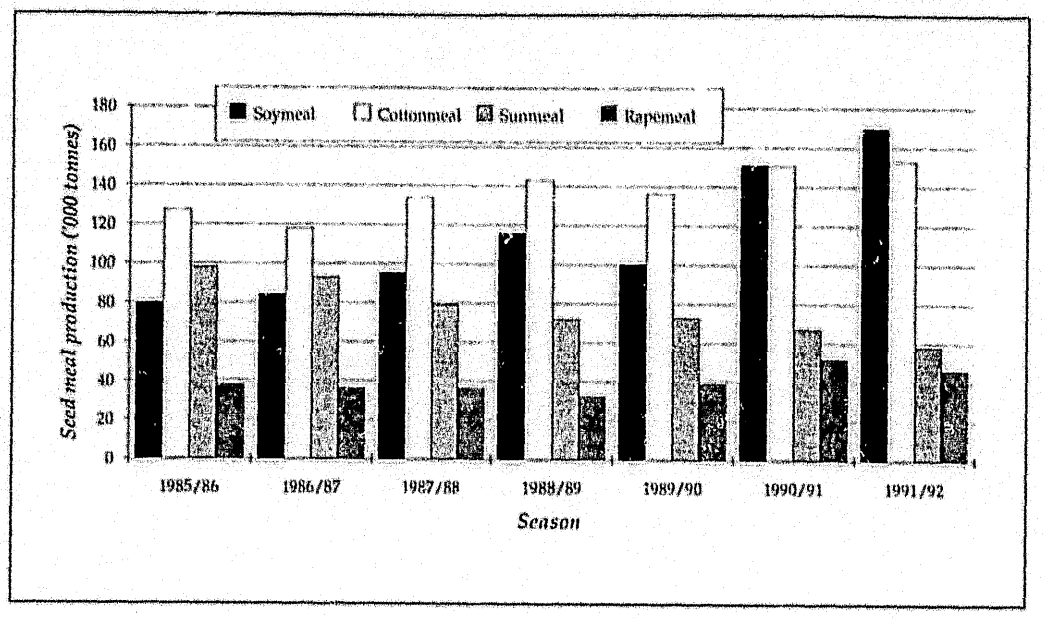

Figure 3: Australian production of selected seed meals, 1985/86 to 1991/92

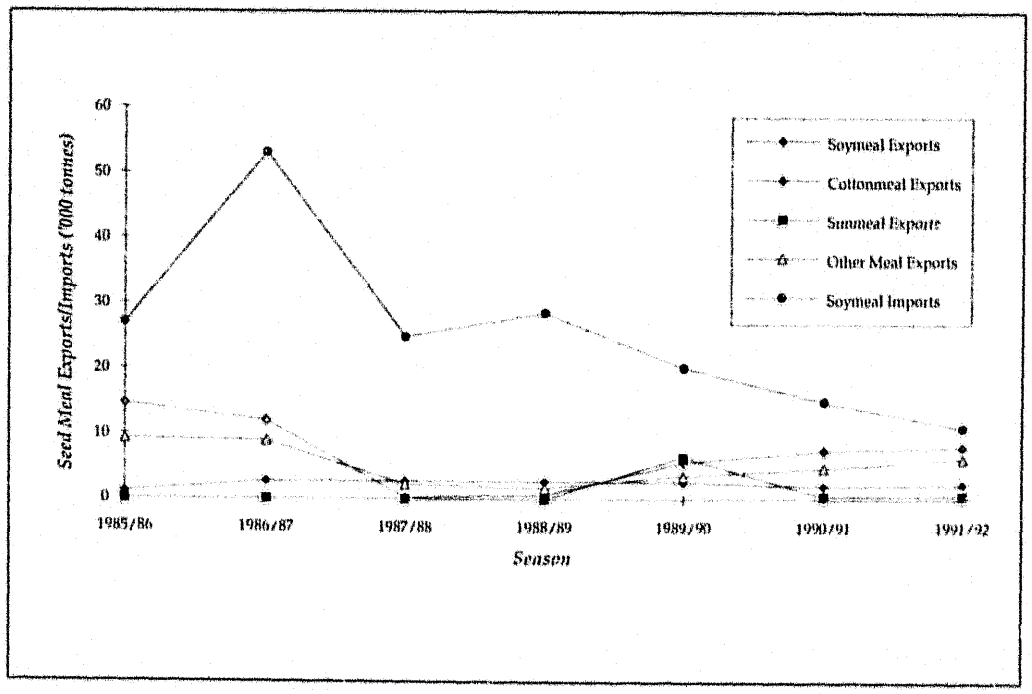

Figure 4: Australian trade in selected seed meals, 1985/86 to 1991/92

poultry and pigs and thus an increased demand for compounded feed utilising oilseed meals (Crackel and Tobler 1990). Jolly and Borrell (1988) have also noted that the consumption of soymeal is highly responsive to the price of livestock and the number of feedlot animals. An increasing trend to source feed ingredients locally (AOF 1993) should likely result in increased production of oilseeds to satisfy local demand.

Crushing Capacity and Crushing Margins

The Australian oilseed crushing industry exhibits a high degree of concentration due the fact that there is currently only one major crusher, Cargill, after the other major competitor, Continental, was bought out early in 1993. Cargill, with an American parent company, controls close to 85 per cent of the total Australian oilseed industry crushing capacity has been estimated by the Australian Oilseed Federation (AOF) to be around 750 000 to 800 000 tonnes per annum (see Table 5) although a 1993 survey by the same body indicates that much of this potential capacity remains unused due to the low domestic production of oilseeds. Though there are several private crushers, their influence on the industry remains minimal.

Cargill should be in a position to exhibit some monopoly power with regard to price of oilseeds given its dominant market position. However, since vegetable and meal prices are influenced directly by world market developments and exchange rate movements, prices may not rise above export and import parity prices. Thus, the crushing margins achievable will be determined by the extent of the market power exercisable by the crusher(s) which further depends on both the response by growers to changes in oilseed prices, the market share held by the crusher and the end user response to price changes.

The major crushing plants are multi-purpose plants set up for crushing various oilseed types. The mix of crushings varies with the availability of oilseeds. Multi-crushing of oilseeds has the general effect of reducing throughput due to breaks required for retooling (Jolly and Connell 1987). It also introduces inefficiencies and increased costs into the crushing process which may affect crushing margins.

The prevalent concentration within the industry has resulted in highly variable quantities of oil and seed meal produced by crushers. This has prompted end-users to seek alternative sources of supply through imports. Imported oilseeds,

particularly soybeans, whilst effective in spreading crushing plant fixed costs, have not always been an economic option. Crushers attribute the lack of movement towards greater specialisation in the crushing industry to the low and variable volume of oilseed production in Australia which does not allow operation of plant sizes that will enable advantage to be taken of scale economies.

Table 5: Distribution of crushing capacity in Australia, 1992

Location	Oilseed type crushed	Capacity
		tonnes/annum
Queensland:		
Brisbane	cottonseed; sunflower; soybeans; Canola	125 000
New South Wales:		
Narrabri	cottonseed	250 300 000
Moree	sunflower; soybeans; Canola	110 - 115 000
Sydney	linseed; soybeans; peanuts	110 000
West Australia:		
	Canola	12 - 15 000
South Australia:		
Millicent	sunflower; Canola; safflower	15 000
Victoria:		
Numurka	soybeans	10 - 12 000

Source: Adapted from AOF (1993)

According to AOF (1993), crushing efficiency in the Australian oilseed industry appears comparable to the rest of the world. However, as earlier indicated, a low throughput does not allow scale economies to be achieved and average unit operating costs of the plants are high relative to say, the US (Jolly and Connell 1987) and this could be a major long-term threat to the industry unless efficiency within the processing sector is improved.

Crushing margins, as earlier defined, will be determined largely by the meal yield of oilseeds, meal quality (protein and energy values), crushing/oil extraction costs and the price of seed meals. The latter are influenced by plant capacity, input costs as well as marketing and storage aspects.

Oilseed Crushing Margins in Australia

The Australian oilseeds industry is currently characterised by few relatively small crushing plants mostly controlled by Cargill Oilseed after recently buying out its only other major competitor, Continental Grain. All the plants except one at Narrabri (NSW), which crushes only cottonseed, are multi-crush facilities. Sources of oilseeds for these plants include growers and grower cooperatives, grain merchants, statutory marketing agencies and overseas imports.

There are presently no published data on oilseed price trends or crushing margins in Australia. Estimates of these prices were obtained from ABARE published data on oilseed production and their value and indications of export parity prices (ABARE 1992, 1993). It is assumed that export parity prices provide close estimates of prices paid for oilseeds traded locally. Using these estimates, the computed crushing margins for Australian crushers are given below in Table 6.

Table 6: Estimates of nominal oilseed crushing margins in Australia[1]

	Meal		Oil				
Year	Price	Value	Price	Value	Seed Price	Total Value (meal + oil)	Crushing Margin
1983/84	203	119.4	648	224.8	292	344.2	52.2
1984/85	142	83.5	859	298.0	313	381.6	68.6
1985/86	141	82.9	808	280.4	292	363.3	71.3
1986/87	180	105.8	806	279.7	244	385.5	141.5
1987/88	427	251.1	787	273.1	323	524.2	201.2
1988/89	506	297.6	842	292.2	288	589.7	301.7
1989/90	382	224.6	598	207.6	234	432.1	198.1
1990/91	395	232.3	898	311.6	232	534.9	311.9
1991/92	366	215.2	903	313.3	267	528.5	261.5
1992/93	411	241.7	920	319.2	285	560.9	275.9
1993/94[2]	437	256.9	894	310.2	352	567.2	215.6
Mean	326	191.9	815	282.7	284	473.8	190.9
Std Dev	132.7	78.1	105.1	36.4	37.7	92.8	95.3
CV (%)	40.7		12.9		13.3	19.6	49.9

[1] All values are in $/tonne. Oilseeds considered include soybeans, cottonseed, Canola (rapeseed), safflowerseed, linseed, sunflower and peanuts. Price data were obtained from ABARE (1992, 1993). Oil (34.7 per cent) and meal (58.87 per cent) content obtained from NSW Department of Agriculture and Fisheries oilseed industry report, 1990.

[2] Estimated by averaging conversational returns from four oilseed merchants (NSW and Victoria) including Cargill.

Jolly and Connell (1987) estimated soybean crushing margins for Australian crushers to be about $92 per tonne between 1980 and 1986. They reported that this may be due to the fact that whilst domestic prices are close to the export parity prices for soybeans, soyoil prices have remained close to import parity prices. This is probably true of all oilseeds produced in Australia. The estimates of crushing margins between 1983/84 to 1993/94 presented in Table 6 show that annual crushing margins have highly variable. Seed and oil prices showed less relative variability than seed meal prices. An estimated average crushing margin of about $A191 per tonne of oilseed would imply that it would difficult for Australian crushers to produce vegetable oils and seed meals at internationally competitive prices within the current industry structure and whilst Australia remains a net importer of oils and seed meals.

The value of the estimated average nominal Australian oilseed crushing margin is much higher than the figure of $A22/tonne reported for the US between 1983/84 and 1990/91 (Mielke 1991). Jolly and Connell (1987) noted that the difference in the crushing margins for Australia and the US may be attributed to factors such as the cost of finance and storage charges, high risk premiums, market concentration, low economies of scale and throughput. These factors lead to relatively higher costs per unit of output. Admittedly, the effects of each these factors may be difficult to assess definitively but their combined effect is observed in the relatively high crushing margins. Jolly and Connell (1987) estimate that the cost of storage and finance alone as legitimate economic costs, account for about a third of the crushing margins in Australia.

Industry Implications

A lack of government intervention in the industry implies that changes in the world prices for oilseeds and their products directly influence producer prices since open competitive market is the main arbiter of prices. Growers are currently offered export parity prices which is the minimum that crushers can expect to pay else growers may opt to sell on the export market. Favourable years for the world's major exporters of oilseeds (US, Brazil, Canada, Argentina) could, however, create a glut that could preclude Australian growers from the export option and allow crushers to offer below export parity prices.

With the growing international concern about the effects of protectionist agricultural policies, there is growing pressure for significant trade reform. The

last round of multilateral trade negotiations under GATT in 1993 agreed in principle to implement trade reforms. Should these reforms come to pass in the coming years, the export market for oilseeds could become significant for Australia particularly in South-East Asia. The AOF (1993) has estimated that by 1997 Australia will be exporting about 505 000 tonnes of oilseeds including 20 000 tonnes of Linola.

Allen and Sethi (1990) noted that the performance of the oilseeds industry will depend on the sectors ability to adjust to changing world prices and exchange rate variations. Such adjustment will involve diversified farming practices that will encourage the mobility of productive resources between farming enterprises depending on relative profitabilities and technological and institutional reforms.

Conclusions

Crushing margins in Australia are determined mainly by the performance and structure of the oilseed industry. Current relatively high margins will fall only with the establishment of bigger and specialised plants. US crushers have derived benefits from the greater specialisation of the industry, government support programmes and the very significant domestic market for seed oils and meals in contrast to the Australian industry. However, the AOF strategic plan for the oilseed industry unveiled early in 1993 foresees significantly increased production of oilseeds on the back of various industry support programmes including research and extension.

The inherent lack of specialisation and consequent multi-crush nature of the Australian oilseed crushing industry tends to suggest that the potential crushing margin for Linola will not significantly differ from the above estimates. The 'switch-crush' nature of the industry could be advantageous for Linola as crushers are already set-up for crushing more than a single type of oilseed. However, the fact that a pricing structure is yet to be established for such a new oilseed crop suggests that until the crop is established within the oilseed economy in Australia there will be variations in both the prices paid by crushers for the crop and the crushing margins obtained. An early attempt by crushers to hedge against the risk associated with a yet unproven (consumer-wise) oilseed will result in higher than usual crushing margins which should regress towards the norm as the linoil and linmeal prove their worth in the market place. As a

result, early adopters may be offered prices below export parity in the absence of a world market.

The extent to which Linola will be adopted into cropping systems by Australian growers largely remains a matter for conjecture at this time. It will be another few years before indications of its adoption emerge. Linola oil it would seem, lacks any unique characteristics that could give it any significant advantage over existing oil types. Though crushing activity is expected to increase in response to the increased demand for seed meals, without a concurrent increase in the demand for oils however, oil prices could be lowered due to the buildup of stocks. The result could be a move away from high oil-yielding oilseeds like sunflowerseed and Linola towards high meal oilseeds like soybeans and Canola.

Linola meal trials in livestock feed have not provided encouraging results as reported by Batterham et al. (1991). The claimed higher percentage of the desirable fatty acid, linoleic acid, found in Linoil is unlikely to have any effect on the price of the oil in the absence of a premium pricing system. CSIRO (1992) have however indicated that the distinctive nutty flavour of cold-pressed Linoil could create for it a significant niche market. At the present time, it is not likely that crushers will pay any premiums for Linola that would significantly influence their crushing margins.

Finally, increased productivity of the oilseed industry through research and development and more efficient marketing systems will not necessarily lead to increased production of oilseeds unless there are economic uses for oilseeds and their products.

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