



CASE STUDY 4 : GROWER PRICE RISK MANAGEMENT¹

Synopsis

“Always sheep, sometimes cattle; never horses” anon

The above formula was prescribed around a time when the annual wool cheque provided the staple earnings for many Australian farmers. Today, volatile wool prices and rising input costs are forcing wool growers to focus closely on supply and productivity measures. Diversity in farming enterprises is increasingly important.

Specialist wool producers are vulnerable to the effects of volatility of wool prices. Mixed farming enterprises are not as susceptible to a downturn in any particular sector. For example, in recent seasons, good returns from cropping and meat have been important in offsetting the effects of low wool prices.

The question of price risk management is also more important for wool growers. This case study is about the marketing environment facing specialist woolgrowers and approaches available to the growers in dealing with volatile prices.

Student Learning Objectives

As a result of analysing the case study, you will gain an understanding of:

- risk averse behaviour.
- tools and services available to growers to manage price risk.
- factors to consider in using hedging instruments

Case Background

Hedge Instruments

Farmers or for that matter any trader in commodities can employ a number of approaches that will help protect against adverse movements in commodity prices. The traditional tool for doing this with agricultural commodities is through *futures contracts* traded through a futures exchange. Futures are used by wool buyers or brokers to offset a particular position they hold in relation to their own wool contracts.

There are other tools available to producers such as *forward contracts* and a range of *over-the-counter* (OTC) products provided by financial institutions and rural services companies.

One advantage with the OTCs is that producers can manage price risk without directly trading on the futures market.

¹ Authors of the case are Peter McSweeney and Bill Malcolm (both of The University of Melbourne). A case commentary has been written by Kym Gunn (Elders) and Malcolm Condie (Landmark). The work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without the prior written permission from the Australian Wool Education Trust.

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Table 1 : Typical Terms Used In Risk Management

Terminology	Explanation
Arbitrage	Simultaneous sale and purchase of commodities in different markets to profit by taking advantage of price discrepancies.
Derivatives	Term for the investment product that is dependant upon the value of an underlying product e.g. wool. Futures and options contracts are described as derivative instruments in the sense that they derive value from the operation of another market.
Forward contract	A negotiated agreement between buyer and seller to deliver a commodity at some point in the future at an agreed price.
Futures contract	An agreement to buy or sell a commodity or instrument sometime in the future. Contracts are organized or standardized for a commodity such as wool according to quality, quantity and delivery time with price being the variable element determined through trading of futures contracts at registered futures exchanges. http://www.sfe.com.au
Hedging	The general practice of protecting income derived from commodity production against market volatility or reducing the risk of unfavourable market volatility.
Option contract	The right, not an obligation, that exists for a period of time to buy or sell a commodity or a futures contract at a specified price (strike price). The buyer of the option pays a premium for the right.
Over-the-counter products	Financial institutions tend to provide price risk management making use of <i>swaps</i> .
Over-the-counter deliverable products	Products such as Landmark's <i>Wool Basis Contract</i> or Elders <i>Auction Forward Contract</i> fit within this category. They effectively enable the grower to lock in a fixed price for wool that the grower will deliver to the broker at a later date, reflecting the expiry date of the contract. The rural services provider offering the contract is likely to take out futures positions to cover fixed price contracts or in the case of Minimum Price OTC options products, options, simultaneously to cover similar positions they have with the client. These products involve physical delivery of the wool. http://riskmanagement.elders.com.au/education.asp http://www.landmark.com.au
Risk	The chance or possibility of loss due linked to the uncertainty of outcomes.
Speculation	The practice of attempting to profit in commodity markets and related instruments by anticipating price movements.
Spot price	Market price or cash price available for a commodity that is immediately deliverable.
Swap	Simultaneous hedge transactions that enable the producer to swap the market price for a fixed price for the commodity. Swap facilities are typically provided by financial institutions such as banks. Commodity swaps offer growers and consumers a fixed or floating price per unit of measurement that covers the majority of their price risk. Swaps are settled at maturity and do not involve physical delivery of the underlying commodity to the financial institution. In this sense they are distinguished from the <i>over-the-counter deliverable products</i> .

Futures contracts call for the future delivery of specific grades of the commodity such as wool at a specific location. Contracts are priced according to these specifications (Table 2). Delivery is seldom made. The responsibility is discharged before the delivery month by taking an offsetting position in the futures market. Contract rules generally allow substitution of grades at predetermined discounts or premiums.

Table 2 : Selected Elements Of A Typical Wool Futures Contract Specification

Underlying commodity	22.6 micron merino wool (ASX code 56W)
Contract unit	2,500 kilograms clean
Quotation tick size	AUD \$0.01 per kilogram clean, Tick value of \$25.00 per contract
Contract months	February, April, June, August, October, December
Deliverable grade	A maximum average of 22.6 micron Australian merino fleece wool. Style 5 or better of Good Colour, with a minimum average strength of 30n/ktx, minimum average staple length 80 mm, and a vegetable matter content of 1.8% or less. Vegetable matter up to 1% is par, a 3 cent discount per kilogram clean will be applied for every .1% above 1 and up to 1.8%.

Source: Australian Stock Exchange

Price Volatility

Price volatility is not restricted to wool. Commodities such as cotton and other fibres face similar instability. The difference with the cotton sector today is that there is significant use of cotton futures and forward contracts to hedge against adverse price movements. Globally, cotton futures trading has a much longer history and cotton futures are used widely in selling, buying and risk distribution along the supply chain.

Eighty to ninety per cent of Australian wool is still traded on the spot market (auction) (Australian Wool Innovation, 2004). Given that tools such as futures contracts provide wool sellers and buyers with the opportunity to 'lock-in' prices they receive and pay, and with the variation in Australian wool prices across the micron ranges, it might be expected that wool growers would make more use of futures (for a detailed discussion about why woolgrowers do not use futures refer Dean and Malcolm, 2006). In Table 3 are shown price variations from year to year, and the extremes, particularly between 1999 and 2002. Wool measuring 24 microns ranged from 362 c/kg to 1308 c/kg in 4 years.

Table 3 : AWEX Fleece Micron Price Guides (c/kg clean) (early October southern market)

Micron	1999	2000	2001	2002	2003	2004	2005	2006*	High - low Range
18			1347		1046	1075	934	1018	413
20	666	759	714	1388	966	838	718	803	722
22	419	551	685	1340	936	717	669	717	921
24	362	513	684	1308	898	641	649	690	946
26	345	463	662	1166	802	596	569	591	821
28	337	463	648	880	582	512	469	487	543
30	313	428	621	708	510	454	430	431	395

* April



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Risk Preferences

Apart from futures contracts, commodity price risk can also be reduced or removed with privately negotiated forward contracts. One recent study (Jackson, Quaddus, Slam and Stanto, 2006) examined the reluctance of Western Australian wool growers to enter such arrangements. It summarized the ‘pros’ and ‘cons’ put forward by farmers and wool service providers toward achieving price security by way of forward contracts (author date)(Table 4). The study summed up the prevailing view of wool producers in the survey by saying that “It seemed that the worst fate for both groups was to be caught with a forward price that did not equal, or better, the auction price of the day.”(Jackson et al 2006)

At face value, this statement seems highly consistent with the ‘speculative’ type of investor who is attempting to achieve the highest possible profits from holding their stock of wool until the wool can be sold at the desired price. Risk averse wool growers would be prepared to forego the chance of higher returns in return for accepting a reduced risk. This would be consistent with a grower who would be prepared to ‘lock-in’ a price with some degree of certainty. The risk averse investor would tend to ‘play it safe’.

On the other hand, it could also be argued that forward contracts do not involve significant production risk in the sense that wool growers, regardless of how bad the season, will always produce some wool within the specifications which can be delivered against the forward contract. Meeting wool specifications of a forward contract is not difficult to manage.

Table 4 : Evaluation Of “Pros” And “Cons” Of Forward Contract For Selling Wool In WA

Pros of forward contracts	Cons of forward contracts
Pricing: <ul style="list-style-type: none"> • Provides peace of mind • Provides price satisfaction • Opportunity of better price risk management 	Pricing: <ul style="list-style-type: none"> • Risk of locking in an unfavourable price compared to that offered at auction • Inflexibility of “locking” in a price • Perception of forward contracts giving a lower price
Business processes: <ul style="list-style-type: none"> • Provides income security • Improved opportunities for budgeting & planning • Simple / easy & quick method of selling 	Complexity: <ul style="list-style-type: none"> • Paper work • Discounts associated with wool quality • No one is able to provide a reliable value for wool on-farm
	Dominance of auction system: <ul style="list-style-type: none"> • Forward contracts only available for particular lines • Forward contracts lack the volatility of auction (i.e. opportunity for seizing price spikes) • Risk of selling to an financially insecure buyer • Wool sold by forward contract ends up at the auction • Requirement for fast cash
	Production systems: <ul style="list-style-type: none"> • Production risk (not producing to the quantity and quality)

Source: Jackson et al 2006

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Wool Enterprise Returns

Farmer profitability depends on the combination of outcomes concerning yields, prices, input costs and productivity. Table 5 is detail on the performance of average wool operations. Average farm cash receipts of specialist wool growers have declined over the three years while cash receipts of mixed enterprises have grown. The latter group has benefited from diversification which of itself is a typical risk management response. Recent analysis of the industry by AWI (2006) has shown:

- the smallest flock size farms (less than 11,000 kilograms of wool produced) which make up 65 per cent of wool industry farms produced only 26 per cent of the Australian wool clip in 2003-04. These were mainly mixed enterprise farms.
- the largest farms (more than 44,000 kilograms) which account for 4 percent of farms spread across mixed and specialized growers account for 22 per cent of production.
- the group that tended to register poorer returns (negative rates of return on capital) was the small specialized sheep producers.
- mixed enterprise wool producers outperformed specialised producers in terms of return on capital across all sizes of farms. Wool receipts made up only 15 per cent of the total cash receipts of the average mixed enterprise wool producer.
- the better performing farms tended to have “*better flock productivity (higher lambing and turnoff rate, and lower death rates), higher prices received for wool, sheep and lambs, greater focus on sheep meat production and greater labor efficiency*” (p.9).
- innovation, adoption of new practices, access and response to market information were characteristics of better performers.

Table 5 : Financial Performance Of Wool Producers

		Specialist sheep and wool farms			Mixed enterprise wool producers		
		2002-03	2003-04p	2004-05s	2002-03	2003-04p	2004-05s
Ave per farm							
Area operated June 30	ha	5,553	5,906	4,802	4,394	3,314	3,198
Sheep & lambs shorn	no	3,544	3,316	2,692	1,684	2,392	2,199
Wool produced	kg	14,638	14,484	11,368	7,382	10,481	9,849
Wool cut per sheep shorn	kg	4.1	4.4	4.2	4.4	4.5	5.0
Wool price (greasy)	c/kg	659	532	486	631	506	466
Cash receipts							
Wool sales	\$	76,790	69,500	54,000	38,810	41,100	47,000
Sheep sales	\$	25,200	30,500	23,000	18,170	24,600	23,000
Lamb sales	\$	23,970	30,500	34,000	22,020	32,900	38,000
Total cash receipts	\$	185,360	180,700	156,000	303,400	401,600	361,000

Source: Australian Wool International (2006) Australian Wool 06.1 Financial performance of wool producing farms to 2004-05, ABARE. p = preliminary estimates s = provisional estimates



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Grower Case Studies

Wool enterprises vary considerably in size, degree of specialisation and type of wool produced. The following 3 scenarios describe typical scenarios. Growers A and B are larger specialist growers of fine - medium wools. Grower C is a smaller grower of cross bred wools. The cases are accompanied by some observations from the industry concerning the issues that these producers should consider in managing price risk for these types of operations.

Scenario A : Specialist Grower Of Super - Fine Wool

Grower A runs 11,000 Merinos in Central Victoria producing predominantly super fine wool. This has been achieved through combined breeding, culling and wool testing programs which have enabled the grower to make sustained improvements in micron performance while maintaining staple strength. The adult fleece weight averages about 4 kilogram greasy. Wool produced is within the 11 – 18 micron range. Typically, 18% of the clip measures 13 microns; 39% - 14 microns; 31% - 15 microns. In the cases where sheep have been coated (up to 5,000 sheep), there are significant improvements by way of reduced vegetable matter (VM) (0.5%) and minimal dust penetration.

Scenario B : Specialist Grower Of Medium Fine Wool

Grower B has two farming operations in central New South Wales. The first, the original home property, Toora, has traditionally relied on wool for most of its income, although in recent years the property has diversified into fat lamb production. Toora carries approximately 6,500 adult ewes, 1,000 hoggets, 1,000 wethers, and a further 2,500 lambs which will be retained for future wool production. The annual clip comprises approximately 250 farm bales with the majority of the wool spread over the 21 to 23 micron range. Typically, 35 bales are taken from cross bred lambs.

The second property, Highview derives sixty per cent of its income from wool; income is also derived from lamb and beef cattle production. The only cropping undertaken is for farm fodder production. Highview carries approximately 5,000 ewes. The majority of the clip is within the 17.6 to 19.5 micron range, with average VM of .05%.

Scenario C : Mixed Enterprise Grower Of Crossbred Wools

Grower C operates a mixed enterprise farm producing cattle, prime lambs and wool. The property has traditionally run about 1400 first-cross ewes (Border Leicester – Merino) which are shorn during spring. The spring shearing produces approximately 6,100 kilograms of wool. Sixty per cent of wool is in the 27 – 31 micron range typical of crossbred wools; VM averages at .8%. Grower B is aware of the 'over-the-counter' products and is interested in their possible application to his wool.



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References

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Dean, P. and Malcolm, B. (2006), Are Australian woolgrowers rational managers of price risk? Paper presented to Australian Farm Business Management Network Biennial Conference, Marcus Oldham.

Elders Limited www.elders.com.au/

Jackson, E., Quaddus M., Slam, N. and Stanto, J., (2006), Pros and cons of selling wool by forward contract: opinions of Australian industry stakeholders, Paper presented to Australian Agricultural and Resource Economics Society Annual Conference, Sydney.

Landmark www.landmark.com.au

Sydney Futures Exchange www.sfe.com.au

Discussion Questions

1. Based on the background information to the grower case materials, what do you believe are the key differences between industries such as cotton and wool underlying their different price risk management approaches?
2. The case study suggests that producers preferring to hold stocks are speculating on wool price movements. What other practical issues and costs come into play with holding wool stocks for any length of time?
3. Outline the pros and cons for the wool grower of bypassing the auction system with a forward selling arrangement. With the cons, focus on the risks for the grower.
4. Outline the pros and cons associated with the use of 'basis' or 'auction forward' type contracts.
5. Outline the information needs for a grower deciding to use futures contracts on a systematic basis.



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Industry Comment

Written by Kym Gunn (Portfolio Manager for Victoria, Tasmania and Riverina, Elders) and Malcolm Condie (Manager Client Brokering, Landmark)

Before commenting on the specifics of each case, we make the following three observations.

- Before any wool producer uses risk management products they should calculate their accurate cost of production, be aware of market volatility and have a good understanding of the full range of risk management products available. This will allow the producer to make an informed decision on what product suits their business requirements and risk appetite.
- Wool producers are becoming more aware of the importance of risk management products as a way of managing price risk and remaining profitable. This increased awareness of risk management products has been partly brought about by a newly emerging younger generation in the farming sector, who demand a greater level of control over their farm income.
- Wool producers must be aware of their cost of production and also must consider this figure in determining price levels to activity management their market risk.

Scenario A – Super fine wool grower. The major issues which this grower will occur in risk management practices of his wool clip is in relation to his clip micron, 88% of his clip is below 15 micron. The finest SFE futures contract is 19 micron, OTC products lowest micron product is 18 micron and forward contracts available at these finer microns are rare but not impossible.

If this wool producer wishes to manage market risk, they will likely be exposed to basis risk by hedging 18 micron risk management products with their finer wool clip. Basis risk relates to the possibility of the futures or derivative product based on 18 micron wool, moving in an adverse direction to their finer wool. Using a different market to hedge a particular commodity is regarded as an imperfect hedge.

While the choices of risk management products faced by this grower aren't as user friendly as those faced by Scenario B below, nor without some element of basis risk; it must also be pointed out that this is better than having no availability of risk management tools whatsoever. This lack of choice traditionally reflects the composition of micron of the Australian wool clip and while many producers have been breeding for finer fibre measurement over recent years, this may also help bring greater liquidity to the futures market for this sector of the futures industry.

Scenario B Specialist grower of medium fine wool. This wool producer is able to easily use most generic wool risk management products on both properties wool production. The Toora clip within the 21 to 23 micron range fits into all wool risk management products micron ranges. The Hillview wool clip micron range between 17.6 and 19.5 micron would also fit into the finer edge of wool risk management products in the 18 to 19 micron range assuming a small percentage of the clip would be 17.6, first shorn lambs from the 5000 breeding ewes which would be in the broader range of their microns say 18 to 19 micron.

Scenario C Mixed enterprise grower of crossbred wools. This grower is able to use OTC and also forward contracts products for crossbred XB wool. Traditionally there has not been a lot of XB wool producers using wool risk management products, however this is gradually changing with more and more sheep enterprises having a larger percentage of crossbreed sheep in their mix.