Australian Oilseed Federation

Growers Marketing Guide

Marketing Manual

Third Edition 1999

Funded by Oilseed Development Fund

First Edition 1995: Second Edition 1996: Third Edition 1999

Contents

Contents

Introduction

This Marketing Guide has been designed to give growers and others in the oilseed industry an insight into the oilseed market and the factors which influence oilseed values in Australia.

The Guide comprises information relating to markets and how they operate. The Australian Oilseeds Federation (AOF) also publishes a free monthly newsletter which provides production estimates and market information.

The AOF has endeavoured to present the Guide in a "user friendly" format. However, due to the complex nature of the market, areas may appear technical and superfluous to your requirements. It is up to you to use this "Marketing Guide" as you see fit.

Marketing is all about making informed decisions and thus, the amount of information necessary will vary with the individual.

The AOF acknowledges the assistance of all those who have contributed to this Guide for the benefit of Australian oilseed growers.

This Guide has been funded by the AOF Oilseeds Development Fund (ODF). The ODF was established in 1993 to fund the implementation of the industry's Strategic Plan. The ODF comprises contributions via a voluntary levy.

Contributors to the ODF are:

Cargill Oilseeds Australia

Meadow Lea FOODS

Unilever Foods

Peerless Holdings

Caines Pty Ltd

Inghams Enterprises

Ridley Corporation

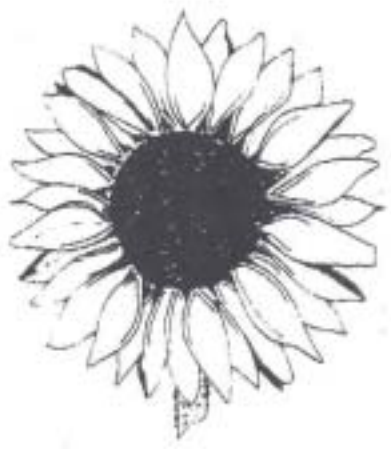
Millmaster Feeds

Seedex Pty Ltd

Riverland Oilseed Processors

Steggles Limited

Davison Oils



Understanding the Oilseed Industry

Supply and demand is the basis of all markets.
Understanding the factors which affect supply and demand will place you in a better position to judge the medium to long term possibility of a rise or fall in the market.

The demand for oilseeds is derived from the combined demand for oil and meal. Essentially oilseeds are two commodities, i.e. oil and meal. Oil cannot be produced without producing meal, and likewise, meal cannot be produced without producing oil.

Thus, the oilseed grower must consider, and master, the complex for oil and meal. It is, therefore, important for oilseed producers, to monitor the prices of both oil and meal when marketing their crops.

Each of these products must be considered separately and the resulting values added together to obtain an understanding of the total value of each type of oilseed.

These products have unique demand structures. When production is geared toward one, the other is often produced in surplus. For example, when meal demand is strong and production increases due to higher meal prices, surplus oil is likely to be produced.

There are two primary uses for oil, namely, food applications such as in shortening, margarines, salad dressings and cooking oils and industrial applications.

Meal, which is high in protein and essential amino-acids, is used as a supplement in livestock feeding.

The value for oilseeds containing a high percentage of oil, such as canola, is primarily derived from the oil component. The primary value for oilseeds with a low oil content, such as soybeans, is derived from the meal component.

Table 1 indicates meal and oil contents of different oilseeds.

Table 1: Components of the Seed

	Oil %	Meal %
Canola	40	60
Safflower	34	66
Soybean	18	82
Sunflower	40	60
Linseed	39	61

Both oil and meal have numerous substitutes between one another in the majority of their uses. The various oils and meals compete with each other in the market place.

Oil

Oil prices are generally a function of the world price of edible fats and oils. Domestic consumption for edible fats and oils is relatively inelastic, that is as prices increase, demand is relatively unchanged. This arises as people consume a minimum of fat or oil in their diets with little regard to price. The result of a strong oil demand will lead to a weakness in meal prices.

Locally produced oils compete against a number of products including:

- other locally grown soft oils i.e. canola, sunflower, soybean, linola and cotton compete with each other;
- imported oils including specialised oils such as olive, soft oils and hard oils, particularly palm;
- butter and dairy products; and
- tallow (a cheap fat by-product of the meat industry).

Meal

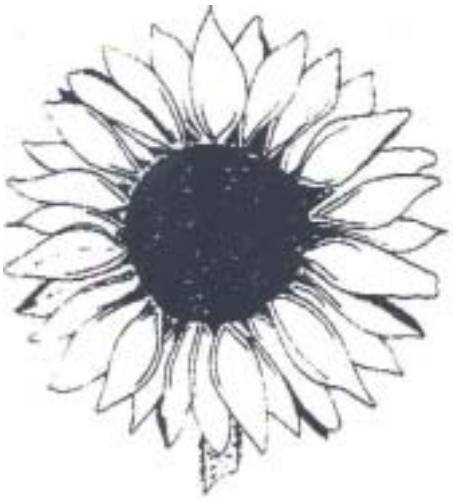
The forecasting of meal prices can be difficult due to the high degree of substitutability and use of least cost ration formulation. As meal is not easily stored, prices are generally established at the level which will dispose of all available supplies of meal.

Thus, carryover stocks of meal comprise a small percentage of production and meal inventories are typically carried as whole oilseeds. Meal usage can determine the rate of crush for oilseeds.

Meal consumption is related to the livestock industry and works within the complicated protein complex. The protein complex consists of a large number and variety of high and low protein feed supplements. They compete with each other into a wide range of feedstuffs for a diverse range of livestock industries.

In Australia, the intensive industries such as pig and poultry are the major users of meal.

Locally produced oilseed meals compete with each other, but also with imported soybean meal. Oilseed meals also compete with high protein grains such as pulses and with other meals such as meat and bone meal and fish meal.



Determining Oilseed Prices

Oilseed pricing is complex and markets are volatile. When forecasting oilseed prices, it is essential to identify the values for relevant oil and meal products and relate these to the oilseed being considered.

Key points which emerge from an analysis of past trends and can be used as future guides are listed below.

- Opportunities exist with production in the southern hemisphere to capitalise on production shortfalls in the northern hemisphere and to plan production around excesses.
- There are two oilseed crops each year namely, i.e. the Northern Hemisphere and the Southern Hemisphere crop. Production in South America is a major factor in world oilseed prices.
- The trade jargon states "nothing kills high prices like high prices and nothing kills low prices like low prices".
- High prices cause a rationing of demand and a swing to alternative products, whilst good returns lead to higher production. When the decline in demand and rise in production meet at the junction, the "bull" markets collapse.
- Conversely sustained low prices for a product stimulate demand and deter production. Poor supply and growing demand, buoy prices and set the wheel in motion again.

Developing a Market Strategy

Once you understand the "oilseed complex", you can begin to plan a suitable marketing strategy.

It is essential to be well informed and follow a strategy that will enable you to achieve your marketing objective. The marketing objective should focus on obtaining a price which returns an acceptable profit, rather than attempting to pick the top of the market.

Your Decision

A critical early decision is whether you wish to do your own marketing or leave it in the hands of someone else e.g. a pool run by a statutory marketing authority, growers co-operative, merchant or any other marketing organization.

Determining the best production and marketing program for a particular product/farm is a difficult task. However, it must be undertaken each year and be continually revised to update the factors impacting on the oilseed complex.

The marketing program requires an analysis of the economic factors affecting individual farm businesses. The analysis will vary between each farming operation depending on specific situations, differing values and individual goals.

Developing a marketing plan should start well before the crop is planted. The initial beginnings of a marketing strategy should provide a basis for crop production decisions.

Accurate production costs are important in determining what constitutes a break-even price, a satisfactory price or a price that incurs a loss. Matching the timing of pricing and selling decisions with cash flow requirements may also be a major consideration.

Great uncertainty exists in market prices and will always be prevalent. If the future is uncertain, concentration should be placed on strategies to reduce risk and uncertainty.

Being in Control

Presuming you are content to do your own marketing, there are a number of factors to take into consideration. They include:

- costs of production should be assessed and the required profit margin determined;
- all available sources of market information should be reviewed and the most relevant sources identified;
- all purchasers of oilseeds in your area should be identified and contact established with them, whether it be directly or through an agent or broker. It is important to establish these contacts early in the season; and
- determine your attitude to risk i.e. what level of forward sales you are comfortable with as the crop progresses. It is important to recognize your own level of comfort and not be influenced by what those around you are doing.

If you elect to delegate your marketing to a second party such as a statutory marketing authority or a growers' co-operative, you should maintain regular contact with the market to assess your likely return and the performance of your appointed marketer.

Marketing Methods

Formulating a marketing strategy involves making a decision on how much crop to sell forward, how much to sell at harvest and how much to hold. This section outlines the various types of contracts that can be used to forward sell your crop and what signing a contract involves.

Contracts

There are various contract options available to growers. However, it should be noted that each company has a different interpretation and may not offer all types of contracts. It is important to explore the various options with each marketer, and have a copy of the normal terms and conditions which appear on the prospective purchasers contract in advance of a sale. Contract options and terms can be obtained by contacting each of the main marketers listed in Table 11.

Practicality insists that most grain contracts are accepted verbally over the phone and the contract confirmation is later mailed or delivered for signing. It is for this reason that advance knowledge of the fine print is desirable. Whilst most oilseeds traded in Australia are done so under the quality standards set by the AOF (refer to Appendix 1), contracts will vary on such items as:

- tolerance on contract shortfalls;
- pricing on tonnage over the contracted amount;
- payment terms;
- levy deductions; and
- liability under the crop production failure.

The most common type of contract offered is the firm tonnage/firm price contract. This form of contract can be used as a forward pricing tool or as a prompt delivery arrangement. The seller agrees to sell a firm tonnage at a firm price and to deliver to a set receival point within a set delivery period.

Using the following example, the grower has contracted to deliver 100 tonnes of canola at

Trading Name			
Address: **Contact Name:** **Phone No.**		**Postcode**	
Tonnage:	100	**Price**	$360
Delivered:	Sydney basis**		
Delivery Period:	November/December		

$360 per tonne to be delivered to Sydney during November/December 1998.

** Most contracts are written on a delivered crushing plant or port basis. This allows the buyer to take delivery at receival points other than the designated destination with the appropriate freight backed off from the specified delivery point. Using the above example, if the growers freight and handling to Sydney was $30 per tonne and seed was delivered to a local depot suitable to the grower, he would receive $330 for his canola delivered into the local store.

Several variations to the firm tonnage contract are available including firm tonnage contract with no fixed price which allows a grower to deliver a tonnage of grain, and to price that grain within a given period of time after delivery.

Different buyers generally have different interpretations to all of the above. If you are considering a variation to the firm tonnage/firm price contract be sure that both you and the buyer have the same interpretation.

It is important to remember in firm tonnage agreements, delivery of the tonnage within the prescribed tolerances is paramount. Production failure (unless covered by the Force Majeure clause) does not in any way release the seller from his contractual obligations.

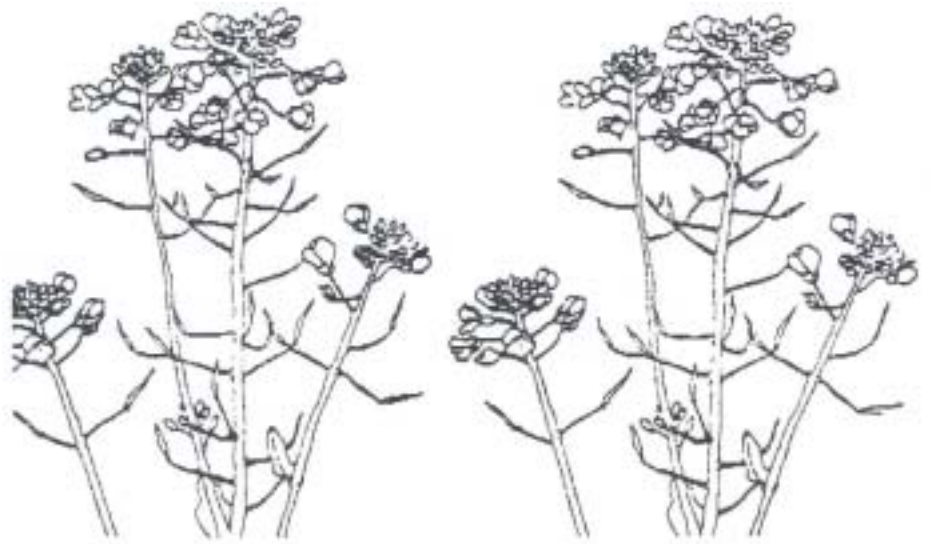
The extenuating production difficulties brought about by the 1994 drought saw the introduction by most companies of a roll-over contract. This allowed growers who were caught short on production in a rising market to roll their production forward into the next season at a discount between the replacement cost and the contracted value of the crop.

State Regulations

The marketing of oilseeds in both domestic and export markets is free from legislation in Victoria, South Australia and Queensland. In these states a number of crushers, traders and exporters compete for seed.

In NSW, the NSW Grains Board has sole export rights for oilseeds grown in NSW and can, at any time, totally acquire the NSW crop. This acquisition power has not been used, although the Board does exert its sole export rights. The marketing of oilseeds is by legislation vested within the NSW Grains Board. Oilseed buyers must be licensed by the Board to purchase oilseeds for the domestic market only. These marketing arrangements are currently the subject of a review under the National Competition Policy Legislation and at the time of the publication of this Guide (February 1999) no policy decision has been made.

In Western Australia, marketing for canola for export is vested in the Grain Pool of WA (GPWA), with the domestic market having been deregulated in 1996. This means that the GPWA is the only body able to export canola seed from WA, although value added products are free to be exported.



Australian Oilseed Industry

The Australian oilseed industry was valued at around $600 million at the farm gate in 1997/ 98, and this is forecast to exceed $1 billion in 1998/99 if the current production estimates for 1.8 million tonnes of canola are realised. This oilseed production supports a substantial value adding industry in both human consumption and stockfeed markets.

The industry comprises four major crops - canola, sunflower, soybean and cottonseed - with other speciality commodities grown on a smaller scale.

The Australian oilseed industry has been heavily oriented towards the domestic market, with only minor export activity in cottonseed, canola sunseed and some specialty products. Canola exports have grown significantly over recent years, with exports exceeding 500,000 tonnes in 1997/98. The industry's participation in value added exports is expanding, but is insignificant in world terms.

The oilseed industry is diverse and with the dominant use of oilseeds being the crushing for oil for the food sector and meal for the stockfeed sector (either in Australia or offshore). However, there are a range of other uses including:

- Soybeans utilised by fullfat operators for the stockfeed industry
- Edible soybeans for use in range of products such as tofu, other Asian products, soy milk, soy yoghurts, soy flour etc
- Sunflower, linseed and safflower used in confectionary, breads and other foods
- Sunflower, linseed and safflower used in bird seed products
- Range of industrial applications

Oilseed Production

Over the last five years, canola has emerged as the dominant oilseed crop. Canola accounted for over 40% of oilseed production in 1997/98, with this likely to increase to 60% in 1998/99. Cottonseed and canola together account for almost 90% of production.

Oilseeds share of the total cropping area has expanded as farmers have introduced more diverse cropping rotations into their farming systems and canola as a rotation crop has delivered more favourable economic returns than other alternatives. Despite this, oilseeds only account for around 10% of the area sown to broadacre crops. This is almost double what it was three years ago.

Expansion in production of Australian oilseeds has been driven by:

- Improved grower confidence, due in part to activities of the Australian Oilseeds Federation and other crop support organisation.
- Strong world demand and prices for vegetable oils
- Development of new and better performing varieties, both agronomically and in terms of market uses.

This has seen the areas where oilseeds, particularly canola, are grown expand, yields improve and production of new varieties such as high oleic sunflower.

Australian oilseed production is shown in Figure 1 and Table 2 (page 11).

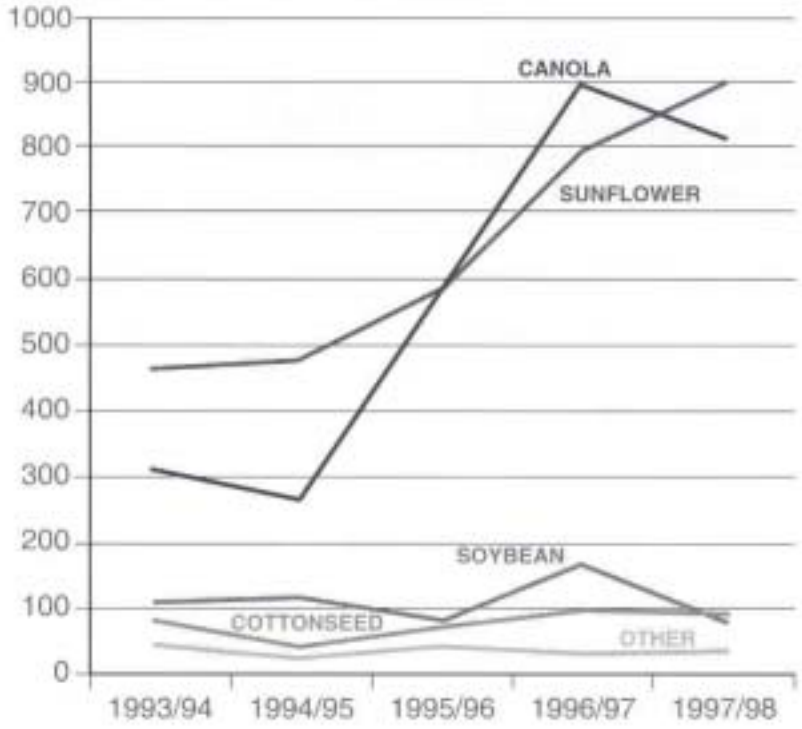
Soybean

Soybean, is a summer oilseed crop grown mainly under irrigation and harvested in May (coinciding with the South American bean harvest). It can also be grown in areas of high and reliable summer rainfall.

Queensland has traditionally been the key production area/however in the past few years, production in northern NSW has increased substantially in response to a targeted extension program promoting a soybean and beef rotation. NSW now accounts for around 70% of production. The main production areas in NSW are the North Coast and Southern regions. The northern irrigation region has declined in importance due to the expansion of the cotton industry.

Australian soybean production is not sufficient to meet domestic demand. As a consequence, the domestic stockfeed industry utilises imported soybean meal, and at times, soybeans and soyoil are also imported.

Figure 1: Australian Oilseed Production by type



able 2: Production by Oilseed by State, 5 year average 1993/94 - 1997/98

	Australia	NSW	Vic	SA	WA	Qld
			'000 tonnes			
Canola	521	217	126	44	134	
Soybeans	73	47	5			21
Sunflower	108	48	3			57
Cottonseed	647	422				225
Safflower/ Linseed	34	10	17	6		1
Total	1383	744	151	50	134	304

The fastest growing sector of the soybean industry is the light hilum or edible soybean sector, albeit from a low base. These beans are used domestically in the production of soy milk, soy yoghurts and other products as well as exported to Japan for use in tofu and other Asian style products.

Soymeal is the most important end product from soybeans and makes up 80 per cent of the seed and 70 per cent of its value. The meal is one of the most sought after protein sources in the world for intensive animal production. The full-fat meal (meal produced by milling whole soybeans) provides the feed with an extra source of energy.

The oil constitutes 18-20 per cent of the seed weight. The oil is a polyunsaturated commodity used widely in margarines, bottled oils and the food service industry. Usage of imported soybean oil in Australia has been replaced by locally grown canola oil.

High priority issues in the soybean industry are improved quality and performance of varieties with a focus on disease, maturity, adaptation across regions and weathering resistance. In the light hilum sector, understanding quality requirements for domestic and export markets is also an important issue.

Canola

Canola has been the driving force behind the expansion of the Australian oilseeds industry over the last decade. The expansion of canola has been a result of development of new disease resistant varieties, improved crop management practices and a market seeking healthier oils.

As a result, the use of canola in canola specific and blended products has continued to grow and now represents the most significant soft oil used domestically.

Canola is a winter crop harvested during October to December. Traditionally the predominant growing areas were in Southern NSW, Victoria and South Australia, however, Western Australia has emerged as a major producer and now accounts for over 40 per cent of production.

Canola oil is the major contributor of seed value. The oil is monounsaturated, with an oleic acid content of 62 per cent.

Canola meal is increasing its market share at the expense of other meals, particularly imported soybean meal.

The canola industry has developed a strong export base for that proportion of production that exceeds domestic requirements. Exports were initially focused on Japan, with canola seed now exported to Japan, China, Mexico, Bangladesh and Europe.

Sunflower

This summer growing oilseed crop has two distinct plantings. The early plant occurs mainly in the northern regions of NSW and Southern Queensland. This crop is harvested in Jan-Mar. The late crop is grown in the above regions and the Central Highlands region of Queensland.

Sunflower oil is polyunsaturated in nature i.e. it has a high linoleic acid content and is mainly used in margarine and bottled oils. Recently a monounsaturated or high oleic sunflower oil has been developed which has wider application as a high quality frying oil.

Sunflower oil has a relatively low protein level (32 per cent) unless dehulled when this can be increased to 36 per cent. Due to the lower protein levels and location, the use of sunflower meal in intensive livestock rations has been limited.

Key issues for the sunflower industry are to build a consistent supply base. High oleic sunflowers have the potential to inject new life into the sunflower industry but will require significant market development and improved productivity to be price competitive with alternative oils.

Oilseed Trade

Oilseed exports have increased significantly over recent years, largely due to the growth in canola exports. Canola exports were around 0.5 million tonnes last year and are expected to exceed one million tonnes for the 1998/99 year. Whilst seed exports have shown the strongest growth, importantly there has also been significant growth in exports of oil. Table 3 illustrates exports by commodity for the five years to 1997/98.

Despite rapid growth in canola exports, Australia remains a net importer of oils and fats. Total imports of seed, oil and meal were estimated to be around $400 million in 1997/98, however, more than half of these are oils and fats that Australia does not produce. Palm and olive are the most significant oils imported. Table 4 shows imports by commodity for the 5 year period to 1997/98.

The development of the monounsaturated sunflower industry and development of a high oleic / low linoleic canola should assist to provide options for the replacement of palm oil.

Cottonseed oil has played an important role in limiting palm oil imports through successfully replacing palm oil in some food service segments.

Considerable quantities of soymeal are imported, although this is being reduced as availability of canola and cottonseed meal increases.

Canola and cottonseed are the only oilseed crops where Australian production consistently exceeds domestic requirements. Consequently, oil and meal from these seeds are substituted for other oils and meals (which may have to be imported) in local foods and stock feeds to the maximum extent possible. Such substitution occurs particularly for soybean oil and accounts for about one half of the domestic canola market.

Table 3: Australian Exports of Oilseeds, Oils and Meals by Type

	1997/98f	1996/97	1995/96	1994/95	1993/94
		'000 tonnes			
Oilseeds					
Canola	480	355.9	347.8	84.6	106.3
Cottonseed	262.9	225.0	157.7	131.5	151.3
Soybeans	5.0	4.4	2.4	4.4	4.3
Sunflower	8.8	8.8	3.5	10.5	2.0
Other	25[1]	25[1]	21.5	20.1	0.9
Total	781.7	619.1	532.9	251.1	274.8
Oils					
Canola	26.6	13.7	6.6	0.5	3.1
Cottonseed	20.0	12.8	0.2	0.1	0.04
Other	10[1]	10[1]	7.35	9.99	3.9
Total	56.6	36.5	14.15	10.59	7.04
Oil Meals					
Total	92.5	44.2	11.7	10.0	8.6

[1] estimate only

Source: ABARE and Oil World

Note: Due to the use of different sources, numbers may not be totally comparable.

Peanuts, oil and meal not included

Table 4: Australian Imports of Oilseeds, Oils and Meals by Type

	1997/98	1996/97	1995/96	1994/95	1993/94
		'000 tonnes			
Oilseeds					
Canola	0.1	0.1	0.3	0.2	0.1
Soybeans	66.1	106.1	69.2	104.6	50.4
Sunflower	0.8	1.0	0.8	0.6	1.0
Other	6.3	6.5	6.5	6.2	6.3
Total	73.3	113.7	76.8	111.6	57.8
Oils					
Soybean	16.0	13.3	29.2	33.1	34.1
Olive	21.2	18.9	15.9	18.8	15.9
Palm	103.3	106.8	109.3	98.2	94.3
Sunflower	9.3	29.3	12.4[1]	15.7[1]	35.7[1]
Cottonseed	0.4	0.5	-	-	-
Coconut	13.9	13.2	16.7	16.5	16.1
Canola/Rape	1.1	0.5	0.5	0.8	0.6
Other	8.4	5.5	16.3	16.6	22.6
Total	173.6	188.0	200.3	199.7	219.3
Oil Meals					
Soybean	110.0	149.5	152.3	309.1	123.8
Other	46.6	53.9	29.4	32.1	22.4
Total	92.5	44.2	11.7	10.0	8.6

[1] includes safflower oil imports

Source: ABARE and Oil World

Note: Due to the use of different sources, numbers may not be totally comparable.

Peanuts, oil and meal not included

Oilseed Markets

There are three major groups of oilseeds, namely:

- those with high oleic acid content such as canola, peanut, olive and high oleic sun;
- those with a high linoleic acid content including safflower, soy, sun and Linola, and
- tropical oils including palm, palm kernel and coconut (of these palm kernel and coconut are lauric oils).

Consumption of oilseeds in Australia can be segmented by markets for end products, namely:

- retail market for oils and fats including poly and mono unsaturated products;
- foodservice and food manufacturing market for oils and fat which is based on tallow, tropical oils and soft oils;
- protein meal market (including full fat meal production);
- industrial oil market such as paints and soaps; and
- other markets for seed including snacks, soy drinks and birdseed.

The Australian market for oils and fats is following trends being experienced in the US and EC. In particular, these countries are seeing a decline in demand for spreads including margarine.

Currently, total Australian consumption of edible oils and fats for food use is approximately 476,000 tonnes per annum. Of this, around 40% is used in yellow spreads, with margarine accounting for 75% of the yellow spreads market.

Consumption of oil has seen a trend towards healthier products, with the demand for canola and other monounsaturated oils growing significantly. Soft (or seed) oils are increasing their share of the total fats and oils market to now account for 50% of total oil usage.

Table 5: Domestic Consumption of Oils and Fats

Oil Type	Tonnes	%
Total	**476,000**	**100**
Soft Vegetable Oils	228,000	50
Canola	97,000	
Sunflower	58,000	
Soybean	47,000	
Cotton	36,000	
Other	10,000	
Olive Oil	16,000	3
Palm Oil	116,000	24
Tallow	95,000	20
Coconut	16,000	3

Oil Market

Oil usage is based on price, taste, nutrition and quality. Whilst the industry remains dominated by polyunsaturated products, the growth area of the industry is monounsaturates led by canola based products, and more recently, high oleic sunoil.

Soft oils such as soybean, sunflower, canola and cottonseed are increasing their share of the total market. Canola accounts for around 40% of soft oils used domestically.

Key characteristics of the vegetable oil products industry include:

- continued imports of (predominantly) palm oil products, basically for use as cooking oils or in the food service industry;
- limited growth opportunities in the total domestic fats and oils market, although the food service sector is growing strongly;
- increased demand for healthier products (low in saturated fat) will favour local oils at the expense of palm oil imports;
- canola and monosun based products could continue to improve their share of the margarine market; and
- need for international competitiveness in all segments of the industry to avoid loss of market share to imports.

Bottled Oil

Overall the market has shown continued growth in volume use. The continued increase of olive oil imports appears to indicate greater user awareness and use of oil in the diet.

Canola oil has increased in volume as consumers continue to switch to the nutritional benefits offered at a far more affordable price than olive oil.

Yellow Fats

The move by consumers towards a healthier diet and reduced fat consumption has reduced the per capita consumption of yellow fats, falling from 11.3 to 10.0 kilograms since 1992/93. Average consumption of margarine and spreads over the past two years is 7.3 kilos per head down from 8.0 kilos. Total production, however, hay risen with exports reaching 41,000 tonnes for the year to June 1997.

Meal Market

In world markets, corn and soybean meal are the most widely used feed commodities, where as wheat is the most widely used grain in Australia due to its availability and position as the highest energy grain. The feed grain industry comprises on farm supplementary feeding of livestock and feeding of intensive livestock production. The pig and poultry intensive industries are the most significant consumers of oilseed meals.

The feedgrain market in Australia has increased dramatically during the 1990's with Table 6 illustrating projected domestic demand for feed components in Australia. With the predicted expansion of intensive industries such as pig and poultry, shortfalls will occur in both oilseed meals and pulses, particularly in the north of Australia. There is expected to be continued imports of soymeal, although this will partially be offset by the forecast growth in canola and greater availability of cottonseed and sunseed meal.

Table 6: Projected Domestic Demand for Feed Components in Australia

	Unit	1992/93	1999/2000
Total Cereals	(kt)	6144	8679
Total pulses	(kt)	606	812
Soybean meal	(kt)	203	300
Canola meal	(kt)	124	154
Other grain meals	(kt)	189	223
Total meals	(kt)	516	677
Cotton seed	(kt)	93	144
Total Feedgrain	(kt)	7359	10312
Other Protein meals	(kt)	533	636
Roughage & Additives	(kt)	8900	8720
Total Feed	(kt)	16792	19668

Source: GRDC Feedgrains Study

Oilseed meals are bought for protein on price and amino acid composition. Soymeal has the highest protein content at 48 per cent, with canola meal from 34 per cent, cottonseed meal 40 per cent and sunflower meal 32-36%.

Canola meal is regarded as a good quality protein meal suitable for most livestock diets as double zero varieties have eliminated the previous problems of erucic acid and glucosinolates. Soybean meal is recognised as an international standard feedstuff of high quality and is used extensively around the world. Sunflower meal has a highly fibrous nature which makes it unattractive for pig diets.

As shown in Table 7 the livestock sector and usage of feedstuffs has grown rapidly, bringing with it an increased demand for oilseed meals. Currently, a substantial share of this is met by imported soymeal. As production of canola and cottonseed has expanded, the use of domestically produced meals has also increased.

Table 7:

Meal Type	Tonnes	%
Total	**555,000**	**100**
Cottonseed	155,000	29
Soybean	150,000	27
Canola	135,500	24
Sunflower	57,000	10
Other	57,500	10

World Production and Consumption

Total world production of oilseeds in 1996/97 was more than 259 million tonnes. This is approximately one third of world production of wheat and four times the production of pulses. World production is forecast to be 280 million tonnes in 1997/98. World oilseed production is shown in Table 8.

The major oilseed trading countries are shown in Table 9, page 17.

Table 8: Oilseed Stocks and Production

	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
	million tonnes								
Opening stocks	28	29	30	30	31	27	36	32	25
Production:									
Soybeans	107	104	108	118	117	136	125	132	152
Cottonseed	31	34	38	32	30	33	35	34	34
Sunflower	22	23	23	22	21	24	26	25	24
Canola/rapeseed	22	25	28	26	27	30	35	31	34
Linseed	2	3	3	2	2	2	3	2	2
Others	28	30	29	30	31	33	23	24	24
Total production	213	218	227	228	227	258	257	259	280
Total supplies	241	247	257	258	259	285	293	290	305
Usage	212	217	227	227	232	250	262	266	274
Closing stocks	29	30	30	31	27	35	32	25	31

** Please note: Some columns may not add up due to rounding*

Source:"Oil World" 1998, ABARE 1996

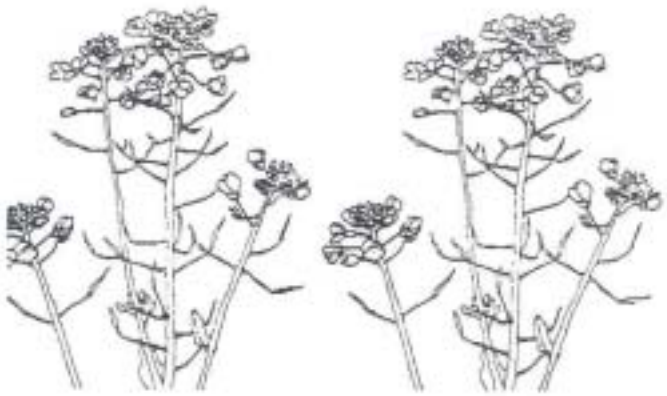


Table 9: World Oilseeds Trade by Type and Country

Commodity	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98
					million tonnes					
Imports										
Soybeans	23.7	26.8	26.2	27.8	29.8	28.7	31.31	31.5	36.4	39.4
- EC	10.7	12.9	13.0	13.3	15.02	13.41	14.91	14.3	15.4	16.5
- Japan	4.3	4.7	4.4	4.6	4.87	4.80	4.7	4.8	5.0	5.1
Sunflowerseed	1.98	1.98	2.05	2.24	1.91	1.93	2.58	3.3	3.3	2.4
- EC	1.56	1.53	1.49	1.66	1.48	1.53	2.1	2.4	2.3	1.7
- Mexico	0.13	0.13	0.19	0.24	0.18	0.18	0.09	0.1	0.1	0.1
Rapeseed/Canola	4.59	4.45	4.37	5.0	4.2	4.50	5.8	4.3	3.8	4.2
- EC	2.39	2.28	2.08	2.42	173	1.91	2.7	0.8	0.4	0.2
- Japan	1.77	1.87	1.88	1.98	1.86	1.88	1.9	2.0	2.0	2.1
Copra	0.3	0.33	0.27	0.28	0.21	0.21	0.21	0.2	0.2	0.2
Linseed	0.58	0.62	0.64	0.68	0.61	0.68	NA	0.9	0.8	0.8
- EC	0.23	0.25	0.29	0.35	0.36	0.39	NA	0.6	0.4	0.5
Other Oilseeds	1.48	1.53	1.7	1.79	0.86	0.76	NA			
Total	32.63	35.71	35.23	37.79	37.59	36.78	39.90	42.8	47.3	49.9
Exports										
Soybeans	23.5	27.4	25.4	28.1	29.98	28.74	32	31.4	36.4	39.4
- US	14.4	16.9	15.2	18.8	20.94	15.79	21.77	22.6	24.4	25.9
- Brazil	5.08	4.22	1.9	2.25	4.3	5.4	4.6	3.5	8.4	8.1
- Argentina	0.52	3.61	4.10	3.05	2.3	5.4	3	2.1	0.6	2.0
Sunflowerseed	2.07	1.96	2.03	2.20	1.85	2.7	2.75	3.3	3.2	2.4
- US	0.09	0.11	0.11	0.29	0.12	0.11	0.25	0.2	0.1	0.2
Rapeseed/Canola	4.38	4.48	4.42	4.96	4.14	4.58	5.87	4.3	3.8	4.2
- Canada	2.01	1.95	1.81	2.07	1.85	2.70	4.1	2.9	2.5	2.8
Copra	0.29	0.34	0.28	0.28	0.24	0.23	0.21	0.2	0.2	0.2
Linseed	0.6	0.6	0.61	0.7	0.57	0.68	0.87	0.87	0.77	0.81
Other Oilseeds	1.41	1.58	1.68	1.77	1.42	0.68	1.08	2.65	2.83	2.89
Total	**31.71**	**35.82**	**34.42**	**37.38**	**38.20**	**36.37**	**42.72**	**42.7**	**47.2**	**49.9**

Source: ABARE 1994/95; "Oil World Annual" 1998

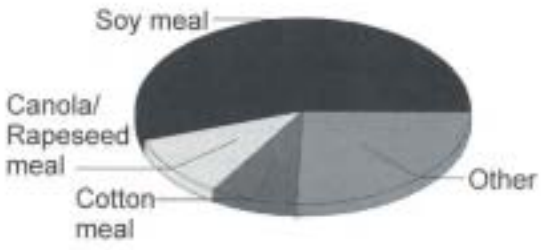
Five major oilseeds dominate the world market (as distinct from oils and meals), namely, soybeans, cottonseed, groundnuts, sunflower seed and canola (refer to Figure 2).

Figure 2: World Oilseed Production, 1997/98

Source: Oil World, 1998

The three major meal sources are soybean, cottonseed and canola as palm oil does not generate a significant meal product. The 1994/95 meal volumes as a percentage of world meal production are shown in Figure 4.

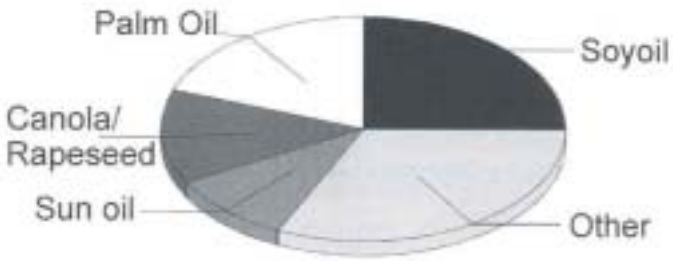
Figure 4: World Meal Production, 1997/98



Source: Oil World, 1998

There are four dominant vegetable oils traded on the world market. These are soybean, groundnut, palm/ canola and sunflower. Figure 3 indicates the relative volume as a percentage of world trade in oil.

Figure 3: World Oil Production, 1997/98



Source: Oil World, 1998

In the medium term, world demand for vegetable oils and fats is expected to remain relatively strong. Growth in Asia (particularly China) has seen demand for vegetable oils and oilseeds increase significantly in recent years. Correspondingly, the increases in world oilseed crushing and rapid growth in meal supply saw protein meal prices hit historical lows in 1997/98. The strong world demand for vegetable oils resulted in price premiums being achieved by oilseeds with high oil content and in a rapid expansion in the production of these oilseeds. This has also been supported by low supplies of palm oil and higher prices. The major factor influencing medium term outlook is the low carryover stocks of oils and fats in total. The 1998/99 season is expected to commence with the lowest stocks/usage ratio in over three decades and this will see production increase further subject to sufficient land availability and prices of alternative crops. As a result demand for high oil yielding crops is expected to remain firm. Demand for oil meals is expected to recover somewhat as the economic situation in Asia improves.

Following the Market and Price Setting

Earlier sections identified some of the broad factory impacting on oilseed prices. This section looks specifically at how particular oilseed prices are established in Australia. It provides a "check list" guide of what factors to monitor and what factors affect each crop (from a growers point of view). This "check list" is provided in greater detail in Appendices 3 and 4 and discusses the actions a possible buyer would undertake.

Growers should consider the following when determining the value of their seed/future crop:

- the domestic demand for oil and meal in enduser centres i.e. Melbourne, Sydney and Brisbane;
- volume and location of domestically produced seed;
- monitoring of weekly domestic price charts (domestic prices reflect a combination of events such as other markets, exchange rates and Australian crop outlook (surplus/shortfall)); and
- following the Winnipeg canola market and Chicago soybean market on a weekly basis to help explain any change in world export prices.

Whilst the general principle applicable to all oilseeds is the same, different crops and seasons impact on prices of the various oilseed crops. Her example, the canola industry is generally priced on an export parity basis against Canadian canola into the Japanese market, whilst soybean prices are based on import parity of US soybeans.

Canola

Domestic prices are initially based on export parity pricing.

Export parity pricing sets a price at which the Australian crop can be sold in competition with other exporters, that is, Canadian exporters competing in the Japanese market.

The export parity pricing method is used in the first instance as the eastern states of Australia will have a pre plant expectation of a canola seed export surplus.

What Factors to Consider

When establishing an export parity price the following factors are considered;

- internal storage costs;
- domestic freight rates;
- shipping rates to Japan;
- specifications of the canola i.e. premiums commanded;
- shrinkage rates;
- exchange rates; and
- interest costs.

In addition, consideration must be given to international competitors storage and freight costs.

What Factors to Follow

- Watch the trading of the Chicago soybean and Winnipeg canola markets. Generally the Winnipeg market follows the Chicago market.
- Watch oil prices as the price of canola is very responsive to any increase in the price of oil.
- Domestic and international production and trade predictions. The timing of the Australian crop and in particular an export package can be established (generally the earliest is January/ February).
- Watch for differences in delivered crushing plant values and delivered port values (this will give a good indication of export values).

Soybeans

As Australia is a net importer of soybeans, the factors to consider and follow when determining soybean prices are significantly different to canola. The price paid for soybeans is based on import parity.

What Factors to Consider

When establishing an import parity price the following factors are considered:

- origin of soybeans;
- protein premium paid for US beans over Australian beans;
- freight cost of shipping soybeans from origin to Australia; and
- assessment of local demand for soybean oil and meal including;
    - supply of Australian oilseeds for the domestic crush;
    - supply of soybeans on the eastern seaboard;
    - demand for meal and specifically soybean meal in the beef, chicken and pork industries; and
    - parties importing high protein meal from the US.

What Factors to Follow

- Track the Chicago Board of Trade (CBOT) soybean, oil and meal prices for March/ April.

Sunflowers

Unlike soybeans, the importance of domestic production is paramount in determining sunflower prices. The price paid for sunflowers is based on export parity.

What Factors to Consider

When establishing an export parity price the following factors are considered:

- 130,000 tonnes domestic demand requirement (Melbourne requires 30,000 tonnes, Sydney 80,000 and Brisbane 20,000 tonnes); and
- over/under supply of markets. If any market is over supplied, discounts will be applicable.

What Factors to Follow

- World supply and demand
- Sunflower oil cash bids out of South America (physical oil offered on the market)
- MATIF market (French Board of Trade) and the Amsterdam market place.

Growers are not expected to consider and follow all of the above to the last detail. Buyers undertake this as a full-time job! However, it is important to be aware of how export or import parity prices are calculated. The calculation of import/export parity is not a precise method of price determination. It is also possible that the calculation of parity prices by two people fully informed of the market may come up with a figure $5-10 apart. As with all markets there can be a spread between cash and futures quotes.

Oilseed Storage

Oilseeds in general are more difficult to store than cereal grains. There are several risks which need to be managed. These are:

- fire risk
- moulding
- loss of quality
- free fatty acid formation
- colour change of oil
- peroxide value changes
- viability loss
- insect and mite infestation

Overall, the best strategy for long term storage under Australian conditions is to store *clean* seed, *cool* and *dry*.

Storage at too high a temperature and, particularly moisture content, increases risk of degradation in store. Loss of quality occurs much more rapidly under high storage temperatures and moistures. High moisture seed produces heat from its own metabolism (respiration). It supports growth of moulds and encourages pest infestation. Metabolism of these moulds and pests also produces heat and moisture creating additional problems.

It is possible for insect infestation to give rise to enough heat and moisture to allow moulding to occur. This, in turn, or on its own further increases moisture and heat to a stage where bacterial and chemical processes take off, giving further heat. In extreme cases the bulk can catch fire, but drastic loss of quality can occur at temperatures above 45°C for even short periods of storage.

Leakage of water into an oilseed store can set up a similar chain of events leading to localised heating, blackening and in extreme cases, fire.

There are procedures which can maintain oilseed bulks in good condition for long periods of storage - a year or more. Successful long-term storage of oilseeds requires skilled management, and proper selection and maintenance of the storage and control system.

Equilibrium moisture contents

Oilseeds, like cereal grains, absorb moisture or give it up, depending on the relative humidity of the surrounding atmosphere and the moisture content of the seed. There is a value of relative humidity, the equilibrium relative humidity (e.r.h.), where there is no net change in moisture content. This e.r.h. is a good measure of the 'storeability' of an oilseed sample at a particular temperature.

Figure 5 shows the graph of moisture content for particular e.r.h. for 42% oil content canola and for wheat (about 2% oil content).

The oil fraction of oilseeds absorbs less moisture than the fibre and starch fractions. Thus, for a particular moisture content, the e.r.h. of high oil content seeds, such as canola or sunflower, tends to be lower than seeds such as soybeans and much lower than non-oily grains such as wheat or barley. This means that, for an equivalent 'storeability', the moisture content of high oil content seeds has to be much lower than for cereal grains.

For long-term safe storage of oilseeds, under Australian conditions, the e.r.h. should be maintained below 60% with temperatures below 23°C. Slightly higher temperatures and e.r.h. levels can be tolerated for short term storage (2 months or less).

Figure 5: Equilibrium relative humidity - moisture content graph for canola (42% oil) and wheat at 25°C)

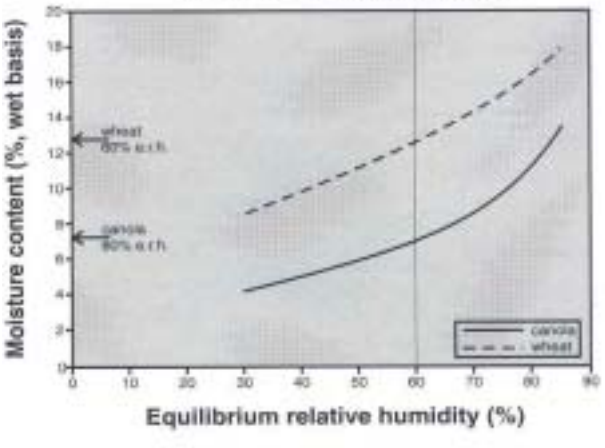
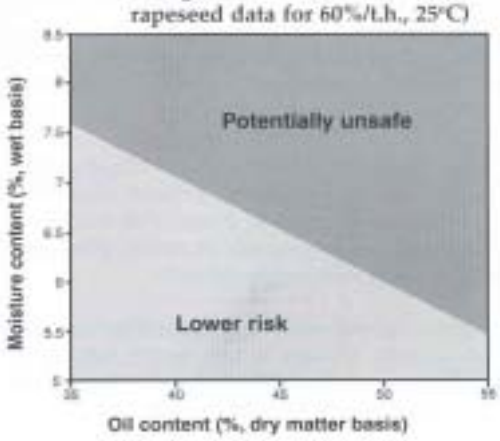


Figure 6: Equivalent storeability and its change with oil content (based on rapeseed data for 60%/Lh., 25°C)



Because the e.r.h. is dependant on oil content, safe storage conditions vary with moisture content. Higher oil content seed requires lower moisture content for the same storeability. Figure 6 shows the changes in 'safe' moisture contents for canola with oil content. This trend is becoming more important as oilseeds are bred and grown for higher oil content.

Insects and moulds

Some oilseeds, notably sunflower, are very prone to infestation by insect pests. Others, including canola and soybeans, are much less so. However, even these will require some management of insect pests to ensure the seed is marketable and retains good condition during storage.

There are very few chemical insect pest control options registered and suitable for oilseeds. While others are being sought, in practice only phosphine fumigation can be used widely. Natural pyrethrum sprays can also be applied, subject to market requirements. Long-term storage of oilseeds will require at least one insect control treatment soon after harvest. To be effective, phosphine treatments require either a fully scalable storage or a flow-through system (Siroflo ®).

Mite infestations are a problem overseas in some oilseeds, but at present, are not common here. Mites will be controlled if the e.r.h. is kept below about 70%.

Insect pests require quite high temperatures for rapid breeding (eg 30°C). Cooling the oilseed bulk to 15°C or less stops insect pest multiplication though it docs not kill the pests. Mites can breed at low temperatures, down to about 4°C.

An effective management process is to fumigate the dry or dried oilseed as soon as possible after harvest and then to cool to less than 23°C to maintain quality and restrict pest multiplication. Treatment of the grain surface may be required to prevent infestation by moths and beetle pests developing there in long-term storage.

Moulds do not proliferate below about 70% e.r.h. though they remain dormant and can be revived if conditions become more favourable. Natural convection forces, sometimes increased by heat from insect infestation, can give rise to 'moisture migration'. Grain close to the surface of the bulk increases in moisture. This may eventually reach a level where moulds can grow. Surface spoilage then occurs. Moisture migration can be managed by well-controlled grain aeration**.**

Heating

Spoilage of oilseeds is primarily the result of heat, though excessive moisture is also a factor. The source of the heat can be harvest temperature or metabolism of the oilseed, moulds, pests or bacteria. Under some conditions chemical oxidation becomes an important source of heat.

The hotter the grain, the faster it loses quality. The oils break down to free fatty acids, oxidation increases, oil and seeds darken and germination is lost.

A secondary effect of heating is physical damage to the seed itself. The seed may cake or set, giving handling and management problems. The oil and meal from the affected seed may be tainted.

There have been many instances in Australia where oilseed bulks have charred or caught fire. Temperatures in the bulk of 50°C or more are a sign of trouble. Temperatures can increase rapidly with combustion or charring occurring in only a few days after this temperature is reached.

Grain Drying

Early harvesting, before the oilseed has reached 'safe' moistures, has advantages in terms of yield/ quality and convenience. However, the oilseed must be dried before commencing long-term storage. Oilseeds at harvest temperatures and high moistures will mould and spoil quickly in bulk. Thus, canola at 30°C and 14% moisture content can be expected to mould and heat in a few days. Rapid drying and cooling are necessary to avoid loss of quality.

There are a number of grain dryers available. These need careful operation according to manufacturer's instructions to avoid damage to quality and fire risk.

In-bin drying is currently under development. This process has considerable potential to allow direct heading at high moisture, but details that will allow reliable and low-risk operation are yet to be worked out.

There are agronomic practices, such as swathing, that can bridge the gap between the need to harvest moist and early and to store and market cool and dry.

Monitoring

Oilseed in long-term storage requires monitoring and inspection to allow early action if storage problems are identified and managed before they become damaging to quality or even place the bulk and store at risk from fire.

Equipment for monitoring bulk temperatures and moistures is commercially available. Traps are also available to monitor for insects. Monitoring can give warnings of when the bulk is heating or pest control is required.

There is no substitute for frequent direct inspection to check that the oilseed bulk is in good condition.

Cooling oilseed in store

In most situations in Australia, it is essential to cool oilseed bulks to maintain quality in long-term storage. This is normally done using grain aeration with ambient air. There are also systems using refrigeration.

There are several commercial suppliers of aeration equipment. It is important to have an aeration control system fitted to ensure that the bulk is cooled efficiently and not rewetted or reheated under some weather conditions.

Cooling alone may not control insect pests adequately, though it will much reduce the potential for infestation. Provisions need to be made in storage designs to allow efficient fumigation.

Where oilseeds are taken into store direct from harvesting they may be very warm (greater than 30°C). The bulk should be cooled to about 25°C before fumigation, However, in general fumigation should take place within a few weeks of binning, preferably immediately after placing in store.

Managing oilseeds in long-term storage.

- Ensure store does not let in rainwater
- Install or service cooling (aeration) system
- Harvest or dry oilseed to safe moisture content
- Manage infestation by phosphine fumigation
- Cool to below 23°C, 15°C if possible
- Monitor oilseed condition (temperature, moisture, and infestation)
- Heed 'out of specification' observations, correct in a timely manner

Store oilseeds - COOL and DRY

Dr Jonathan Banks
Stored Grain Research Laboratory
CSIRO Canberra

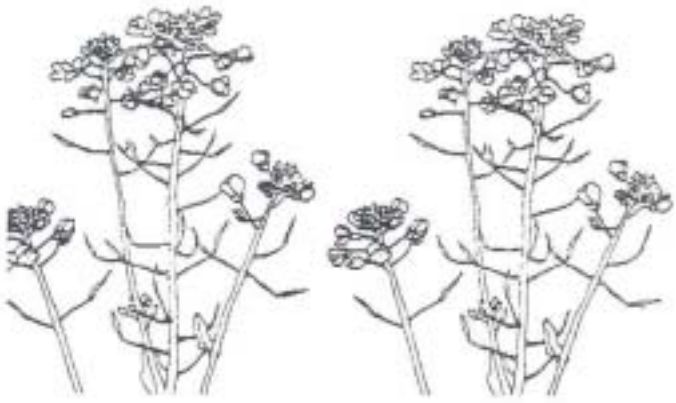
Glossary

ABARE	Australian Bureau of Agriculture and Resource Economics
ABS	Australian Bureau of Statistics
AOF	Australian Oilseeds Federation
Arbitration	The procedure of settling disputes between members, or between members and customers.
Basis	The difference between a cash price at a specific location and the price of a particular underlying futures contract.
Bear Market	A period of declining market prices
Bid	An expression of desire to buy a specific quantity of a commodity at a stated price.
Blending	The combining of two or more lots of grain to make a new lot that will be of better quality than at least one of the lots forming the blend.
Bull Market	A period of rising market prices.
Call Option	An option that gives the buyer the right, but not the obligation, to purchase ("go long") the underlying futures contracts at the strike price on or before the expiration date.
Carryover	Grain and oilseed commodities not consumed during the marketing year and remaining in storage at year's end. These stocks are "carried over" into the next marketing year and added to stocks produced during that crop year.
Carrying Charges	Those costs incurred in warehousing the physical commodity, generally including interest, insurance, and storage.
Cash Contract	A sales agreement for either immediate or future delivery of the actual product.
Charting	The use of charts to analyse market behaviour and anticipate such factors as high, low, and settlement prices; average price movements; volume and open interest. Two basic price charts are bar charts and point and figure charts.
Chicago Board of Trade	A licensed commodity exchanged, located in Chicago, Illinois; affords facilities for both cash and futures contract trading in grains, meats, building material and precious metal.
C&F	Cost and freight paid to port of destination.
CIF	Cost, insurance and freight paid to port of destination.
Clearing House	A separate agency associated with a futures exchange through which futures contracts are offset or fulfilled and through which financial settlement is made (also Clearing Association).

Commission	A percentage of money given as payment for performance of certain duties.
Contract	An agreement between buyer and seller in a transaction.
Crop Year	The period from one harvest of crop to the next harvest in the following year.
Deferred Pricing	The contractual arrangement to fix price at a time subsequent to delivery and exchange of title.
Delayed Pricing	The arrangement to fix price at a time subsequent to delivery and exchange of title. It may be by contract or by purchase of futures.
Demurrage	The penalty charges incurred when loading or unloading grain transported takes longer than the allotted amount of time. The charges, which increase as the time increases, are published in detention change tariffs.
DIS	Delivered in store.
Discounts	A downward adjustment in price allowed for delivery of stocks of commodity of lesser than contract grade against a futures contract.
Dockage	All matter other than the designated commodity which can be removed from the sample by the use of an approved device according to established procedures.
Elasticity	The change in one variable as the result of the change in another variable. If one variable changes readily as the result of a change in another, the relationship is said to be elastic.
Equilibrium Price	The price that will just balance the supply of and the demand for a commodity.
Ex - Store	A selling term for commodities in a warehouse where title passes from seller to buyer on exit or outloading.
Force Majeure	Circumstances rendering performance of a contract impossible, where delivery is prevented/delayed by an event outside the control of either party e.g. act of God or industrial dispute. Circumstances where Force Majuere applies will vary from contract to contract.
Foreign Materials	All matter other than the designated commodity which remains in the sample after the removal of "dockage".
FOB (Free On Board)	Indicates that all delivery, inspection, and elevation or loading costs involved in putting commodities on board a carrier have been paid.
Full Carrying Charge	The cost involved in owing cash commodities over a period of time; includes storage, insurance, and interest charge on borrowed working capital.
Fundamental Analysis	A method of anticipating future price movement using supply and demand information.

Futures Contract	A legally binding agreement, made on the floor of a futures exchange, to buy or sell a commodity or financial instrument sometime in the future. Future contracts are standardised according to the quality, quantity, and delivery time and location for each commodity with the only variable being "price". Price is discovered in a trading "pit" on a trading floor under terms and conditions established by the federally designated exchange.
Hedging	The initiation of a position in a futures market that is intended as a temporary substitute for the Sale or purchase of the actual commodity. The sale of futures contracts in anticipation of future sales of cash commodities is done as a protection against possible price declines, or the purchase of futures contracts is done in anticipation of future purchases of cash commodities.
Limit (up or down)	The maximum price advance or decline from the previous day's settlement price permitted in one trading session by the rules of the exchange.
Liquid Market	A market where selling and buying can be accomplished with ease, due to the presence of a large number of interested buyers and sellers willing and able to trade substantial quantities at small price differences.
Long	One who has bought futures contracts or owns a cash commodity.
Margin	The difference between raw material cost and value of products sold in manufacture.
NACMA	The National Agricultural Commodities Marketing Association.
New Crop/Old Crop	New crop is a crop in planning, planting, growing, and production process. Old Crop is the commodity existing after harvest.
Offer	An indication of willingness to sell at a given price; opposite of "bid".
Option	A contract that conveys the right, but not the obligation, to buy or sell a particular commodity at a certain price for a limited time. Only the seller of the option is obligated to perform.
Position	A market commitment. A buyer of futures contracts is said to have a long position and, conversely, a seller of futures contracts is said to have a short position.
Put Option	An option that gives the option buyer the right but not the obligation to sell the underlying futures contracts at the strike price on or before the expiration date.
Recovery	An upward correction of price following a downward trend.
Rally	The quick advance in prices following a decline.
Range	The difference between the highest and lowest prices recorded during a specified trading period.
Resistance	A level above which prices have had difficulty penetrating.

Risk	The possibility of adverse outcomes associated with an action or business decision.
Short	One who has sold futures contracts or sold a cash commodity.
Shrink	The decrease in quantity of grain during transportation, conditioning, handling and storage.
Speculating	Is the trading of futures contracts to make a profit as the contracts are not traded in parallel to the physical commodity. Speculators bear the risk of hedges to make a profit.
Spot	The characteristic of being available for immediate (or nearly immediate) delivery.
Strike Price	The price at which the buyer of an option may exercise his right to buy or sell the underlying futures contract.
Technical Analysis	The study of charts and, more specifically, price movement to forecast commodity prices.
Thin market	A low volume market in which a larger trade unduly affects the market price.
Track	A number of grains are traded in what is referred to as the track market. Small parcels of bulk grain are traded between traders and exporters on basis of current prices landed into export markets. The price offered to growers is simply worked back from export destination to a delivered port price.
Volatility	A measurement of change in the price over a given time period. It is often expressed as a percentage and computed as the annualised standard deviation of percentage change in daily price.
USDA	United States Department of Agriculture.
WCE	The Winnipeg Commodity Exchange.



Appendix I: How Domestic Prices are Set

Canola

Buyers of canola seed determine prices daily, a process which takes about 15 minutes, with all buyers using essentially the same formula. Buyers must have a full understanding of their own firm's requirements including:

- for crush and export;
- the local supply of, and demand for, canola and other oilseeds;
- key overseas market prices; and
- factors influencing prices on these markets.

Australia will generally have a pre plant expectation of an export surplus of canola seed and hence, domestic prices will be based initially on export parity pricing. Western Australia has a relatively small domestic industry forcing prices to be based on export parity prices all year round. Forward prices are quoted as early as January-February to allow growers to lock into prices virtually all year round. The calculation of export parity involves setting a price at which the Australian crop can be sold in competition with other exporters, the main one being Canada. The main export market is Japan so the price is calculated for this market.

If Australia does not produce enough seed to meet its own requirements, then the crop is priced more in line with import parity, i.e., the cost of importing seed, or the components of the seed, the meal and the oil. Oil is sourced from South America (soybean or sunflower oil), whilst meal (soybean) is generally sourced from North America. With the expansion of the canola industry across Australia, it is unlikely that imports of canola seed would be necessary.

It is necessary to establish an export parity price so that Australia's export price is competitive with the Canadian canola. Internal storage and freight rates to get the seed to seaboard will be different in the two countries, as will shipping rates. Other factors to be considered are the specifications of the canola, i.e., Canadian canola is generally higher in oil content and the meal has a higher protein content and thus, commands a premium. Shrinkage rates may be different and certainly exchange rates and interest costs are other factors to be considered.

Since Australia now has an exportable surplus of canola then determining the export parity is normal procedure. The domestic market requires around 450,000 Te of canola seed, therefore any tonnage in excess of this is the exportable surplus as seed or as the oil and protein component. In 1998 and in 1999 this was in excess of 1 million tonnes each year.

Refiners have a good knowledge of the market and will discount canola oil against imported soyoil if they are aware of surplus crush to domestic requirements, forcing the price of canola oil down towards export parity.

The Starting Point - Follow Chicago and Winnipeg

The buyer looks at market reports to see how the Chicago soybean and Winnipeg canola markets have traded overnight. Generally these markets perform in concert, with Chicago the dominant market as soybeans are a far more important component of oilseed world trade than canola and the US is the major exporter.

However, this scenario has not always remained stable. In the past two years, there have been extended time periods where Winnipeg has been the dominant market with the normal spread between canola and soybean prices widening in favour of canola.

Oil importing countries, generally imported seed to crush and focused on canola seed due to its higher oil content (40 per cent) compared to soybean oil content (18 per cent). Concurrently, China emerged as a major player in the world oilseed market.

It is worth emphasising that as canola is 40 per cent oil and soybeans 18 per cent oil, the price of canola is very responsive to any increase in the price of oil, whilst soybeans are sensitive to fluctuations in the price of meal.

The starting point is the latest quote for Winnipeg November canola. The November contract is used because that is when the Australian crop is harvested and the time when growers will contract the majority of their crop. Buyers will offer contracts over the year based on the Winnipeg price. Export parity calculation are only estimates and two people each fully informed of the market may come up with a figure $5-10 apart. There are also minor costs which some may include and others will not.

It is also obvious that there are times when domestic prices do not move in line with Winnipeg. In early April 1995, the $A/$US was strengthening and the Winnipeg price was weakening and yet domestic buyer quotes were moving upwards. The explanation is that Winnipeg futures prices and Japanese cash prices (CNF values) were not moving in unison. However, Japanese cash prices are hard to source and whilst, this would possibly be a better and easier way of working out export parity it is not practical for other than buyers with Japanese contacts. It is worth watching any differential in delivered crushing plant values and delivered port values. This should give the first indication of export values.

Firstly, convert the Winnipeg November canola price to US dollars as canola is traded with Japan in US dollars. A Port cost is then determined by the cost of the stored canola in one of the futures exchange delivery centres which is transported to the port of Vancouver, loaded and freighted by ship to Japan. Secondly, fobbing and freight cost to Japan is then added to the port cost.

Freight costs back to Australia are deducted and converted to Australian dollars. Finally, to derive a delivered port price, fobbing costs, wharfage, stevedoring and shrinkage must be deducted. Other costs to consider include oil discount, storage cost, interest and costs of accumulating the grain.

Other Considerations in Calculating Export Parity

The timing of the Australian crop must be taken into consideration as this is not harvested until November/December. Thus, the earliest that an export parcel can be put together is January/early February.

At this point, the Canadians may be offering US $275/tonne to the Japanese, whilst the Japanese may only be prepared to pay US$270.

The Japanese would also discount Australian canola by US$5/tonne due to Australia only exporting small quantities compared to the Canadians. The Canadians export up to 1.8 million tonnes to the Japanese market. Australia may be in a better bargaining position when it becomes a reliable long term supplier.

In addition, the Japanese will not pay oil bonuses for seed with oil over 40 per cent. Oil bonuses are paid in Australia on a 0.5 to 1 basis.

Soybeans

Whilst traders operate in a similar manner, the factors determining soybean prices are somewhat different. Since Australia is a net importer of soybeans, the price that an enduser is prepared to pay for their product is based on import parity.

The calculations are a little harder as normally oil or meal would be imported and to work out import parity prices requires knowledge of crushing margins. The figures are based on imported soybean oil from South America as this is the cheapest source.

Factors included in an import parity calculation are:

- Origin;
- Shipment month;
- Arrival;
- Futures (settlement price close at CBOT for soybean);
- F/S/T premium (i.e. fobbing and shipping cost from the US);
- Protein (premium paid for US beans over Australian);
- USD/BU (total cost on soybeans in US $ and measure);
- Conversion to metric tonnes;
- Freight (i.e. cost of shipping soybeans from origin to Australia);
- Insurance;
- Interest;
- C1F Aust per MT;
- Forward margins;
- AUD per MT C1F (i.e. conversion to AUD before unloading);
- Discharge;
- Freight (freight of seed to enduser or crusher); and
- Shrink (i.e. calculated loss of seed over time).

An importer of soybean seed needs to assess the local demand for soybean oil and meal. This gauge is taken against the comparative price sensitive market for substitutable products, whether they be canola/sunflower oil or canola/sunflower/local soybean meal. In general, the need for importing soybeans is for the use of soybean meal in animal rations so an overall equation needs to be assessed in respect to the supply of Australian oilseeds for the domestic crush, the supply of soybeans on the eastern seaboard, the demand for meal and specifically soybean meal in the beef, chicken and pork industries and finally, the parties importing high protein meal from the US.

Consequently, if a farmer was to follow the soybean markets it would be pertinent to track the Chicago Board of Trade (CBOT) soybean, oil and meal prices for March/April. In other words, the benchmark soybean complex.

For the refiner importing oil, the starting point is the Chicago November (or possibly January) soybean oil price. The Americans trade beans in US cents per bushel, meal in dollars per short ton and oil in cents per pound. This can be very confusing but by multiplying the oil price by 22.046 this gives a close approximation to the correct price in US$ per metric tonne. For example, if the Chicago soyoil price is 23.85 c/lb, then this converts to US$526/tonne. Whilst the Americans may be selling oil for US$526 per tonne, the South American's are usually in the market at a considerable discount, perhaps by as much as US$75/tonne, and this is where Australia would source supplies.

Calculation of import parity based on oil imports is shown in Table A1.1.

Note that these figures are based on 1995 data and whilst the values will have changed, the basis of the calculations and principles implied are not impacted by this.

Table A1.1: Importation of Oil

Chicago futures October	26.00	C/LB
Basis FOB South America	(02.50)	C/LBUnder
	23.50	C/LB FOB SA
FOB South America in USD	518.08	
Freight to Aust	80.00	
CNF Value USD	598.08	
Duty 4.0%	23.92	
Insurance	1.92	
Values USD	623.92	
Convert to AUS$	820.92	
Discharge	35.00	
Total Cost Delivered	855.92	

Imported parity on oil can be worked using CBOT, however, the basis between CBOT and the South American market needs to be determined.

A meal import parity price can be arrived at in exactly the same way as for oil.

As a final point it is worth remembering that calculation of import and export parity is not a very precise thing. Also, Chicago soybean and Winnipeg canola futures price movements are not always indicative of likely movements in the domestic buying quotes. As with any other market, there can be a spread between cash and futures quotes.

Sunflowers

The importance of domestic production in sunflowers is paramount in calculating and following the domestic sunflower price. The intrinsic demand for sunflower seed in Australia is 130,000 tonnes. This includes Melbourne requiring 30,000, Sydney 80,000 and Brisbane 20,000 tonnes. If any of these markets are over supplied, then discounts will be applicable as the market adjusts to an export parity price (refer to Table A1.2). Note figures are again based on 1995 data and whilst values will be different, the calculations remain the same.

Table A1.2: Export of Sunseed

USD FOB Argentina	260
FRT to Mex	32.50
FOB Mexico	292.50
FRT from Australia	38.50
USD FOB Australia	254.00
Aussie dollar exchange rate	.7503
Aussie dollars FOB	338.53
Quality difference	3.90
Fobbing	13.65
Wharfage	3.00
PX Del Port	325.27
Shrink	1.95
Accumulation	10.00
Storage	16.45
PX del port including up country st	296.87

Acknowledgement: Cargill Australia

Appendix 2: How to Follow the Market

This section should be read in conjunction with page 16 "Following the Market and Price Setting".

The Australian farmer can calculate the value of his seed by:

i. pricing his product off the domestic bid, this is influenced by the Winnipeg canola market and the Chicago soybean market, as well as the Australian and United States exchange rates;

ii. factoring in any carry that may be in the market which is any carry over of grain from the previous season that may have an impact on supply and demand in the current season; and

iii. considering the freight and storage costs that will be incurred on delivering seed.

It is also important to consider the domestic demand for oil and meal in the major enduser centres of Melbourne, Sydney and Brisbane and where the domestically produced seed is located.

The starting point is for growers to follow domestic prices. The best way to follow the market is to look at weekly price statistics and charts, in combination with some brief marketing comment. This information can be sourced through the popular media, marketing newsletters and poll faxes.

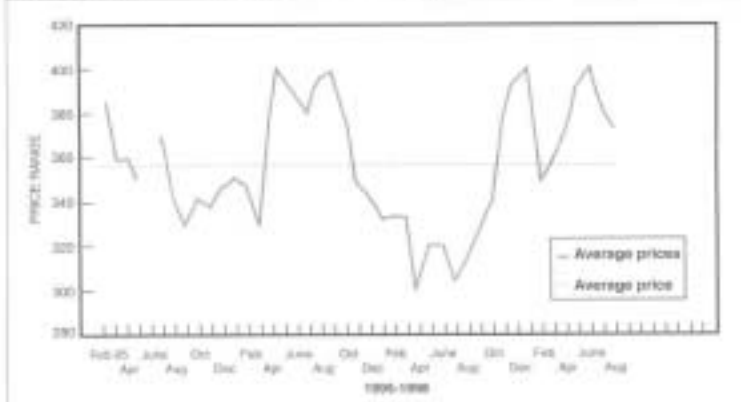
Charts of domestic prices are not shown as often as those of the overseas markets from which they are derived. This is because domestic prices do not show as much variation. The chart on Cargill canola prices delivered Melbourne illustrates the point (refer figure A2.1). Domestic prices reflect events from a combination of other markets such as Winnipeg canola, Chicago soybeans, exchange rates and, of course, whether the Australian crop is going to result in a domestic surplus or shortfall.

Following the price quotes on the local market is the logical starting point, as these are the contract prices that you will lock into. The overseas markets that drive the Australian market are an essential adjunct as they provide information pertaining to the cause of domestic events and can be used as an indicator of future domestic trends.

Market analysis usually shows charts of either Winnipeg or Chicago prices. For canola the (Winnepeg Commodities Exchange) WCE chart will be the November contract and the Chicago chart the November soybean contract. Analysts will also refer frequently to the Chicago December soyoil and soymeal charts.

The monthly charts of prices shown on the following page indicates price movements for sunflower and soybeans.

Figure A2.1: Cargill Canola Average Price 1995-1998



Traditionally the price of soybeans has been the main factor determining the price of canola. World production of soybeans is about 130 million tonnes and canola 30 million tonnes. World trade in soybeans is about 32 million tonnes and in canola about 5 million tonnes.

In other words, Chicago is the most influential market relating to oilseed prices. However, when oil prices are high, the relationship is not as strong as canola has a 40% oil content compared to 18% for soybeans. Buyers, in this situation, want oilseeds with high oil content. This increases the influence that the Winnipeg market has on world oilseed prices.

Conclusion

Growers should attempt to follow the Winnipeg canola market, at least on a weekly basis, and explain any change in domestic prices by reference to this market. For the more serious market watchers, it will also pay to follow the Chicago November soybean and December soyoil and soymeal markets. The Australian United States dollar exchange rate is the other major important factor to follow.

Figure A2.2: Sunflower Average Price 1994-1998

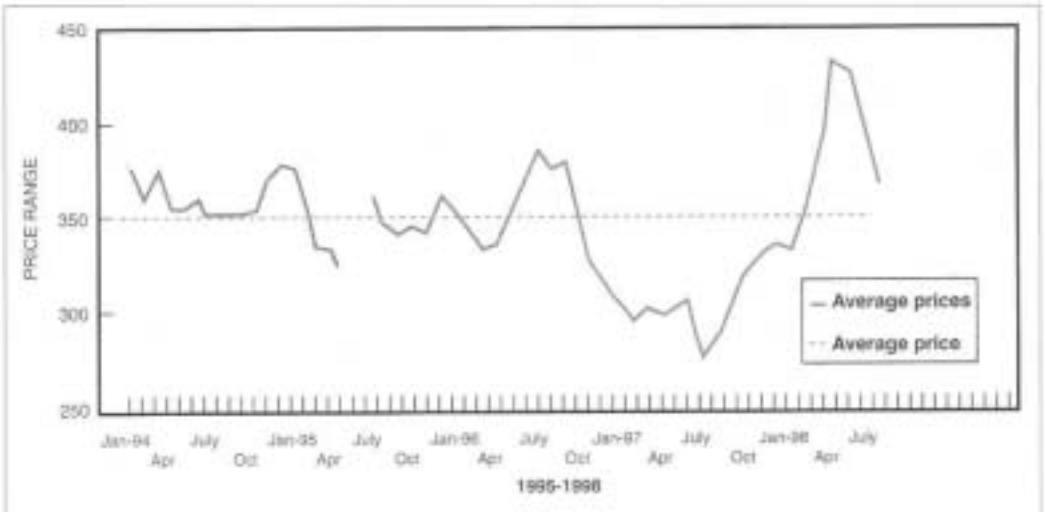
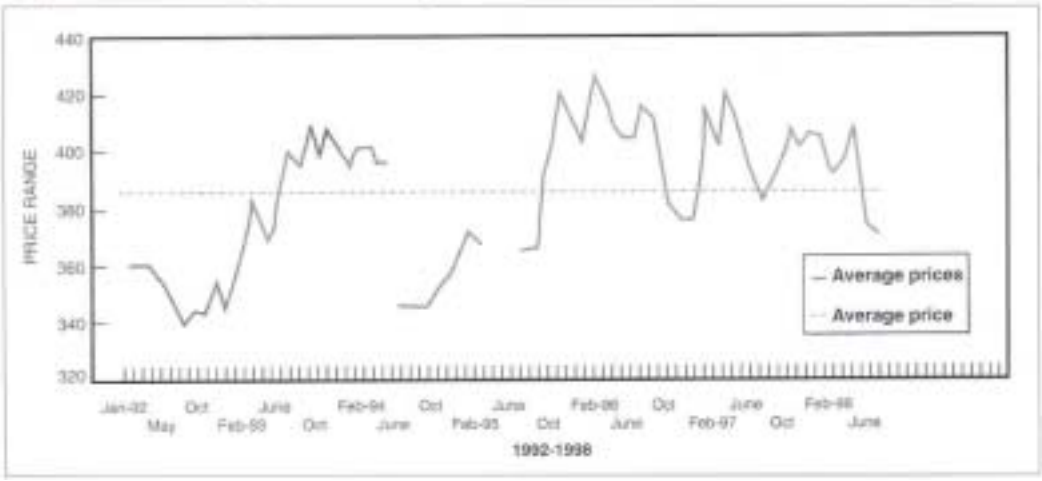


Figure A2.3: Soybean Average Price 1992-1998



Appendix 3: Marketing Alternatives for Oilseed Producers

Basically the range of marketing alternatives are applicable to oilseeds in general, with the exception that forward and spot contracts are not available for all crops.

Extremely high international prices for canola have fostered a large increase in the number of people examining futures and options on the Winnipeg Commodity Exchange as a viable alternative to the traditional methods of marketing canola.

The Winnipeg Commodity Exchange has a canola contract which can be used to hedge canola prices. The Winnipeg contract is used as:

i. it is the only canola contract with a tradeable volume; and

ii. Canada produces 70 percent of the world's exportable canola and, as such, it represents a true world price for canola/ i.e. export buyers arrive at their offer price based on the Winnipeg futures price.

A grower should use the futures market to hedge his production rather than speculating to profit from favourable price movements. As a hedger, a grower uses the futures market as a way of forward selling his crop. The difference between hedging and speculating is that a hedger takes a position in the futures market that counteracts and is in parallel to his position as a producer.

The position is counteracting, as he sells on the futures to offset the "long" position he effectively has as a grower. When he sells his crop, the grower buys a futures contract to close his position.

Correspondingly the futures transaction should cover the same time frame as the growers physical production. If the time frame moves out of kilter, the grower is effectively speculating for that period of time. Hence, a grower who doesn't hedge is in reality speculating on the future spot price of his commodity.

A hedger is looking to offset the price risk associated with growing a crop to enable more consistent returns. The aim is to prevent financial difficulty in those years when prices become so low that a grower is forced to sell his crop at a loss. In theory, from a hedgers' point of view, any gain made in the futures market is offset by the lower price a grower receives for his crop when he sells it on the cash market. The inverse is also true, i.e. any loss incurred in the futures market is offset by the higher cash price a grower receives when he sells his grain. So futures trading provides a means of locking in a price in a similar way to using forward contracts.

Whilst futures provide an excellent vehicle for hedging, they may not necessarily provide the best solution for a grower, particularly if cash flow is irregular. In fact/ it could be said that apart from standardisation of contracts there is little practical difference between futures and forward contracts.

Options on futures can be an excellent price risk management tool for growers. A futures option represents the right/ but not the obligation, to take out a futures contract before an agreed point in time at an agreed price. Most options transactions never result in taking a futures contract. They are used as a financial tool to make use of moves in the market place to reduce price risk to a grower. In fact/ options can be described as price insurance.

From a growers point of view "put" options are the most commonly used options to protect against price risk. A put option increases in value as a market falls in value. Whereas a "call" option increases in value as a market rises.

Options are available in a range of "Strike Prices". The strike price is the level at which you wish to lock in the price of your crop. In canola options, the strike prices are available in CAD$10 per tonne increments.

When you take out a put option you pay a premium. This premium (or the cost of the option) is known and paid up front. Once this premium is paid, there is no further financial obligation to the purchaser.

Let's step through an example to show how a put option works. Using recent prices from Winnipeg, we know that the November canola contract is somewhere near the CAD $409 per tonne level.

Whilst this price may seem far better than anything offered locally, you must remember that this reflects the price of canola DIS Vancouver Canada. In reality when export parity is calculated, local prices will be roughly $40-50 per tonne less than the 'Winnipeg price', after the Winnipeg price has been converted to Australian dollars. This difference reflects amongst other things, exchange rate and shipping cost differentials.

One way a grower can hedge his price risk is to purchase a put option. The Winnipeg canola contract trades in two sizes i.e. 20 metric tonnes (job lot) and 100 metric tonnes (board lot). For all intents and purposes a board lot is simply 5 job lots, so for this example we will base our calculations on a job lot (20 metric tonnes).

In this instance, a grower would consider the purchase of a November expiration CAD$400 put option, which was selling for about CAD$14 per tonne. This would equate to a dollar cost of approximately AUD$280 for an option which would cover 20 tonnes of production.

Let's say that the Winnipeg canola contract continues to fall in value, and at the expiration of the option (October 20), November canola is trading at CAD$350 per tonne. Your option would now be worth CAD$50 per tonne. The strike price of the option was CAU$400 per tonne, and from this you subtract the final futures price ($350) giving you the CAD$50 per tonne value. You would sell this option just before expiration, and at the same time, cover your production with a forward contract. Assuming that the local price maintains its $50 discount to the Winnipeg market, forward prices are likely to be in the vicinity of $300 per tonne. Add to this the profit from your option trade CAD$50-CAD$l5 (cost of option) -

CAD$35 per tonne. Therefore, your total selling price will be somewhere near $335 per tonne. Under present taxation regulations, the cost of the option for hedging purposes is a tax deduction which may improve the result of this exercise.

Let's also consider the case of rising canola values. If the November canola contract finished at CAD$450 per tonne, what would be the result? You will recall as previously discussed, once an option has been paid for, no further financial obligation is required. Therefore, if at expiration the future price is above your strike price, the option expires worthless, and the premium you paid (CAD$15 tonne) is lost. However, if futures have increased in value, you would also expect that the local cash price would be somewhere near $400 per tonne. Therefore, your net return would be $400 less the cost of the option ($15), resulting in a net return of about $385 per tonne. Once again the tax deductability of the option could increase this return.

In summary, the advantages of a put option are:

- effective downside price protection;
- no production commitment; and
- allows for participation in upward price movements.

Options on futures should not be construed as a complete replacement for traditional marketing methods, rather they are a complementary measure used to enable flexibility in a marketing plan. They should be viewed as another tool in the grower's market toolbox and as with any tool there is a correct and an incorrect use for each. This manual advocates that options on oilseeds futures present an excellent opportunity for the Australian grower to forward price the coming crop without the commitment of tonnage. Obviously, there is more involved in option trading than the outline presented here. Growers should seek professional advice to obtain the best strategy for their situations.

Appendix 4: AOF Commodity Quality Standards

COMMODITY QUALITY TRADING - OILSEEDS

TRADING STANDARD REFERENCE	COMMODITY NAME	QUALITY TRADING STANDARD	PRICE ADJUSTMENTS AND COMMENTS (See also Notes 1 & 3)
CSO - 1	CANOLA (Species BRASSICA NAPUS OR BRASSICA CAMPESTRIS) GLUCOSINOLATES AS SPECIFIED: MAX 30 MICROMOLES PER g OF OIL-FREE AIR-DRY SOLIDS ERUCIC ACID IN OIL MAX 2%	OIL — 40%	1½% premium or deduction for each 1% above or below 40% (Note 5)
		IMPURITY — MAX 3% (Rejectable over)	Adjustments to price as for linseed except 3% max. 2 for 1 penalty over 4% (Notes 2 & 5)
		MOISTURE — MAX 8% (Rejectable over)	Adjustments to price as for linseed
		BROKEN SEED — MAX 7% (Rejectable over)	Adjustments to price as for linseed
		DAMAGED SEED — 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — MAX 10% (Rejectable over)	Adjustments to price as for linseed. Except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable
CSO - 2	LINSEED	OIL — 39%	1½% premium or deduction for each 1% above or below 39% (Note 5)
		IMPURITY — MAX 4% (Rejectable over)	Gross weight shall be adjusted by 1% for each 1% impurities up to max. plus 2% for each 1% over maximum. (Notes 2 & 5)
		MOISTURE — MAX 10% (Rejectable over)	If accepted over max 2% deduction for each 1% over the allowed level will apply. (Note 5)
		BROKEN SEED — MAX 7% (Rejectable over)	If accepted over max 0.5% deduction for each 1% over the allowed level will apply. (Note 5)
		DAMAGED SEED — 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — MAX 10% (Rejectable over)	0.5% deduction for each 1% over the allowed level — excepting for green seeds which shall incur a penalty of 1% for each 1% over zero to a maximum of 2% over which green seed level the seed is rejectable. (Note 5)
CSO - 3	PEANUT	OIL — 41%	1½% premium or deduction for each 1% above or below 41% (Note 5)
		IMPURITY — MAX 4% (Rejectable over)	Gross weight shall be adjusted by 1% for each 1% impurities up to max. plus 1½% for each 1% over max. (Notes 2 & 5)
		MOISTURE — MAX 9% (Rejectable over)	If accepted over max. 2% deduction for each 1% over max. (Note 5)

TRADING STANDARD REFERENCE	COMMODITY NAME	QUALITY TRADING STANDARD	PRICE ADJUSTMENTS AND COMMENTS (See also Notes 1 & 3)
CSO - 4	SUNFLOWERSEED	Oil — 40#	1½% premium or deduction for each 1% above or below 40% (Note 5)
		IMPURITY — MAX 4% (Rejectable over)	Adjustments to price as for linseed (Notes 2 & 5
		MOISTURE — MAX 9% (Rejectable over)	Adjustments to price as for linseed
		BROKEN SEED — MAX 7% (Rejectable over)	Adjustments to price as for linseed
		DAMAGED SEED — OVER 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — 10% (Rejectable over)	Adjustments to price as for linseed. Except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable
CSBS - 2	SUNFLOWERSEED BIRDSEED GRADE	QUALITY	Traded as machine dressed seed basis as opposed to farmer dressed seed, consequently no price adjustment for impurity applies unless seed is purchased on a farmer dressed basis
		MOISTURE — MAX 9%	Rejectable over 9%
CSO - 5	SUNFLOWERSEED CONFECTIONERY GRADE	QUALITY	As for SUN-5:182/79
		MOISTURE — MAX 9%	Rejectable over 9%
CSO - 6	LINOLA	OIL — 40%	1½% premium or deduction for each 1% above or below 40% (Note 5)
		IMPURITY — MAX 3% (Rejectable over)	Adjustments for price are as for linseed except 3% Max. 2 for 1 penalty over 4%. (Notes 2 & 5)
		MOISTURE — MAX 9% (Rejectable over)	Adjustment to price as for linseed
		BROKEN SEED — MAX 7% (Rejectable over)	Adjustment to price as for linseed
		DAMAGED SEED — OVER 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — 10% (Rejectable over)	Adjustment to price as for linseed except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable

TRADING STANDARD REFERENCE	COMMODITY NAME	QUALITY TRADING STANDARD	PRICE ADJUSTMENTS AND COMMENTS (See also Notes 1 & 3)
CSO - 7	RAPESEED	OIL — 40%	1½% premium or deduction for each 1% above or below 40% (Note 5)
		IMPURITY— MAX 3% (Rejectable over)	Adjustments to price as for linseed except 3% max. 2 for 1 penalty over 4% (Note 2) (Note 5)
		MOISTURE — MAX 8%	Adjustments to price as for linseed
		BROKEN SEED — MAX 7%	Adjustments to price as for linseed
		DAMAGED SEED — 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — MAX (10%) (Rejectable over)	Adjustments to price as for linseed except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable
CSO - 8	SAFFLOWERSEED	OIL —34%	2% premium or deduction for each 1% above or below 34% (Note 5)
		IMPURITY — MAX 4% (Rejectable over)	Adjustments to price as for linseed. (Note 2)
		MOISTURE — MAX 8% (Rejectable over)	Adjustments to price as for linseed
		BROKEN SEED — MAX 7% (Rejectable over)	Adjustments to price as for linseed
		DAMAGED SEED — 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — MAX 10% (Rejectable over)	Adjustments to price as for linseed except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable
CSO - 9	SOYBEAN	IMPURITY — MAX 4% (Rejectable over)	Adjustments to price as for linseed (Note 2)
		MOISTURE — MAX 13% (Rejectable over)	Adjustments to price as for linseed
		BROKEN SEED — MAX 20% (Rejectable over)	Adjustments to price as for linseed
		DAMAGED SEED — 3% SPROUTED — MAX 5% GREEN — NIL (2%) TOTAL — MAX 10% (Rejectable over)	Adjustment to price as for linseed except for green seeds which shall incur a penalty of 1% for each 1% over zero (nil) to a maximum of 2% over which green seed level, the seed is rejectable

Note 1: The impurity content or where over 4%, the corrected impurity content, shall be deducted from the gross weight of seed received to give the *corrected net weight* from which shall be calculated the clean seed value. The clean seed value shall be the basis for calculation of all premiums and deductions.

Seed buyers may apply a cleaning charge for seed when the impurity content exceeds the permissible level but is accepted by the buyer. This charge is in addition to the impurity price adjustment. Similarly the buyer may apply a drying charge if seed with moisture in excess of the permitted level is accepted and again such charge is in addition to the appropriate moisture adjustment charge (see Note 4).

Note 2: The maximum limit of harmful seeds is variable (see oilseed standards 2.1)

Note 3: Free fatty acid deductions may be applied (see oilseed standards 2.3, 3, 4.8)

Note 4: If seed above the moisture limit is to be dried, a 1.5 for 1 deduction above the allowed limit will be applied plus a drying charge.

Note 5: In relation to premium and deduction adjustments, fractions will be in proportion.

DISPUTED RESULTS

Requests for moisture re-tests on high moisture seed shall be made within 7 days of the notification of the analysis results.

Where results are disputed, and unless otherwise agreed to, a portion of the Official Sample shall be tested for buyer and seller by laboratories having appropriate NATA* registration. Such requests for arbitration shall be made in writing and within 30 days of the date of first payment. Cost of such tests shall be met by the seller.

This result shall be final.

An average of the results from the two referee laboratories, corrected to the delivered oven moisture where available, shall be compared with the original. If the difference between the original test and the average of the re-tests is greater than 1% absolute for oil content, and 20% relative for impurity, the original payment shall be amended, up or down, according to the new result.

*NATA - National Association of Testing Authorities.

COMMODITY QUALITY TRADING STANDARDS — VEGETABLE OILS

NOTE: FOR PRICE ADJUSTMENT DATA REFER TO END OF TABULATION

TRADING STANDARD REFERENCE	COMMODITY NAME	QUALITY TRADING STANDARD					COMMENTS
		FREE FATTY ACIDS (1)	COLOUR (AOCS-LOVIBOND) OR GARDNER 1933)	IODINE VALUE (WIJS) NOTE A	PEROXIDE VALUE mEq/kg	MOISTURE VOLATILES IMPURITIES (2)	
CSOF - 1	CANOLA OIL — CRUDE DEGUMMED	MAX. 1%	MAX. 7R 70Y (25.4mm)	110-126	MAX. 10	MAX. 0.3%	ERUCIC ACID MAX. 2% PHOSPHORUS MAX. 0.02% (3) See Note B
CSOF - 2	CANOLA OIL — BLEACHED REFINED	MAX. 0.25%	MAX. 4R 35Y (133.35mm) R & D GRADE MAX. 1.5R	110-126	MAX. 10	MAX. 0.25%	ERUCIC ACID MAX. 2% See Note B
CSOF - 3	COTTONSEED OIL — UNBLEACHED REFINED	MAX. 0.25%	MAX. 12R-35Y (133.35mm)	103-113	MAX. 10	MAX. 0.25%	
CSOF - 4	COTTONSEED OIL — BLEACHED REFINED	MAX. 0.25%	MAX. 6R 35Y (133.35mm)	103-113	MAX. 10	MAX. 0.25%	
CSOF - 5	LINSEED OIL — RAW	MAX. 2%	10-12 GARDNER	MIN. 175 See Note A	—	MAX. 0.3%	
CSOF - 6	LINSEED OIL — BLEACHED REFINED OR ALKALI REFINED	MAX. 0.25%	MAX. 5 GARDNER	MIN. 175 See Note A	—	MAX. 0.25%	
CSOF - 7	PEANUT OIL — CRUDE	MAX. 2%	MAX. 4R 35Y (25.4mm)	85-105	MAX. 10	MAX. 0.5%	
CSOF - 8	PEANUT OIL — BLEACHED REFINED	MAX. 0.25%	MAX. 2.5R 15Y (133.35mm)	85-105	MAX. 10	MAX. 0.25%	

TRADING STANDARD REFERENCE	COMMODITY NAME	QUALITY TRADING STANDARD					COMMENTS
		FREE FATTY ACIDS (1)	COLOUR (AOCS LOVIBOND) OR GARDNER 1933)	IODINE VALUE (WIJS) NOTE A	PEROXIDE VALUE mEq/kg	MOISTURE VOLATILES IMPURITIES (2)	
CSOF - 9	RAPESEED OIL — CRUDE DEGUMMED	MAX 2%	MAX 7R 7OY (25 4mm) MAX. 12 GARDNER	110-126	MAX 10	MAX 0 3%	Phosphorus Max 0 02% (3) Erucic Acid Max. 5 0% Edible Grade
CSOF - 10	RAPESEED OIL — BLEACHED REFINED OR ALKALI REFINED	MAX 0 25%	MAX 4R 35Y (133 35mm) MAX 4 GARDNER	110-126	MAX 10	MAX 0 25%	
CSOF - 11	SAFFLOWER OIL — CRUDE	MAX 2%	MAX 5R 35Y (25 4mm)	138-150	MAX 10	MAX 0 5%	
CSOF - 12	SAFFLOWER OIL — CRUDE DEGUMMED	MAX 2%	MAX 5R 35Y (25 4mm)	138-150	MAX 10	MAX 0 3%	PHOSPHORUS MAX 0 02%
CSOF - 13	SAFFLOWER OIL — BLEACHED REFINED OR ALKALI REFINED	MAX 0 25%	MAX 4R 35Y (133 35mm) MAX 4 GARDNER	138-150	MAX 10	MAX 0 25%	
CSOF - 14	SOY OIL — CRUDE DEGUMMED	MAX 1%	MAX 7R 7OY (25 4mm)	127-140	MAX 10	MAX 0 3%	PHOSPHORUS MAX 0 02%
CSOF - 15	SOY OIL — BLEACHED REFINED OR ALKALI REFINED	MAX 0 25%	MAX 5R 7OR (133 35mm) MAX 5 GARDNER	127-140	MAX. 10	MAX 0 25%	

		QUALITY TRADING STANDARD					
TRADING STANDARD REFERENCE	COMMODITY NAME	FREE FATTY ACIDS (1)	COLOUR (AOCS-LOVIBOND) OR GARDNER 1933)	IODINE VALUE (WIJS) NOTE A	PEROXIDE VALUE mEq/kg	MOISTURE VOLATILES IMPURITIES (2)	COMMENTS
CSOF - 16	SUNFLOWER OIL — CRUDE DEGUMMED	MAX. 2%	MAX. 6R 7OY (25.4mm)	120-140	MAX. 10	MAX. 0.3%	Phosphorus MAX. 0.02% Linoleic content by agreement Linolenic MAX. 1.0%
CSOF - 17	SUNFLOWER OIL — BLEACHED REFINED	MAX. 0.25%	MAX. 4R 35Y (133.35mm) MAX. 4 GARDNER	120-140	MAX. 10	MAX. 0.25%	Linolenic MAX. 1.0%
CSOF - 18	SUNFLOWER OIL, MONOUNSATURATED CRUDE DEGUMMED	MAX. 2%	MAX. 6R 7OY (25.4mm)	78-88	MAX. 10	MAX. 0.3%	Phosphorus MAX. 0.02% Oleic MIN. 80% Linolenic MAX. 1.0%
CSOF - 19	LINOLA OIL — CRUDE DEGUMMED	MAX. 2%	MAX. 5R 7OY (35.4mm)	—	MAX. 10	MAX. 0.3%	Linoleic MIN. 66% Linolenic MAX. 3% (See Note C)

NOTE A: Iodine value subject to season conditions.

NOTE B: Sulphur specification — maximum 10ppm; rejectable over max.

Chlorophyl specification — maximum 30ppm; rejectable over 40ppm.

NOTE C: Subject to crop evaluation. A new seed type.

DISPUTED RESULTS:
Where results are disputed and unless otherwise agreed to, a portion of the official samples shall be tested by two independent laboratories having appropriate NATA* registration. An average of the results from the two laboratories shall be taken as the analysis of the parcel in question. Such disputes must be in writing and be made within 10 days of delivery of the consignment in question.

*NATA — National Association of Testing Authorities

SELLING PRICE ADJUSTMENTS

1. Free Fatty Acids (FFA)

1.1 Crude Oils other than those specified

2.0 - 3.5% : 2% price deduction for each ! % over 2%.

Rejectable over 3.5% (fractions in proportion)

1.2 Soybean Oil

1.01% - 1.05% :	0.6% of price
1.06% - 1.15% :	0.9% of price
1.16% - 1.25% :	1.2% of price
1.26% - 1.35% :	1.5% of price
1.36% - 1.50% :	1.8% of price

Rejectable over 1.5%
If accepted over 1.5%, a price deduction of 2% for each 1% over 1.5% shall apply (fractions in proportion).

1.3 Sunflower Oil (all types), Linola Oil

2.1 % - 2.2% :	0.3% of price
2.3% - 2.4% :	0.7% of price
2.5% - 2.6% :	1.1% of price
2.7% - 2.8% :	1.5% of price
2.9% - 3.0% :	1.9% of price

Rejectable over 3%
If accepted over 3%, a price deduction of 3% for each 1 % over 3% shall apply (fractions in proportion).

1.4 Canola Oil

1.01% - 1.29% :	0.5% of price
1.3% - 1.5% :	1% of price

Rejectable over 1.5%
If accepted over 1.5%, a price deduction of 2% for each 1% over 1.5% shall apply (fractions in proportion).

1.5 Peanut Oil

2.0% - 3.0% :	2% price deduction for each 1% over 2%
3.0% - 5.0% :	3% price deduction for each 1% over *3%*

Rejectable over 5%.

1.6 Unbleached Refined Cottonseed Oil

Rejectable over 0.25%.
If accepted over 0.25%, a price deduction of 2% for each 1 % over 0.25% shall apply (fractions in proportion).
Negotiable over 0.75%.

2. Moisture, Volatile Matter and Impurities (MV & I)

Rejectable over the prescribed limit. If accepted over the prescribed limit, a price deduction of 2% for each 1% over the prescribed limit shall be applied (fractions in proportion).

3. Phosphorus

Rejectable over the prescribed limit.
If accepted over the prescribed limit, a price deduction of 0.06% for each 0.001 % the phosphorus content is over this limit shall be applied (fractions in proportion).

4. Peroxide Value

Rejectable over 10mE/kg.
If accepted over this limit, a price deduction of 1.5% shall be applied.
Negotiable over 15 mE/kg if accepted.

DISPUTED RESULTS

Where results are disputed and unless otherwise agreed to, a portion of the official samples shall be tested by two independent laboratories having appropriate NATA* registration. An average of the results from the two laboratories shall be taken as the analysis of the parcel in question. This result shall be final. Such disputes must be in writing and be made within 10 days of date of delivery of the consignment in question.

Cost of testing/arbitration shall be met by the unsuccessful party in this arbitration.

*NATA — National Association of Testing Authorities

COMMODITY QUALITY TRADING STANDARDS — VEGETABLE PROTEIN MEALS AND HULLS

NOTE For price Adjustment data related to meals refer to end of tabulation
Claims for quality deficiencies of hulls shall be subject to negotiation between buyer and seller

Finess of Grind All meals (Provisional)
Max 2% retained, 3mm screen (woven wire, DIN 3)
Max 10% retained, 2rom screen (woven wire, US10, DIN2)
(Test conditions, 200G, 3 mms)

		QUALITY TRADING STANDARDS			
TRADING STANDARD REFERENCE	COMMODITY NAME	MIN. OIL %	MIN. CRUDE PROTEIN %	MAX. CRUDE FIBRE %	MAX. MOISTURE %
CSVP - 1	CANOLA MEAL (Note 1) Pressed	4	34	14	11
CSVP - 2	CANOLA MEAL (Note 1) Solvent	0.5	34	15	12
CSVP - 3	COTTONSEED MEAL (Note 2) Solvent	0.5	37	15	12
CSVP - 4	LINOLA MEAL Pressed	4	30	11	11
CSVP - 5	LINSEED MEAL Pressed	4	30	11	11
CSVP - 6	LINSEED MEAL Solvent	0.5	32	12	12
CSVP - 7	PEANUT MEAL Pressed	4	44	10	9
CSVP - 8	PEANUT MEAL Solvent	0.5	46	10	9
CSVP - 9	RAPESEED MEAL Pressed	4	34	14	11
CSVP - 10	SAFFLOWER MEAL Pressed	4	20	30	8
CSVP - 11	SAFFLOWER MEAL Solvent	0.5	22	32	12
CSVP - 12	SOY MEAL Pressed	4	42	7	11
CSVP - 13	SOYMEAL Solvent	0.5	44	7	12

NOTE 1: Contains less than 30 micromoles of specified glucosinolates per g oil-free, air-dry solids and not more than 2% erucic acid in the oil component as a proportion of the total fatty acids.
NOTE 2: Free gossypol content: Max. 0.1%

VEGETABLE PROTEIN MEALS

		QUALITY TRADING STANDARDS			
TRADING STANDARD REFERENCE	COMMODITY NAME	MIN. OIL %	MIN. CRUDE PROTEIN %	MAX. CRUDE FIBRE %	MAX. MOISTURE %
CSVP - 14	SUNFLOWER MEAL Pressed	4	30	22	8
CSVP - 15	SUNFLOWER MEAL Solvent	0.5	30	24	12
CSVP - 16	SUNFLOWER MEAL Dehulled Pressed	4	36	18	8
CSVP - 17	SUNFLOWER MEAL Dehulled Solvent	0.5	36	19	12

OILSEED HULLS

		QUALITY TRADING STANDARDS			
TRADING STANDARD REFERENCE	COMMODITY NAME	MIN. OIL %	MIN. CRUDE PROTEIN %	MAX. CRUDE FIBRE %	MAX. MOISTURE %
CSBP - 9	COTTONSEED HULLS	1	3.5	50	12
CSBP - 12	SOYBEAN HULLS	0.5	10	50	12
CSBP - 13	SUNFLOWER HULLS	1	4	50	12

SELLING PRICE ADJUSTMENT

1. PROTEIN

1.1 For moisture within .specification:

Where the crude protein level (or adjusted protein, see Meal Technical Standards 3.1.2) is greater than 0.5% below the minimum trading standard, the selling price shall be adjusted in the proportion that the protein bears to that minimum standard.

1.2 For moisture outside specification:

Where the moisture is outside specification, the crude protein level shall be adjusted to the basis of the maximum moisture trading standard and protein adjustment made as in Meal Technical Standards 3.1.1.

$$\text{PROTEIN AT STANDARD MOISTURE} = \text{ACTUAL PROTEIN} \times \frac{(100 - \text{STANDARD MOISTURE})}{(100 - \text{ACTUAL MOISTURE})}$$

2. MOISTURE

Where the moisture content is above the maximum trading standard, a penalty shall be applied to the selling price as follows:

1 for 1 penalty to 1% over the maximum
1.5 for 1 penalty above 1% to 2% over the maximum (fractions in proportion)
Rejectable above 2% over the maximum

3. OTHER ANALYSES

Should analysis show any other specifications not to meet the trading standard, settlement is to be made between the parties concerned on the basis agreed to at the time of offer acceptance. If a settlement basis has not been defined at that time in the contract, then settlement will be made on a basis mutually acceptable or as decided by a mutually acceptable arbitrator.

4. DISPUTED RESULTS

Where results are disputed, and unless otherwise agreed to, a portion of the Official Samples shall be tested for buyer and seller by two independent laboratories having appropriate NATA* registration. Requests for arbitration shall be made in writing within 30 days of date of delivery of the load in question.

An average of the results from the two referee laboratories shall be taken as the analysis of the parcel in question. This result shall be final. Cost of testing /arbitration shall be met by the unsuccessful party in this arbitration.

*National Association of Testing Authorities