

# Sector GROWNOTES™



## SAFFLOWER SECTION 15 MARKETING

SELLING PRINCIPLES | NORTHERN SAFFLOWER: MARKET DYNAMICS AND EXECUTION | DELIVERY STANDARDS



### Marketing

The final step in generating farm income is converting the tonnes produced into dollars at the farm gate. This section provides best-in-class marketing guidelines for managing price variability to protect income and cash flow.

Figure 1 shows a grain selling flow chart that summarises:

- the decisions to be made
- the drivers behind the decisions
- the guiding principles for each decision point.

The grower will run through a decision-making process each season, because growing and harvesting conditions, and prices for grains, change all the time. For example, in the six years to and including 2014, Newcastle APWI wheat prices varied A\$70–\$150/t, a variability of 25–60% (Figure 2). For a property producing 1,000 tonnes of wheat this means \$70,000–\$150,000 difference income, depending on timing of sales.

The reference column refers to the section of the GrowNote where you will find the details to help in making decisions.  $^{\rm 1}$ 

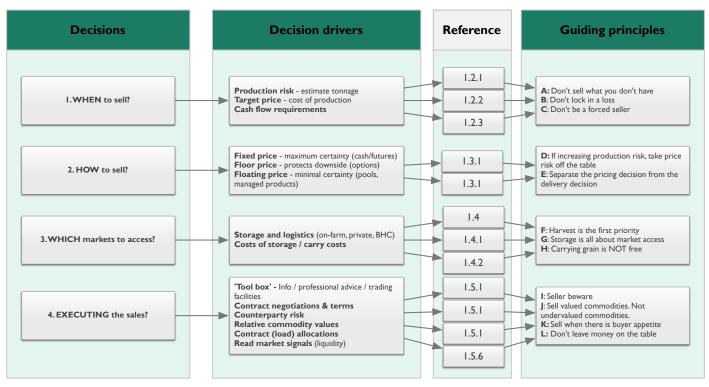


Figure 1: Grain-selling flowchart.

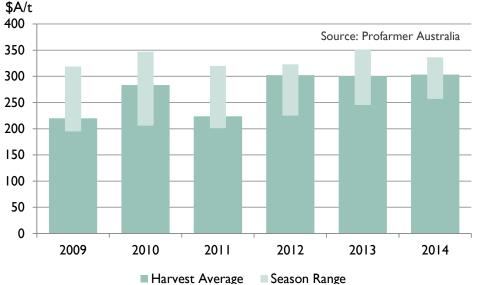


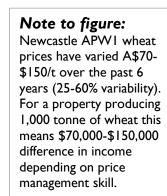
Profarmer Australia (2016), Marketing Field Peas, GRDC Northern Field Pea GrowNote



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Figure 2: Newcastle APWI price variation, 2009–14. Source: Profarmer Australia

#### 15.1 Selling principles

The aim of a selling program is to achieve a profitable average price (the target price) across the entire business. This requires managing several unknowns to establish a target price and then work towards achieving the target price.

Unknowns include the amount of grain available to sell (production variability), the final cost of producing the grain, and the future prices that may result. Australian farm gate prices are subject to volatility caused by a range of global factors that are beyond our control and are difficult to predict.

The skills growers have developed to manage production unknowns can also be used to manage pricing unknowns. This guide will help growers manage and overcome price uncertainty.<sup>2</sup>

#### 15.1.1 Be prepared

Being prepared by having a selling plan is essential for managing uncertainty. The steps involved are forming a selling strategy, and forming a plan for effectively executing sales. The selling strategy consists of when and how to sell.

#### When to sell

Knowing when to sell requires an understanding of the farm's internal business factors, including:

- production risk
- a target price based on the cost of production and the desired profit margin
- business cashflow requirements.

#### How to sell

Working out how to sell your grain is more dependent on external market factors, including:

the time of year-determines the pricing method







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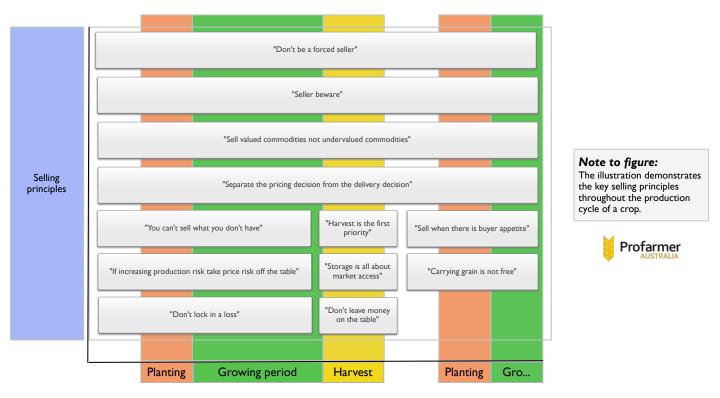
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- market access—determines where to sell
- relative value—determines what to sell.

The following diagram (Figure 3) lists the key principles to employ when considering sales during the growing season. Exactly when each principle comes into play is indicated in the discussion of marketing, planning and timing in the rest of section 15.  $^3$ 

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**Figure 3:** *Timeline of grower commodity selling principles.* Source: Profarmer Australia

#### 15.1.2 Establish the business risk profile

Establishing your business risk profile helps you determine when to sell: it allows you to develop target price ranges for each commodity, and provides confidence to sell when the opportunity arises. Typical business circumstances and how to quantify the risks during the production cycle are described below (Figure 4).



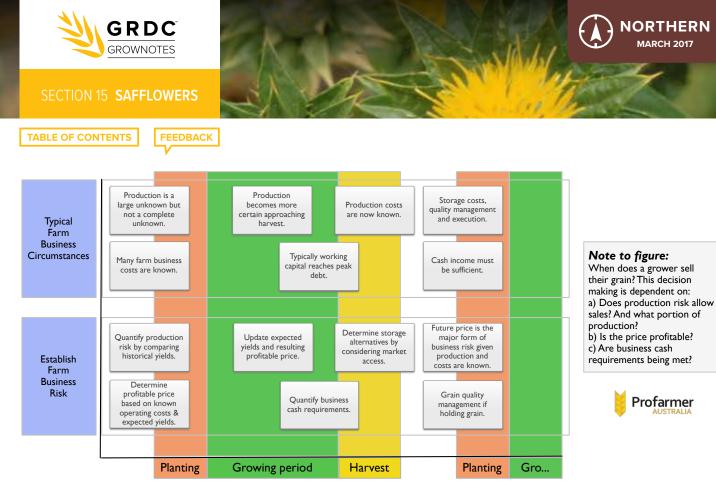


Figure 4: Typical farm business circumstances and risk. Source: Profarmer Australia

#### Production risk profile of the farm

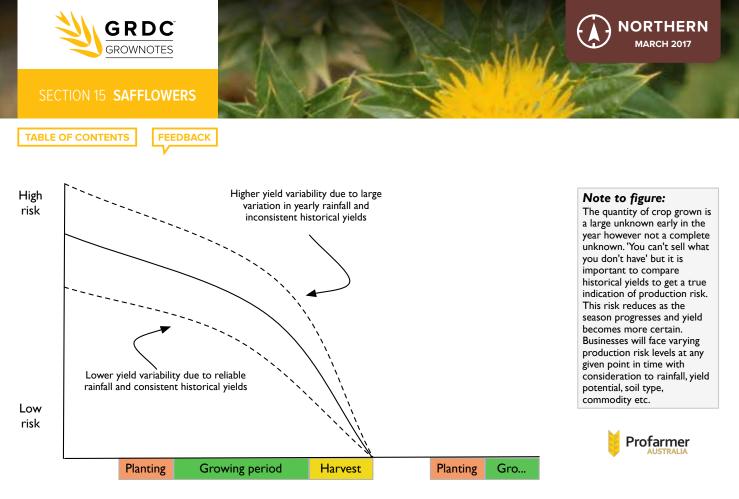
Production risk is the level of certainty around producing a crop and is influenced by location (climate, season and soil type), crop type, crop management, and the time of the year.

Principle: You can't sell what you don't have.

Therefore, don't increase business risk by over committing production. Establish a production risk profile (Figure 5) by:

- 1. Collating historical average yields for each crop type and a below-average and above-average range.
- 2. Assessing the likelihood of achieving the average, based on recent seasonal conditions and the seasonal outlook.
- 3. Revising production outlooks as the season progresses.





#### Figure 5: Typical risk profile of a farm operation.

Source: Profarmer Australia

#### Establishing a target price

A profitable commodity target price is the cost of production per tonne plus a desired profit margin. It is essential to know the cost of production per tonne for the farm business, which means knowing all farming costs, both variable and fixed.

#### **Principle:** Don't lock in a loss.

If committing production ahead of harvest, ensure the price will be profitable. The steps needed to calculate an estimated profitable price is based on the total cost of production and a range of yield scenarios, as provided below (Figure 6).





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| Estimating cost of production - V                            | Vheat     |
|--|-----------|
| Planted area   | 1,200 ha  |
| Estimate yield   | 2.85 t/ha |
| Estimated production   | 3,420 t   |
| Fixed costs  |           |
| Insurance and general expenses                               | \$100,000 |
| Finance  | \$80,000  |
| Depreciation/Capital replacement                             | \$70,000  |
| Drawings   | \$60,000  |
| Other  | \$30,000  |
| Variable costs   |           |
| Seed and sowing  | \$48,000  |
| Fertiliser and application                                   | \$156,000 |
| Herbicide and application                                    | \$78,000  |
| Insect/fungicide and application                             | \$36,000  |
| Harvest costs  | \$48,000  |
| Crop insurance   | \$18,000  |
| Total fixed and variable costs                               | \$724,000 |
| Per tonne equivalent (total costs<br>+ estimated production) | \$212 /t  |
| Per tonne costs  |           |
| Levies   | \$3 /t    |
| Cartage  | \$12 /t   |
| Receival fee   | \$11 /t   |
| Freight to port  | \$22 /t   |
| Total per tonne costs  | \$48 /t   |
| Cost of production port FIS equiv                            | \$259.20  |
| Target profit (ie 20%)                                       | \$52.00   |
| Target price (port FIS equiv)                                | \$311.20  |

Step 1: Estimate your production potential. The more uncertain your production is, the more conservative the yield estimate should be. As yield falls, your cost of production per tonne will rise.

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Step 2: Attribute your fixed farm business costs. In this instance if 1,200 ha reflects 1/3 of the farm enterprise, we have attributed 1/3 fixed costs. There are a number of methods for doing this (see M Krause "Farming your Business") but the most important thing is that in the end all costs are accounted for.

Step 3: Calculate all the variable costs attributed to producing that crop. This can also be expressed as \$ per ha x planted area.

 Step 4: Add together fixed and variable costs and divide by estimated production

Step 5: Add on the 'Per tonne' costs like levies and freight.

Step 6: Add the 'Per tonne' costs to the fixed and variable per tonne costs calculated at step 4.

- Step 7: Add a desired profit margin to arrive at the port equivalent target profitable price.

Figure 6: An example of how to estimate the costs of production.

Source: Profarmer Australia

GRDC's manual Farming the Business also provides a cost-of-production template and tips on grain selling v. grain marketing.

#### Income requirements

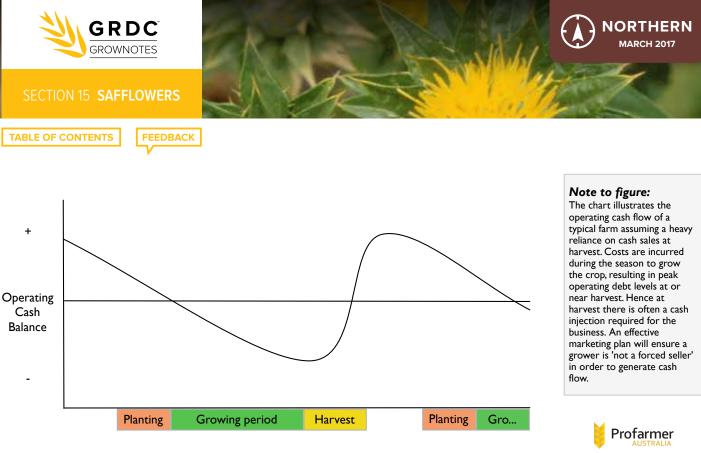
Understanding farm business cash flow requirements and peak cash debt enables growers to time grain sales so that cash is available when required. This prevents having to sell grain below the target price to satisfy a need for cash.

Principle: Don't be a forced seller.

Be ahead of cash requirements to avoid selling in unfavourable markets.

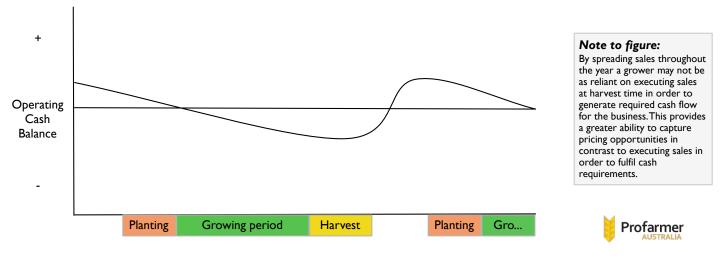
Typical cash flow to grow a crop are illustrated below (Figures 7 and 8). Costs are incurred up front and during the growing season, with peak working capital debt incurred at or before harvest. Patterns will vary depending on circumstance and enterprise mix. Figure 8 demonstrates how managing sales can change the farm's cash balance.





In this scenario peak cash surplus starts higher and peak cash debt is lower

Figure 7: Typical operating cash balance when relying on cash sales at harvest.



In this scenario peak cash surplus starts lower and peak cash debt is higher

**Figure 8:** Typical operating cash balance when crop sales are spread over the year.

Source: Profarmer Australia

The 'when to sell' steps above result in an estimated production tonnage and the risk associated with producing that tonnage, a target price range for each commodity, and the time of year when cash is most needed.  $^4$ 

Profarmer Australia (2016), Marketing Field Peas, GRDC Northern Field Pea GrowNote





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#### 15.1.3 Managing your price

The first part of the selling strategy answers the question about when to sell and establishes comfort around selling a portion of the harvest.

The second part of the strategy, managing your price, addresses how to sell your crop.

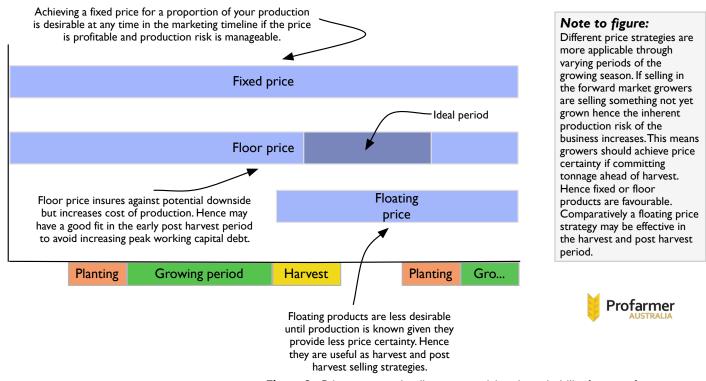
#### Methods of price management

Pricing products provide varying levels of price risk coverage, but not all products are available for all crops (Table 1).

**Table 1:** Pricing methods and how they are used for different crops.

|                         | Description   | Wheat                                       | Barley                       | Canola                       | Oats  | Lupins | Field<br>peas | Chick<br>peas |
|-------------------------|---|---|------------------------------|------------------------------|-------|--------|---------------|---------------|
| Fixed price products    | Provides the most<br>price certainty  | Cash, futures,<br>bank swaps                | Cash, futures,<br>bank swaps | Cash, futures,<br>bank swaps | Cash  | Cash   | Cash          | Cash          |
| Floor price<br>products | Limits price downside<br>but provides<br>exposure to future<br>price upside | Options on<br>futures, floor<br>price pools | Options on<br>futures        | Options on<br>futures        | none  | none   | none          | none          |
| Floating price products | Subject to both price upside and downside                                   | Pools                                       | Pools                        | Pools                        | Pools | Pools  | Pools         | Pools         |

Figure 9 summarises how the different methods of price management are suited to the majority of farm businesses.



**Figure 9:** Price strategy timeline, summarising the suitability for most farm businesses of different methods of price management for different phases of production.

Source: Profarmer Australia

Principle: If increasing production risk, take price risk off the table.





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When committing to unknown production, price certainty should be achieved to avoid increasing overall business risk.

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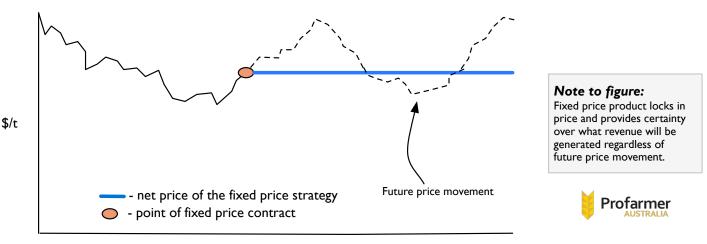
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Principle: Separate the pricing decision from the delivery decision.

Most commodities can be sold at any time with delivery timeframes being negotiable, hence price management is not determined by delivery.

#### 1. Fixed price

A fixed price is achieved via cash sales and/or selling a futures position (swaps) (Figure 10). It provides some certainty around expected revenue from a sale as the price is largely a known factor, except when there is a floating component in the price, e.g. a multi-grade cash contract with floating spreads or a floating-basis component on futures positions.



#### Figure 10: Fixed price strategy.

Source: Profarmer Australia

#### 2. Floor price

Floor price strategies (Figure 11) can be achieved by utilising options on a relevant futures exchange (if one exists), or via a managed-sales program (i.e. a pool with a defined floor price strategy) offered by a third party. This pricing method protects against potential future price decrease while capturing any price increase. The disadvantage is that this kind of price 'insurance' has a cost, which adds to the farm's cost of production.

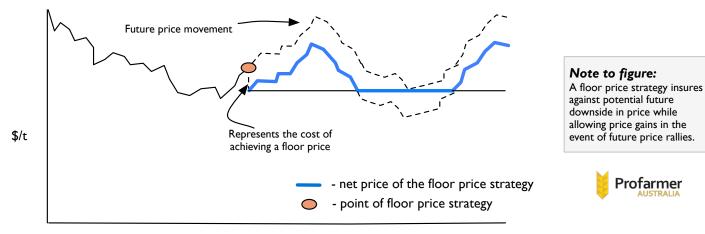
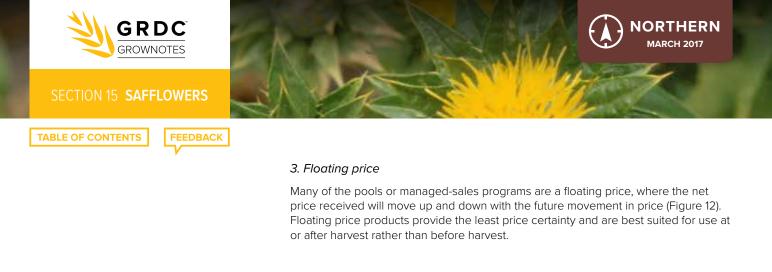
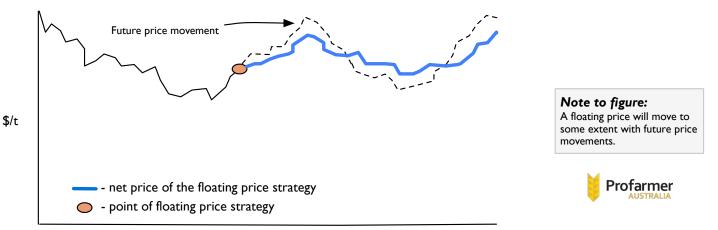


Figure 11: Floor price strategy.

Source: Profarmer Australia







#### Figure 12: Floating price strategy.

Source: Profarmer Australia

Having considered the variables of production for the crop to be sold, and how these fit against the different pricing mechanisms, the farmer may revise their selling strategy, taking the risks associated with each mechanism into account.

Fixed price strategies include physical cash sales or futures products, and provide the most price certainty, but production risk must be considered.

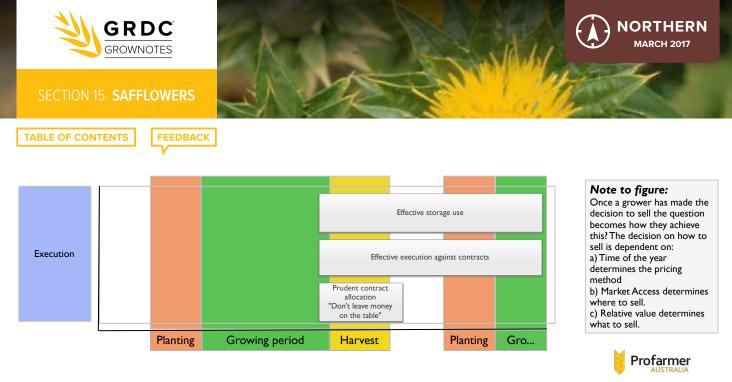
Floor price strategies include options or floor price pools. They provide a minimum price with upside potential and rely less on production certainty, but cost more.

Floating price strategies provide minimal price certainty, and so are best used after harvest.  $^{\rm 5}$ 

#### 15.1.4 Ensuring access to markets

Once the questions of when and how to sell are sorted out, planning moves to the storage and delivery of commodities to ensure timely access to markets and execution of sales. Planning where to store the commodity is an important component of ensuring the type of access to the market that is likely to yield the highest return (Figure 13).





**Figure 13:** Storage decisions are influenced by selling decisions and the timing of all farming activities.

Source: Profarmer Australia

#### Storage and logistics

The return on investment from grain handling and storage expenses is optimised when storage is considered in light of market access so as to maximise returns as well as harvest logistics.

Storage alternatives include variations of bulk handling, private off-farm storage, and on-farm storage. Delivery and quality management are key considerations in deciding where to store your commodity (Figure 14).

Principle: Harvest is the first priority.

During harvest, getting the crop into the bin is the most critical aspect of business success; hence storage, sale and delivery of grain should be planned well ahead of harvest to allow the grower to focus on the harvest itself.

Bulk export commodities requiring significant quality management are best suited to the bulk-handling system. Commodities destined for the domestic end user market, (e.g. feedlot, processor, or container packer), may be more suited to on-farm or private storage to increase delivery flexibility.

Storing commodities on the farm requires prudent quality management to ensure that the grain is delivered to the agreed specifications. If not well planned and carried out, it can expose the business to high risk. Penalties for out-of-specification grain arriving at a buyer's weighbridge can be expensive, as the buyer has no obligation to accept it. This means the grower may have to incur the cost of taking the load elsewhere, and may also have to find a new buyer.

On-farm storage also requires that delivery is managed to ensure that the buyer receives the commodities on time and with appropriate weighbridge and sampling tickets.

Principle: Storage is all about market access.

Storage decisions depend on quality management and expected markets.

For more information on on-farm storage alternatives and economics, see Section 13: Grain Storage.



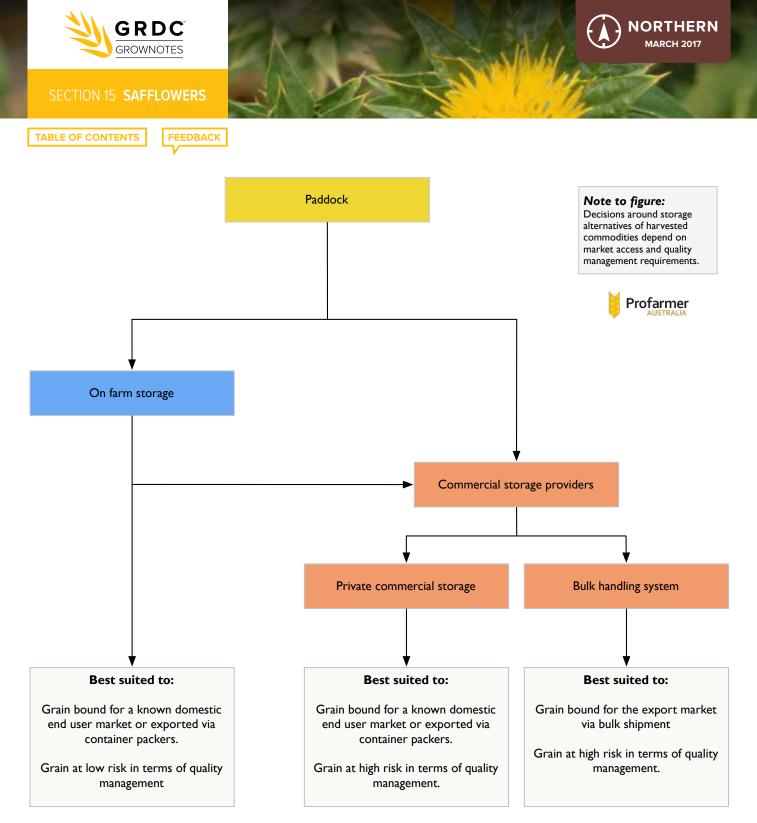


Figure 14: Grain storage decision-making.

Source: Profarmer Australia

#### Cost of holding grain

Storing grain to access sales opportunities post-harvest invokes a cost to 'carry', or hold, the grain. Price targets for carried grain need to account for the cost of carrying it. Carrying costs are typically \$3–4/t per month and consist of:

- monthly storage fee charged by a commercial provider (typically ~\$1.50-2.00/t)
- monthly interest associated with having wealth tied up in grain rather than available as cash or for paying off debt (~\$1.50-\$2.00/t, depending on the price of the commodity and interest rates).

The price of carried grain therefore needs to be 3-4/t per month higher than the price offered at harvest (Figure 15).





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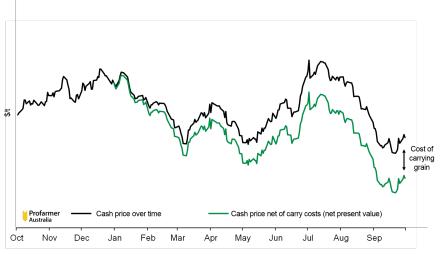


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Principle: Carrying grain is not free.

The cost of carrying grain needs to be accounted for if holding it for sale after harvest is part of the selling strategy. The usual way of doing this is to include it in the sale contract. For example, a crop sold in March for delivery in March–June on the buyer's call at \$300/t + \$3/t per month carrying would generate an income of \$309/t if delivered in June (Figure 15).



#### **Figure 15:** Cash values compared with cash values adjusted for the cost of carrying.

Source: Profarmer Australia

Optimising farm-gate returns involves planning the appropriate storage strategy for each commodity so as to improve market access and ensure that carrying costs are covered in the price received. <sup>6</sup>

#### 15.1.5 Converting tonnes into cash

This section provides guidelines for converting the selling and storage strategy into cash by effective execution of sales.

#### Set up the toolbox

Selling opportunities can be captured when they arise by assembling the necessary tools in advance. The toolbox for converting tonnes of grain into cash includes the following.

- 1. Timely information—this is critical for awareness of selling opportunities and includes:
- market information provided by independent parties
- effective price discovery including indicative bids, firm bids and trade prices
- other market information pertinent to the particular commodity.
- 2. Professional services—grain-selling professional services and cost structures vary considerably. An effective grain-selling professional will put their clients' best interests first by not having conflicts of interest and by investing time in the relationship. A better return on investment for the farm business is achieved through higher farm gate prices, which are obtained by accessing timely information, and being able to exploit the seller's greater market knowledge and greater market access.



<sup>6</sup> Profarmer Australia (2016), Marketing Field Peas, GRDC Northern Field Pea GrowNote



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Access to buyers, brokers, agents, products and banks through <u>Grain</u> <u>Trade Australia</u>

Commodity futures brokers

ASX, Find a futures broker

 Futures account and a bank-swap facility—these accounts provide access to global futures markets. Hedging futures markets is not for everyone; however, strategies which utilise exchanges such as the Chicago Board of Trade (CBOT) can add significant value.

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#### How to sell for cash

Like any market transaction, a cash–grain transaction occurs when a bid by the buyer is matched by an offer from the seller. Cash contracts are made up of the following components, with each component requiring a level of risk management (Figure 16):

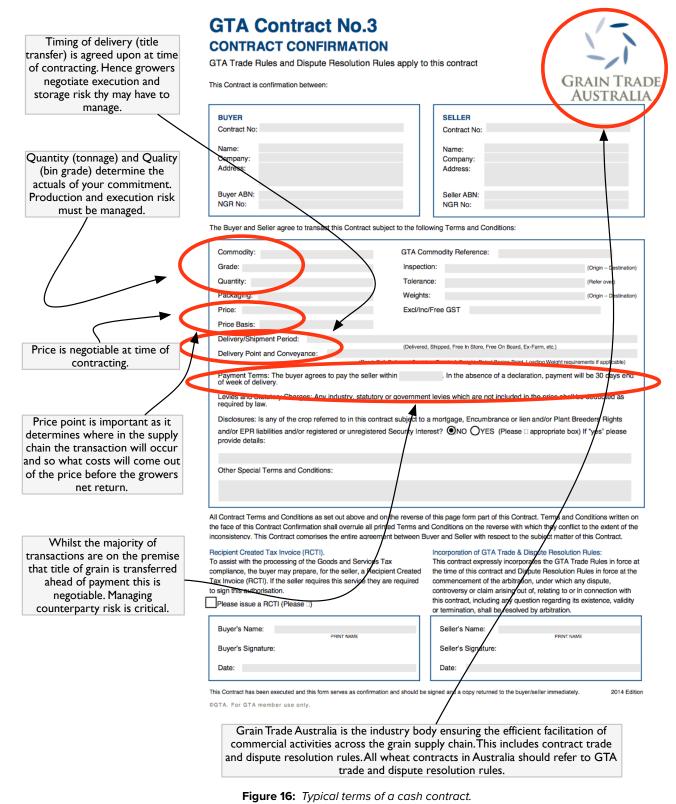
- Price—future price is largely unpredictable, so devising a selling plan to put current prices into the context of the farm business is critical to managing price risk.
- Quantity and quality—when entering a cash contract, you are committing to deliver the nominated amount of grain at the quality specified, so production and quality risks must be managed.
- Delivery terms—the timing of the title transfer from the grower to the buyer is agreed at time of contracting. If this requires delivery direct to end users, it relies on prudent execution management to ensure delivery within the contracted period.
- Payment terms—in Australia, the traditional method of contracting requires title on the grain to be transferred ahead of payment, so counterparty risk must be managed.





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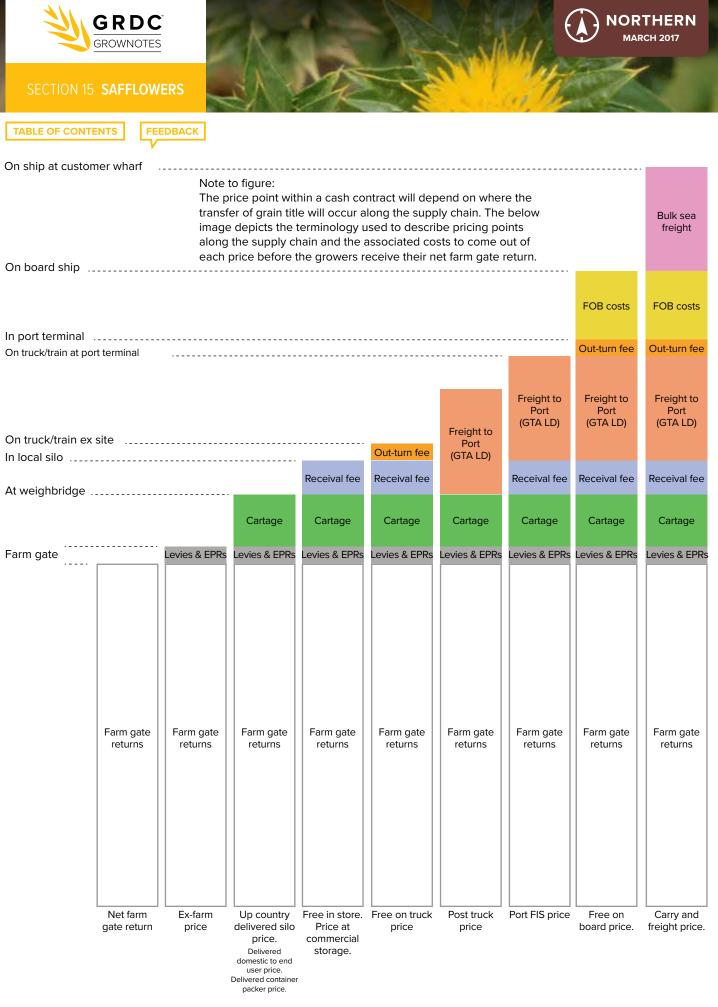
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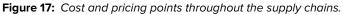


Source: Grain Trade Australia

The price point within a cash contract will depend on where the transfer of grain title will occur along the supply chain. Figure 17 depicts the terminology used to describe these points and the associated costs to come out of each price before growers receive their net return.







Source: Profarmer Australia





Grain Trade Australia, A guide to

taking out grain contracts

standards

GrainFlow

conditions

model

contracts

**Emerald Grain** 

Grain Trade Australia, Trading

GrainTransact Resource Centre

Clear Grain Exchange, Getting started

**MORE INFORMATION** 

Clear Grain Exchange, Terms and

GTA, Managing counterparty risk

Clear Grain Exchange's title transfer

GrainGrowers, Managing risk in grain

Leo Delahunty, Counterparty risk: A

producer's perspective

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Cash sales generally occur through three methods:

- Negotiation via personal contact—traditionally prices are posted as a public indicative bid. The bid is then accepted or negotiated by a grower with the merchant or via an intermediary. This method is the most common and is available for all commodities.
- Accepting a public firm bid—cash prices in the form of public firm bids are posted during harvest and for warehoused grain by merchants on a site basis. Growers can sell their parcel of grain immediately by accepting the price on offer via an online facility and then transfer the grain online to the buyer. The availability of this option depends on location and commodity.
- Placing an anonymous firm offer—growers can place a firm offer price on a parcel of grain anonymously and expose it to the entire market of buyers, who then bid on it anonymously using the Clear Grain Exchange, which is an independent online exchange. If the offer and bid match, the particulars of the transaction are sent to a secure settlement facility, although the title on the grain does not transfer from the grower until they receive funds from the buyer. The availability of this option depends on location and commodity. Anonymous firm offers can also be placed to buyers by an intermediary acting on behalf of the grower. If the grain sells, the buyer and seller are disclosed to each counterparty.

#### **Counterparty risk**

Most sales involve transferring the title on the grain prior to being paid. The risk of a counterparty defaulting when selling grain is very real and must be managed. Conducting business in a commercial and professional manner minimises this risk.

#### Principle: Seller beware.

There is not much point selling for an extra \$5/t if you don't get paid.

Counterparty risk management includes:

- Dealing only with known and trusted counterparties.
- Conducting a credit check (banks will do this) before dealing with a buyer they are unsure of.
- Selling only a small amount of grain to unknown counterparties.
- Considering credit insurance or a letter of credit from the buyer.
- Never delivering a second load of grain if payment has not been received for the first.
- Not parting with the title before payment, or requesting and receiving a cash deposit of part of the value ahead of delivery. Payment terms are negotiated at time of contracting. Alternatively, the Clear Grain Exchange provides secure settlement whereby the grower maintains title on the grain until they receive payment, and then title and payment are settled simultaneously.

Above all, act commercially to ensure the time invested in implementing a selling strategy is not wasted by poor management of counterparty risk.

#### **Relative values**

Grain sales revenue is optimised when selling decisions are made in the context of the whole farming business. The aim is to sell each commodity when it is priced well, and to hold commodities that are not well priced at any given time. That is, give preference to the commodities with the highest relative value. This achieves price protection for the overall revenue of the farm business and enables more flexibility to a grower's selling program while achieving the business goal of reducing overall risk.

Principle: Sell valued commodities, not undervalued commodities.

If one commodity is priced strongly relative to another, focus sales there. Don't sell the cheaper commodity for a discount.

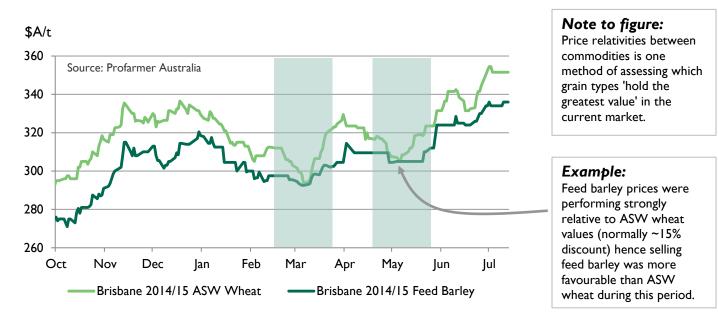
For example, a farmer with wheat and barley to sell would sell the one that is getting good prices relative to the other, and hold the other for the meantime (Figure 18).





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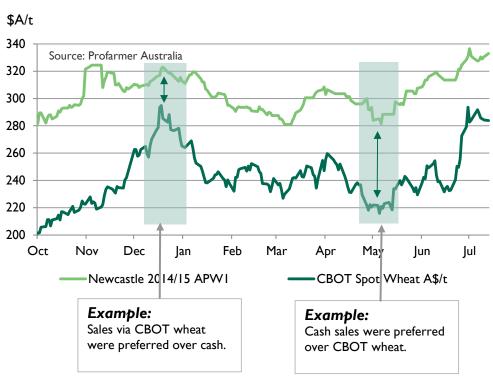
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**Figure 18:** Prices for Brisbane ASW wheat and feed barley are compared, and the barley held until it is favourable to sell it.

Source: Profarmer Australia

If the decision has been made to sell wheat, CBOT wheat may be the better alternative if the futures market is showing better value than the cash market (Figure 19).



#### Note to figure:

Once the decision to take price protection has been made, choosing which pricing method to use is determined by which selling methods 'hold the greatest value' in the current market.

Source: Profarmer Australia



**Figure 19:** Newcastle APWI and CBOT wheat prices (A\$/t), showing when it is best to sell into each market.



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#### **Contract allocation**

Contract allocation means choosing which contracts to allocate your grain against come delivery time. Different contracts will have different characteristics (e.g. price, premiums-discounts, oil bonuses), and optimising your allocation reflects immediately on your bottom line.

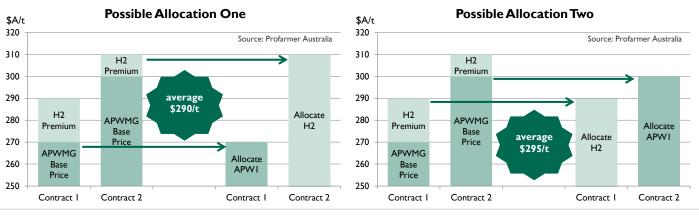
Principle: Don't leave money on the table.

Contract allocation decisions don't take long, and can be worth thousands of dollars to your bottom line.

To achieve the best average price for their crop growers should:

- allocate lower grades of grain to contracts with the lowest discounts.
- allocate higher grades of grain to contracts with the highest premiums (Figure 20).

The grower may have several options. For example, Figure 20 shows that the only difference between achieving an average price of \$290/t and \$295/t is which contract each parcel is allocated to. Over an amount of 400 t, the difference in average price equates to nearly \$2,000, which could be lost just in how parcels are allocated to contracts.



#### Note to figure:

In these two examples the only difference between acheiving an average price of \$290/t and \$295/t is which contracts each parcel was allocated to. Over 400/t that equates to \$2,000 which could be lost just in how parcels are allocated to contracts.

**Figure 20:** How parcels of the crop are allocated across contracts can make a substantial difference in income.

Source: Profarmer Australia

#### Read market signals

The appetite of buyers to buy a particular commodity will differ over time depending on market circumstances. Ideally growers should aim to sell their commodity when buyer appetite is strong, and stand aside from the market when buyers are not very interested.

Principle: Sell when there is buyer appetite.

When buyers are chasing grain, growers have more market power to demand the price they want.

Buyer appetite can be monitored by:

The number of buyers at or near the best bid in a public bid line-up. If there are many buyers, it could indicate that buyer appetite is strong. However, if one buyer is offering \$5/t above the next best bid, it may mean that cash prices are susceptible to falling \$5/t as soon as that buyer satisfies their appetite.





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Monitoring actual trades against public indicative bids. When trades are occurring above indicative public bids it may indicate strong appetite from merchants and the ability for growers to offer their grain at price premiums to public bids.

The selling strategy is converted to maximum business revenue by:

- ensuring timely access to information, advice and trading facilities
- using different cash-market mechanisms when appropriate
- minimising counterparty risk by conducting effective due diligence
- understanding relative value and selling commodities when they are priced well
- thoughtful contract allocation
- reading market signals to extract value from the market or to prevent selling at a discount.  $^{\rm 7}$

#### 15.2 Northern safflower: market dynamics and execution

#### 15.2.1 Price determinants for northern safflower

The main end uses of Australian safflower seed are oil and birdseed. The safflower market is small and volatile. Less than 1 million hectares per annum are grown globally, and production is around 500,000 mt. India produces around half the world's production. The US is the next largest producer, with California being the main source in the US. The other key players are China, Canada, Australia, Turkey, Russia, Argentina and Mexico.

The main markets for Australian safflower oil types are Japan, USA, Europe and India. Australian safflower for birdseed is sold domestically and also to Europe and Taiwan. There is a small domestic oil market.

Factors influencing price include production in competitor and destination countries, and the cost of competitors' oils. For this reason, it is important for Australian growers to understand the global safflower cropping calendar (Figure 21).  $^{8}$ 

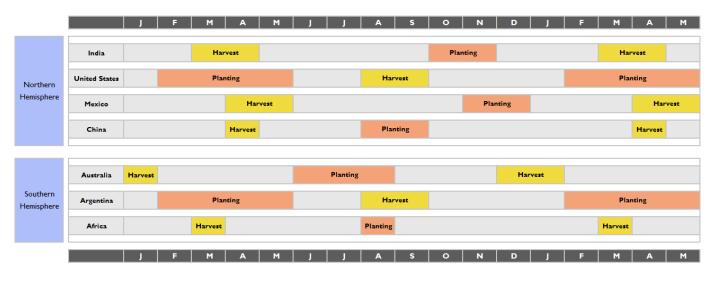


Figure 21: Global safflower crop calendar.



<sup>7</sup> Profarmer Australia (2016). Marketing Field Peas. GRDC Northern Field Pea GrowNote

<sup>8</sup> Profarmer Australia (2016), Marketing Field Peas, GRDC Northern Field Pea GrowNote



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#### 15.2.2 Executing tonnes into cash for northern safflower

Most safflower grown in Australia is sold to Devexco or Adams Australia, and crushed by subcontractors. The remainder is for export to be crushed overseas, or for the domestic birdseed market. There are various Australian traders of safflower for birdseed, and they tend to be specialists in their field. Markets are variety-specific, so executing tonnes to cash starts when the grower selects the variety they will plant. Birdseed and oil seed types must be segregated carefully.

Closed-loop marketing may be available for some specialty oil varieties.

If marketing arrangements are not in place before harvest, it is essential to have available on-farm storage that is capable of holding safflower for an extended period of time. Safflower is a low-density seed. This make storage per tonne expensive, as it takes a greater volume to store or freight the seed than with other grains.

Stored seed is subject to the common insect pests of stored grain, and appropriate measures must be taken to ensure seed viability.  $^{\rm 9}$ 

#### **15.3 Delivery standards**

The standard oil content is 38%, with a 2% price premium or reduction for each percentage point above or below this level. Seed can be rejected if it contains >4% of impurities, and there is a one-for-one penalty >4% if the seed is accepted. Impurities consist of weed seeds, pieces of stem and seed, and other very small material that will pass through a screen with holes of 2 mm diameter.

Crops can be rejected if >7% of the seed is broken, and there is a price penalty of 0.5% for each percentage point of broken seed above this level. Broken seed normally results from mechanical damage, and consists of hulls, kernels and seed pieces.

Up to 3% of seed may be damaged without penalty, and seed will be rejected only if >40% is damaged. There is a half-for-one penalty >3%. Seed is regarded as 'damaged' if it is affected by heat, frost, sprouting or other weather damage. Current receival standards for polyunsaturated and monounsaturated safflower are shown in Tables 2 and 3. <sup>10</sup>



<sup>9</sup> Profarmer Australia (2016), Marketing Field Peas, GRDC Northern Field Pea GrowNote

<sup>10</sup> N Wachsmann, T Potter, R Byrne, S Knights (2010) Raising the bar with better safflower agronomy. Agronomic information and safflower case studies. GRDC, <u>http://www.grdc.com.au/BetterSafflowerAgronomy</u>





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**Table 2:** Delivery standard for polyunsaturated (linoleic) safflower, as at 1August 1 2009.

| August 12009.                 |   |  |  |  |  |
|-------------------------------|---|--|--|--|--|
| Parameter                     | Specification                                 | Comment/price adjustment   |  |  |  |
| Physical and chemical p       | oarameters                                    |  |  |  |  |
| General                       |   | Safflower intended for delivery shall be free from any uncharacteristic odours, live stored product insect infestation and any nominated commercially unacceptable contaminant   |  |  |  |
| Oil                           | 38% base level                                | 2% premium or deduction for each 1% above or below 38%   |  |  |  |
| Linoleic acid                 | 75% minimum                                   | Rejectable under this limit  |  |  |  |
| Moisture                      | 8% maximum                                    | Immediate processing: if accepted over the maximum, 2% deduction for each 1% over<br>maximum<br>For storage: if accepted over the maximum, 1.5% deduction for each 1% over maximum<br>plus a drying charge   |  |  |  |
| Test weight                   | n/a   |  |  |  |  |
| Protein                       | n/a   |  |  |  |  |
| Seed retention                | n/a   |  |  |  |  |
| Germination                   | n/a   |  |  |  |  |
| Defective safflower (ma       | x. % wt/wt based or                           | n cleaned 0.5-L sample retained above 2.0-mm round-hole sieve)   |  |  |  |
| Broken or split               | 7% maximum                                    | 0.5% deduction for each 1% over the maximum  |  |  |  |
| Total defective<br>including: | 10% maximum                                   | 0.5% deduction for each 1% over the maximum  |  |  |  |
| Damaged                       | 3% maximum                                    | 0.5% deduction for each 1% over the maximum, rejectable >10%   |  |  |  |
| Sprouted                      | 5% maximum                                    | 0.5% deduction for each 1% over the maximum  |  |  |  |
| Contaminants (max. per        | 0.5 L unless otherwi                          | se stated, rejectable over unless deductions are stated as applying)   |  |  |  |
| Impurities                    | 4% maximum                                    |  |  |  |  |
| Snails, stones                | Nil above screen                              | Nil tolerance per 2.5-L sample for any snails or stones remaining above a 3.0-mm round-hole screen. If one snail or stone is found above the screen in the sample, then a further four 0.5-L samples should be taken. If a snail/stone is found in any of the subsequent samples, the load is to be rejected   |  |  |  |
|                               | 1 stone or snail<br>per 0.5 L below<br>screen | Tolerance of 1 stone or snail per 0.5-L sample, passing through a 3.0-mm round-hole screen   |  |  |  |
| Field insects                 | 10 large per 0.5 L                            | Includes Rutherglen bugs, ladybirds, grasshoppers and wood bugs  |  |  |  |
|                               | 100 small per<br>0.5 L                        | Includes all species of aphid and all species of mites   |  |  |  |
| Ryegrass ergot                | 0.5 cm maximum                                | Maximum of all pieces aligned end on end   |  |  |  |
| Objectionable material        | Nil   | Harmful substances include live or dead stored-grain-product insects; live or dead pea<br>weevil; glass; metal; specified weed seeds in excess of the limit prescribed in any of<br>the State Stockfeed Regulations lists of permitted weed seeds; the presence of pre- or<br>post-harvest chemicals not registered for use, used in excess of permitted levels or<br>with residues in excess of their permitted levels; smut; material imparting an odour to<br>the grain; sand; earth; sticks and pickled grain. Includes degraded seed such as smutty<br>seed, hot seed, musty seed, sour seed, mouldy seed |  |  |  |
| Seed contaminants (ma         | x. tolerance per 0.5                          | L to apply to individual seeds, rejectable over)   |  |  |  |
| Туре А                        | Nil   | Alligator weed, Cape tulips, castor oil plant, coriander, creeping knapweed, Darling pea, dodder, giant sensitive plant, opium poppy, Parthenium weed, ragweed, rattlepod, saffron thistle, star burr, stinkwort, St. Johns wort   |  |  |  |
| Туре В                        | 1   | Burrs (Xanthium spp.): all except where otherwise stated; wild mignonette  |  |  |  |
| Туре С                        | 2   | Crow garlic, skeleton weed, thornapple   |  |  |  |
| Type D                        | 3   | Common heliotrope, darnel, Hexham scent, jute, Mexican poppy, mintweed, nightshade   |  |  |  |
| Type E                        | 65  | Sesbanian pea  |  |  |  |
| ×                             |   |  |  |  |  |







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**Table 3:** Delivery standards for monounsaturated (oleic) safflower, as at 1August 1 2009.

|                                |   | August 12009.   |
|--------------------------------|---|---|
| Parameter                      | Specification                             | Comment/price adjustment  |
| Physical and chemical          | parameters                                |   |
| General                        |   | Safflower tended for delivery shall be free from any uncharacteristic odours, live stored product insect infestation and any nominated commercially unacceptable contaminant  |
| Oil                            | 38% base level                            | 2% premium or deduction for each 1% above or below 38%  |
| Linoleic acid                  | 75% minimum                               | Rejectable under this limit   |
| Moisture                       | 8% maximum                                | Immediate processing: if accepted over the maximum, 2% deduction for each 1% over<br>maximum<br>For storage: if accepted over the maximum, 1.5% deduction for each 1% over<br>maximum plus a drying charge  |
| Test weight                    | n/a                                       |   |
| Protein                        | n/a                                       |   |
| Seed retention                 | n/a                                       |   |
| Germination                    | n/a                                       |   |
| Defective safflower (ma        | ax. % wt/wt based on c                    | cleaned 0.5-L sample retained above 2.0-mm round-hole sieve)  |
| Broken or split                | 7% maximum                                | 0.5% deduction for each 1% over the maximum   |
| Total defective,<br>including: | 10% maximum                               | 0.5% deduction for each 1% over the maximum   |
| Damaged                        | 3% maximum                                | 0.5% deduction for each 1% over the maximum, rejectable >10%  |
| Sprouted                       | 5% maximum                                | 0.5% deduction for each 1% over the maximum   |
| Contaminants (max. pe          | er 0.5 L unless otherwi                   | se stated, rejectable over unless deductions are stated as applying)  |
| Impurities                     | 4% maximum                                | 1% deduction for each 1% of impurities up to 4%, 2% deduction for each 1% of impurities over 4%   |
| Snails or stones               | Nil above screen                          | Nil tolerance per 2.5-L sample for any snails or stones remaining above a 3.0-mm round-hole screen. If one snail or stone is found above the screen in the sample, then a further four 0.5-L samples should be taken. If a snail or stone is found in any of the subsequent samples, the load is to be rejected   |
|                                | 1 stone/snail per ½<br>litre below screen | Tolerance of 1 stone or snail per 0.5-L sample, passing through a 3.0-mm round-hole screen  |
| Field insects                  | 10 large per ½ litre                      | Includes Rutherglen bugs, ladybirds, grasshoppers and wood bugs   |
|                                | 100 small per ½ litre                     | Includes all species of aphid and all species of mites  |
| Ryegrass ergot                 | 0.5 cm maximum                            | Maximum of all pieces aligned end on end  |
| Objectionable material         | Nil                                       | Harmful substances include live or dead stored grain product insects; live or dead pea weevil; glass; metal; specified weed seeds in excess of the limit prescribed in any of the State Stockfeed Regulations lists of permitted weed seeds; the presence of pre or post-harvest chemicals not registered for use, used in excess of permitted levels or with residues in excess of their permitted levels; smut; material imparting an odour to the grain; sand; earth; sticks and pickled grain. Includes degraded seed such as smutty seed, hot seed, musty seed, sour seed, mouldy seed |
| Seed contaminants (ma          | ax. tolerance per 0.5 L                   | to apply to individual seeds, rejectable over)  |
| Туре А                         | Nil                                       | Alligator weed, Cape tulips, castor oil plant, coriander, creeping knapweed, Darling pea, dodder, giant sensitive plant, opium poppy, Parthenium weed, ragweed, rattlepod, saffron thistle, star burr, stinkwort, St. Johns wort  |
| Туре В                         | 1   | Burrs (Xanthium spp.): all except where otherwise stated; wild mignonette   |
| Туре С                         | 2   | Crow garlic, skeleton weed, thornapple  |
| Type D                         | 3   | Common heliotrope, darnel, Hexham scent, jute, Mexican poppy, mintweed, nightshade  |
| Туре Е                         | 65  | Sesbanian pea   |
| X V                            |   |   |

