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Managing fodder prices for droughts

A guide to help sheep producers

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Contents

Introduction 3

On-farm fodder requirements 3

Approach to drought fodder supply 4

Options for managing fodder supply and price risks 5

- Locking into prices – forward contracts and futures 5
- Decision points for producers 5

Cost of storing fodder 8

- Opportunity costs 8
- Storage infrastructure costs 9

Additional storage costs 9

Fodder type 10

Let's look at an example 10

Putting it all together 12

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Introduction

There is considerable information available to producers on practical aspects of drought management including feeding rates, introduction of feed, feed quality and animal requirements, and practical advice on frequency and methods of feeding. However, adequate preparation for droughts and successful management during a drought not only requires a sound knowledge of the amount and type of feed, but importantly it also requires forward planning and decision-making on how much fodder will be stored in advance on-farm and fodder buying strategies during a drought.

The 2002 drought saw wool producers exposed to a shortage of grain and fodder for drought feeding of sheep. Prices for grain, fodder and alternative feedstuffs were extremely high and volatile. This document has been produced to assist wool producers to better manage these price and supply risks in the future.

During the 2002/03 drought, Australian Wool Innovation (AWI) commissioned a report 'Drought Feeding Strategies for the Australian Wool Industry'.

Fodder supply risk is an emerging issue for the wool industry

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The report included consideration of the supply of grain during the drought for the wool industry and noted:

'For producers, while there are clearly price sensitivities relative to the economics of feeding, the primary issues remain being able to access a secure supply pipeline and the ability to pay for grain.'

and

'Management of price risk will be more effective at producer rather than industry level. A key issue for wool producers is also achieving an improved level of price discovery with grain supplies.'

This report focuses on strategies which will assist producers in managing fodder price and supply risks during droughts. It should be noted that supply risk is an emerging issue for the wool industry. Until the 1990s the main issue during drought has been the cost of fodder. Increases in domestic fodder demand from the intensive livestock industries, together with strong export demand and relatively stagnant domestic grain production, has resulted in potential and actual domestic grain shortages. This will be particularly the case where drought in Australia coincides with lower world production, as occurred in 2002.

Therefore, a simple financial provision for drought by a producer may not be sufficient if producers are unable to access fodder when required. In addition, such shortages in domestic supply are likely to further exacerbate price rises during droughts.

On-farm fodder requirements

In the larger context, there will be three main scenarios under which producers require fodder for stock:

■ Annual ('normal') requirements - production and survival feeding

This type of fodder will be required in most if not all years and will be part of the producer's normal production system. Examples include provision for weaner sheep over summer/autumn, finishing lambs, feeding rams prior to joining.

■ Short-term stop gap - eg late autumn break

Depending on the district, a late break or poor season may require feeding for one to two months. This will occur in some years only.

■ Full drought feeding - failed spring

Full drought feeding required for three to six months. This is expected to occur on average every five to 10 years, but will vary between localities.

This report will focus on full drought feeding. It is recognised that most producers will be making provision on a regular basis for annual requirements and short-term stop gap feeding, and that this fodder strategy may form part of the drought feeding strategy. However, it is important that the producer understands the extent of feed required during a drought and manages this requirement in addition to shorter term supplies.

Producers should have a good understanding of the drought requirements for their farm. The total tonnage required will depend on the locality of the property and the type of droughts experienced, and the management approach during a drought. Some producers may operate systems whereby destocking rather than feeding is all or part of the drought strategy. However, in most cases producers will elect to feed at least a proportion of their flock ('core breeding stock') if not their entire flock. This will particularly be the case where droughts occur infrequently and stock are predicted to require less than six months feeding.

As a rule of thumb, a producer will require 50-60 kg of grain per dry sheep if full drought feeding is required for four to five months. Weaner sheep require less feed per week but are usually fed for longer so their total drought requirement is similar. Lactating ewes or ewes in late pregnancy have higher requirements. The actual drought reserve can be estimated based on these figures and revised by looking at previous drought feeding amounts for that property.

Producers should have in their mind the total tonnes of feed which would be required during a drought on their farm.

Approach to drought fodder supply

There are two main criteria which should influence producers in determining their approach to fodder reserves:

- Financial returns
- Access to fodder and logistics of storage, handling and feeding.

Any drought strategy must be both financially acceptable and practically achievable. The 2002/03 drought resulted in difficulties accessing fodder and higher fodder prices. Both these factors mean it will be essential that wool producers make some provision for actual fodder, through either on-farm medium to long term storage or forward contracting for future delivery.

Destocking rather than feeding may be all or part of your drought fodder reserve strategy

There are many other factors which may influence producers in their approach to fodder reserves including:

- Risk of introduction of weeds
- Attitude to borrowing
- Labour availability
- Machinery inventory
- On-farm storage capacity
- Taxation/depreciation position
- Profitability of enterprise
- Management ability.

The most suitable option for each producer will vary and it is not possible or appropriate to determine a single approach for all producers to manage future drought fodder requirements. Rather, it is paramount that all producers actively assess their own drought fodder requirements and their enterprise and determines what system of drought fodder provision best suits their situation. It is then critical that steps are taken to implement this strategy. While such an approach to drought planning has always been appropriate, potential feed shortages and increasing economic pressures make such an approach even more important.

Producers who already have a cropping enterprise will generally have less difficulty in managing fodder reserves, as they are already trading in the grains market, dealing with storage issues and generally have more machinery to facilitate silage or hay production

as well. Sheep producers with no cropping enterprise will need to consider machinery and management ability in particular when assessing their options.

Options for managing fodder supply and price risks

The options available for producers for provision of drought reserves are listed in Table 1 (page 6) and include:

- Maintaining a line of credit with the bank and using all existing finances to minimise debt or for other investment opportunities
- Storing fodder on-farm, usually by progressively building up reserves
- Using forward contracts to guarantee supply into the future
- Using futures to manage price risk.

In storing fodder on-farm, a number of scenarios exist. Producers may:

- Produce their own drought reserves (eg grow grain, make silage or hay) and store this on-farm
- Purchase fodder (grain or hay) off farm and store on-farm.

Storing fodder on-farm, usually by progressively building up reserves is one option for provision of drought reserves

Further variations exist once feed is stored on-farm. Producers may store hay and sell it during a drought and replace it with grain, or trade in grain prior to a drought. Opportunity trading once fodder is on-farm can be an important strategy but is not discussed further here.

Locking into prices – forward contracts and futures

Forward contracts are available with minimum contract sizes of 500 tonnes. Forward contracts are available for six to eight months but may be able to be negotiated for up to two years.

Grain futures are available through Chicago Board of Trade (CBOT) wheat futures and through the Australian Stock Exchange (ASX) grain futures which include feed wheat and feed barley. These ASX grain futures include Options (Call and Put).

There is no apparent reason to recommend wool producers consider the CBOT futures. The CBOT futures refer to a different type of wheat (different basis), include issues with foreign currency exchange (which accounts for 60 per cent of the price variation), and will be affected by different climatic conditions. The contract size is 5000 bushels (130 tonnes).

On the other hand, the ASX grain futures offer producers a much more flexible pricing structure. The contract is for 20 tonnes, has only minimum delivery specifications and is fully deliverable. With the addition of Options, this futures market will enable producers to guarantee prices up to 18 months in advance and at the same time take advantage of any lowering in prices during that period. It offers a significant opportunity for reducing price exposure and the deliverable nature allows for supply.

Relatively few wool producers have used the Sydney Futures Exchange (SFE) wool futures, and so it is likely that there may also be a low uptake of grain futures by wool producers. However, any extension of drought fodder management should include ASX grain futures as an option.

Decision points for producers

In developing strategies to minimise fodder price and supply risk for droughts, there are two main decisions producers must make:

- Firstly, do I use current money to reduce debt (or invest in other activities), or do I invest funds now in drought fodder reserves?
- Secondly, if I decide to invest in drought fodder reserves, do I produce my own fodder or do I buy fodder?

Table 1: Strategies for reducing price and supply risks

Name	Strategy	Pros
Bank reserve	Buy grain, hay or silage at commencement of and during a drought.	No long term on-farm storage costs, no loss in feed value with stored fodder. Will be expecting to buy fodder (grain) and will act early in drought.
Store purchased feed on-farm	Buy grain, hay or silage annually.	Build up reserve on annual basis, so that it is part of the system. Can alter buying strategy to potentially minimise or reduce cost per tonne. Feed on hand when drought occurs. No sudden problems.
Produce and store feed on-farm	Produce and store feed grown on-farm rather than selling.	Feed often produced at lower cost than purchasing. No weed issues. In control of quality. Utilise existing machinery.
Produce hay or silage on-farm and sell for drought reserve	Produce hay or silage and store, sell in same market as buying grain.	Hay often more expensive than grain in droughts, can utilise existing haysheds.
Forward contract	Take out a contract for delivery in the future at a set price.	Guarantees price and supply. No need for large on farm storage capacity because delivery can be by the load as required.
Futures	Buy forward contract(s) at a given price and sell back at the time of buying the grain to ensure set price.	Allows you to lock in at a maximum set price. Fully deliverable. Don't need to store grain immediately. Don't need full value of the grain up front when decide to implement a strategy.
Options	Buy a call option at a given strike price which provides the right to buy a certain amount of grain at a certain price. If the price rises going into a drought, the value of the option rises. The increased value of the option provides the funds to buy the grain at drought prices.	Allows you to lock in to buy an amount of grain at an agreed maximum price. Don't need to store grain and don't need large financial commitment to the call. Can be used as insurance if there is an increased risk of a drought but doesn't commit you to taking delivery.

Cons	Application	Action
Almost certainly pay more for grain. Peak debt issue may arise during drought. Availability of feed may be an issue. Introduction of weeds.	Suitable when very infrequent droughts, high interest rates occur.	Ensure peak debt, cash flow access during drought.
On-farm storage costs, potential losses over time, introduction of weeds, need to control vermin, weevils etc, tying up of money if drought doesn't occur.	Suitable for regular drought events (eg 5-7 years), especially with low interest rates and if expecting supply difficulties or high prices during drought.	Assess on-farm storage capability, system, buy annually, set trigger prices to determine amount purchased annually.
On-farm storage costs, potential losses over time, need to control vermin, weevils etc, tying up of money if drought doesn't occur.	Suitable for regular drought events (eg 5-7 years), especially with low interest rates and if expecting supply difficulties. Works best if have equipment or normally have a fodder enterprise.	Assess on-farm storage capability, feeding system.
Losses associated with hay storage, issues with hay quality, storage costs, weed introduction.	Suitable where existing haysheds, no equipment needed for silage feeding.	
May not offer much difference to actual prices during a drought if implemented at the start of the drought. Can offer guarantee of supply at a fixed price, usually with an allowance for storage costs of approximately $2 per tonne per month. Once contracted, volume and price cannot be changed.	Useful for managing supply and price risk over the drought period. Not suitable for long term drought risk management because forward contracts are usually restricted to 6-12 month periods. Usually pay on delivery of each load.	Know how much grain you are likely to require to feed stock through. Know which grain merchants will provide contracts.
May not offer much difference to actual prices during a drought.	Lock into prices early in drought.	Establish client-broker relationship. Monitor futures prices particularly if dry winter/ early spring. Establish line of credit to enable futures use.
Need to be familiar with the concept. By the time the drought is apparent the value of the option may reflect drought feed prices. If not used, premium lapses like insurance premiums.	Allows management of price risk without owning the physical.	Establish client-broker relationship. Become familiar with how options work. Know how much grain you will need to cover drought. Monitor prices.

Table 2: Cost of grain per tonne when fed out, assuming eight per cent discount rate, three per cent loss in feed value

Purchase price of grain ($)	Number of years grain stored									
	1	2	3	4	5	6	7	8	9	10
$100	$103	$111	$120	$130	$140	$151	$164	$177	$191	$206
$120	$124	$134	$144	$156	$168	$182	$196	$212	$229	$247
$140	$144	$156	$168	$182	$196	$212	$229	$247	$267	$289
$160	$165	$178	$192	$208	$224	$242	$262	$283	$305	$330
$180	$186	$200	$216	$234	$252	$273	$294	$318	$343	$371
$200	$206	$223	$240	$260	$281	$303	$327	$353	$382	$412
$220	$227	$245	$265	$286	$309	$333	$360	$389	$420	$453
$240	$247	$267	$289	$312	$337	$364	$393	$424	$458	$495
$260	$268	$289	$313	$338	$365	$394	$425	$459	$496	$536
$280	$289	$312	$337	$364	$393	$424	$458	$495	$534	$577
$300	$309	$334	$361	$390	$421	$454	$491	$530	$572	$618

To answer the first question, a producer must have a good understanding of the relative cost of holding fodder compared to reducing debt, and the skills and infrastructure required for on-farm storage.

To address the second question a producer must assess the cost of producing fodder in their system and compare that with the price of purchased fodder. In doing so, a producer must include both the direct costs of producing the fodder (eg cost of baling, harvesting, sprays, machinery depreciation etc) as well as any indirect costs from reducing stocking rates or conserving paddocks for fodder production.

Cost of storing fodder

The main cost in storing fodder on-farm will be the opportunity cost (or lost opportunity) for the dollars tied up in the stored fodder. Additional costs include storage costs (eg silos, sheds, pits), ongoing vermin/pest control, and losses associated with damage or loss of stored fodder.

Opportunity costs

The opportunity cost of storing fodder is determined by the amount paid for the fodder, the length of time the fodder is stored and the returns available if the money invested had been used elsewhere, eg interest rate if the money had been used to reduce debt. Table 2 shows the cost of grain following storage, assuming an eight per cent discount (interest) rate and a three per cent loss in fodder during storage.

For example, if grain was purchased at $140/t and stored for seven years before being fed out, it is equivalent to purchasing grain at that time for $229/t.

These tables allow producers to quickly establish 'trigger' prices whereby they expect that the cost of grain is cheaper than it will be during a drought, even if it has to be stored for a number of years.

Again, by way of example, if a producer believes the average cost of grain in the next drought will exceed $250/t, and that a drought will occur in the next seven to 10 years, then a producer should be willing to pay in the order of $150/t to accumulate drought fodder reserves. Furthermore, if the price drops below $120/t, a producer should be confident to buy a large proportion of the required reserves, because even if it is stored (properly) for 10 years its opportunity cost will still be below $250/t.

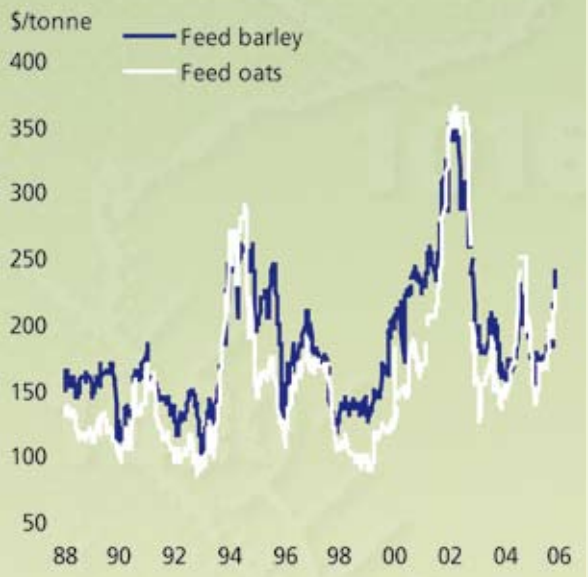
Grain prices vary both within a season and between years. Looking at historical grain prices may give some feel for price variation into the future, provided that the factors that resulted in that variation still exist. This may not necessarily be the case with grain prices because of changes in grain consumption relative to production due to increased requirements from intensive livestock industries. Even so, some variation in grain prices is inevitable.

Graph 1 and Table 3 show the variation in quoted feed barley and feed oat prices from 1988 to 2004.

These prices indicate the potential financial gains from prudent buying of drought fodder reserves in advance of a drought, provided on-farm storage costs are low and fodder is properly stored on-farm.

It should be noted that the prices used here were

Graph 1: Feed barley and feed oats, quoted prices (1988-2006)



Source: The Land/Australian Wheat Forecasters

quoted prices. It is often possible to obtain grain at even cheaper prices at harvest time, when grain producers have inadequate storage space.

Storage infrastructure costs

The key to capitalising on low grain prices is having a well-prepared storage area for the purchased (or grown) fodder. Traditionally, long term on-farm fodder storage has involved silos (grain), sheds (hay and to a lesser extent grain) and pits (predominantly silage). Pits have also been used for storage of grain and are worthy of further investigation, given the potential low cost of this type of storage. The cost of storage facilities will depend on whether the facilities are already on-farm or have to be built or purchased, and the type of equipment on farm. For pits, the costs will also depend on soil type, which will determine whether lining or concreting is required.

The type of storage used will also depend on feeding out machinery. It is important that producers carefully plan their drought feeding management and then consider the costs of different storage methods that are practical for their enterprise.

As an example, a 40-50 tonne capacity silo costs approximately $5,000. If this lasts 30 years, the depreciation will be approx. $170 per year. In addition, at an average of 10 per cent interest, there is a further $500 in inventory costs, total $670 per year or approximately $15 per tonne per year. Estimates for underground storage may be as low as $2 per tonne per year.

Additional storage costs

Loss in grain from weevils or water damage, and in hay from vermin or weather damage can be high. It is essential that adequate measures are taken to protect stored grain. Water seepage in pits or poor sealing with silage will also lead to low yields from stored fodder.

It is important for producers adopting on-farm storage systems to become sufficiently skilled in care and management of stored fodder.

Even under ideal conditions, there are some losses of stored fodder. Estimates for hay and silage are in the order of 10-12 per cent for hay and 6-8 per cent for silage when stored for a prolonged period such as 10 years. The losses in hay stored can be as high as 30 per cent per year for round bales stored in the open.

Fodder type

In most cases grain will be the preferred option for drought feeding. While in some circumstances fibre is essential (eg lactating ewes), grain will generally be the sole feed necessary during drought. This enables producers to minimise machinery costs by using only augers and feed bins rather than needing tractors or other feeding out systems for hay and silage.

Table 3: Price fluctuations for feed barley and feed oats

	Price fluctuations of barley and oats 1988-2004		Drought Prices Aug 2002-May 2003		Drought Prices Aug 1994-May 1995	
	Range	Period < $150/t	Range	Average	Range	Average
Oats	$85-360	56%	$245-360	$339	$168-290	$245
Barley	$98-360	34%	$278-360	$322	$178-260	$231

Source: The Land/Australian Wheat Forecasters

Where producers are storing feed on-farm, they may use hay and silage. Silage in particular allows for a longer-term low cost drought reserve but does require additional equipment to feed out. It would be unusual for a producer to maintain sufficient silage reserves to be able to feed only silage during a drought, and thus they would also need additional grain equipment.

However, the real advantage of pasture silage is that it is already part of the sheep production system and in years where there is prolific spring growth, silage is one means of utilising extra pasture. Silage can be put underground for around $12-15/t ($25 -30/t dry matter), so provided it is properly sealed and can be fed out, it represents a low cost option as a drought reserve. An added advantage of silage underground is that it will not be sold and so will still be there as a drought reserve.

Grain and hay stored on-farm may be traded as prices rise well above the purchase cost, but if the drought occurs soon after the grain or hay has been traded, then producers will still be at risk of price and supply squeezes in the drought.

With both hay and silage, opportunity production may result in less than ideal pasture or crop preparation and processing. This may result in lower quality feed. Even so, this lower quality feed may be adequate for drought where dry sheep have relative low requirements in terms of energy and protein for maintenance.

It is important to remember to compare feeds on an energy and dry matter basis. For example, grains are generally about 90 per cent dry matter and 12-13 MJ ME/kg DM. Hays are usually about 85 per cent dry matter and 6-10 MJ ME/kg DM and silage 40-60 per cent dry matter and 6-10 MJ ME/kg DM. Thus, hay at $60/tonne is equivalent to grain at $95/t. If hay was produced and stored at $70/t including storage costs, it would have an equivalent feed value in seven years as grain at $200/t.

It should also be remembered that 'oils ain't oils'. Most grains are sold on their quality for milling which in most cases is not related to their drought feeding value. Downgraded grains may well represent good value, particularly where heavy discounts are operating in the export market. Grains are most often downgraded due to weather damage or high screenings which make them unsuitable for high value uses such as milling or brewing. However this often has no effect on feed quality for livestock so periods of glut in feed grains such as occurred at harvest 2003, provide opportunities to buy feed grain at substantial discounts to long term average prices.

The key to capitalising on low grain prices is having a well prepared storage area

Let's look at an example

Let's assume we have three sheep producers – Colin Cash, Sam Silo and Pat Pit. They live in the same area, all have identical stock numbers and similar infrastructure! Average stock numbers for their farms are 2,000 ewes, 1,000 wethers and 1,600 weaners. They expect to have to drought feed sheep once every eight years. Based on typical grain feeding levels, this would equate to 240 tonne of grain for five months of drought feeding. If grain prices average $140/t (landed) normally, varying from $100 to $180, and average $250/t in drought (range $230-$300), then let's compare three scenarios:

- Colin Cash - each year he 'invests' all profits generated from the farm to create a drought reserve. He does this by progressively reducing his debt, but maintains a line of credit with his bank up to the level 'invested'.
- Sam Silo - each year he plans to buy 30 tonnes of grain at harvest time from a grower 50 km away. He is buying oats as oats are generally the cheapest, the easiest to store and the easiest to feed, although freight and storage costs are higher per tonne. If the price drops below $120/t he will buy 60 tonnes and he will re-assess whether he buys any grain if it goes above $170/t in a non-drought year.
- Pat Pit - each year he will try to lock up 20 hectares in late August and make silage in October. He will do this in years where there is

surplus feed. He anticipates he will make 100 tonnes silage (50 tonnes dry matter) at a cost of $12/t stored underground in pits ($25/t dry matter) if he is able to lock up this area.

Fortunately for each of them, the next drought does not occur for seven years. The following outcomes for each producer occur. In each case it is assumed an interest rate of eight per cent, on-farm storage losses of 0.5 per cent per year for grain and two per cent per year for silage. There is on-farm storage for approximately 100-110 tonnes of grain.

Colin Cash

In the year of the drought Colin is on the ball and starts buying grain early when it is $230/t. He buys 60 tonnes initially, and then a further 60 tonnes at each subsequent purchase. He ends up buying and feeding out 240 tonnes, having purchased the four lots at $230/t, $250/t, $270/t and $290/t. His total feed bill is $62,400, with an average price in 2011 of $260/t. This is within his provision for drought feeding costs and he has no problem with cash flow.

Sam Silo

In year one, the price falls to $110/t and Sam buys 50 tonnes (he tried to get 60 tonnes but ended up being a bit short). In year two, he buys 30 tonnes at $130/t. In year three, he buys 30 tonnes at $130/t. Year four sees the price rise to $180/t and as he has all his silos full he baulks at buying any more grain. In year five the price falls to $120/t and Sam buys a further 30 tonnes as well as another silo ($5,000). In year six he buys a further 30 tonnes ($140/t) and a second new silo. The drought hits in year seven, with Sam holding 170 tonnes. He starts feeding and then buys a further 70 tonnes at $250/t, using silos he has emptied and some hurdles in a machinery shed to hold the excess.

He has spent $38,900 on grain purchases, but taking into account that this money could have been invested to reduce his debt, it is equivalent to $44,380. He has also incurred a further $1,200 in storage costs (two extra 30 tonne silos costing $600 per silo when depreciated over 30 years), so grain costs total $45,580 or an average of $185/t.

Pat Pit

Pat makes silage in five of the seven years. He makes no silage in year four, and none in the year of the drought. He has an estimated 500 tonnes of silage underground (250 tonnes of dry matter), with a total investment at the beginning of the drought of $6,000, which taking into account opportunity costs represents $9,050. The average feed value is 8 MJ ME /kg DM, so in grain equivalents he has 185 tonne of grain.

The silage he made in year one was not well preserved due to seepage into the pit, so he starts feeding out the silage he made last year which is good quality and well kept, but is difficult to feed out.

Grain prices have risen sharply and Pat decides to buy a feed-out wagon ($30,000). This solves his feeding out problems and the system works well. As his losses were much higher than expected due to the low quality silage from year one, his total silage tonnage in grain equivalents is only 160 tonnes total. He buys 80 tonnes of grain to meet his drought requirements, paying $270/t for the first 30 tonnes and $290 for the remaining 50 tonnes (averaging $282/t and totalling $22,600).

His overall cost of fodder is $31,650 plus the costs associated with the feedout wagon ($2,000-$3,000 if depreciated over 10-15 years and $3,000 opportunity cost).

These examples are not indicative of which approach to fodder conservation is best, as the outcomes will vary depending on when the drought occurs, and grain prices. Pat would have been in a lot of trouble had the drought occurred in year two or three! A summary of the examples is shown in Table 4.

An added advantage of silage underground is that it will not be sold and so will still be there as a drought reserve

Putting it all together

Most sheep producers will be making decisions on fodder conservation, storage and feeding out on a more regular basis than simply in drought years. Production and short-term feeding will be necessary in many years, if only for a brief period. Producers who establish systems for short-term feeding and then extend these systems to incorporate drought fodder reserves will develop expertise and confidence. Furthermore, turnover of fodder for short-term feeding will reduce potential difficulties in some storage systems. Increased efficiency will occur if infrastructure is utilised regularly.

Under present conditions, either a well set-up silage system or opportunity storage of grain based on trigger prices provide producers with systems which will reduce both price and supply risks during drought. Underground silage is particularly attractive if systems are in place for feeding out and sufficient attention is taken in the making and storage of the silage, but large losses in stored feed have frequently occurred and remain a risk. Silage is also slower and more expensive to feed out compared to grain because of the lower energy and higher water content.

Storing grain remains a simple and effective system, provided the price variation which has occurred historically continues into the future. Buying or retaining grain worth under $150/t is likely to result in lower grain costs than retaining the cash and buying during a drought, provided on-farm storage is adequate. However, if grain prices remain high and price variation reduces, and if interest rates move up, utilising surplus cash to reduce debt and then buying grain in a drought may still be a suitable approach particularly where drought occurs infrequently and fodder feeding is not a normal part of the management.

The ASX grain futures contracts or options that are based on the futures offer a practical mechanism to lock into prices up to 18 months ahead. The degree to which this is useful will depend on the accuracy of predictions of droughts and shortages in grain supplies.

The most important action for all producers is to determine the drought fodder reserve required and to take steps now to make provision for that amount. The actual system used should and will vary between producers, with producers deciding which system is most suitable for their enterprise.

Silage is slower and more expensive to feed out compared to grain

Table 4: Summary for examples

	Main System	Cash Outlaid	Real feed costs	Worry
Colin Cash	Cash in bank	$62,400	$62,400	Few
Sam Silo	Oats in silos	$48,900	$45,580	Some
Pat Pit	Silage in pits	$58,600	Approx $35,000-$40,000*	Some to lots

*depending how much the silage wagon was used in subsequent years

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