Farmer experiences

What was learnt by sheep and cattle managers in the 2006 drought

Collated by

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RURAL SOLUTIONS SA

DROUGHT RESPONSE SOUTH AUSTRALIA

Government of South Australia

Contents

Summary

The 2006 drought was severe and widespread. It affected all areas of the state.

Many people in the higher rainfall areas had never experienced a year like this before. People were very worried that herds and flocks would need to be culled dramatically, which would reduce productivity after the drought until herds and flocks could be rebuilt.

They were also worried that over-grazing could permanently damage pastures and that soil erosion could be severe.

Rural Solutions SA, with funding from the Government's Drought Response and the EP Grain & Graze project, conducted "Coping with the season" workshops from late September 2006 to help people plan. We also did a survey of people in high rainfall areas who containment fed sheep as a drought management practice. In mid 2007 five groups obtained "Community support grants" to run "Drought review" meetings to discuss the outcomes and what they learnt.

This report is a summary of what we learnt from these activities.

While the financial cost was considerable, farmers generally did a really good job of looking after their land, pastures and stock. There was much less erosion than in previous droughts. Many people removed their sheep from vulnerable pastures and confinement fed them. They kept them in good condition and learnt that it's not difficult.

People learnt a lot about feeding their stock, which will help them in other years.

Cattle producers usually chose to feed the cattle in the paddocks. This also worked well although a few producers did not monitor their stock condition well enough and they should have been fed more.

Some things worked in producers favour;

- The quality of pastures and fodder conserved in 2006 was exceptional. Some straw made in 2006 was better than hay made in other years. This was because of the very dry finish in 2006.
- Stock were usually in good condition at the start of the summer and when put into containment areas.
- There was a good rain in January and some people were able to release their sheep for a few weeks and put them back into the containment area later.
- There was a good break-to-the-season in late April. Many people could have been in severe difficulty if the break had been late.

This document does not repeat the information in the drought management publications – it only outlines what was learnt or experienced by producers. For more information about any issue refer to the books "*Feeding and managing sheep in dry times*" or "*Feeding cattle*", both available from the Roseworthy Information Centre, phone 1800 356 446.

Key findings and recommendations

Planning

- Make plans early – it reduces stress and saves money.
- Condition score your stock. Fat stock have a “feed reserve” on their backs.
- The more people who decide to keep stock and feed them the less the market price drops. You need to watch what others are doing and resist the “mob” reaction.
- Make allowance for feeding past the normal break-to-the-season.
- Allow for extra feed in late pregnancy.

Feed

- A feed test (about $50) should be used more to determine energy, protein and dry matter content of pasture and fodder. Feed quality was very high and people who did not test were unsure of the correct ration to feed (many fed more than was necessary).
- Feed your poorest feed once the stock are into the feeding routine. Save the good feed for late pregnancy and at the break - this is when losses can occur.
- Hay is hard to get and expensive in droughts. It is best to feed less hay in the paddock and once the stock have settled in the containment area. It is essential to save some good roughage for late pregnancy, when the stock are released, and at the break. Once green feed grew there was a problem with bloat due to lack of roughage. Poorer stock will tend to eat more when put onto green feed as they make “compensatory growth”. This predisposes them to health issues, eg. bloat and nitrate poisoning.
- Stocklime is essential and cheap if purchased in “bulker bags”. After the drought there was an increased incidence of milk fever (calcium deficiency) in lambing ewes.
- Dry pastures were very high quality over the summer. Feed test them. People learnt that; with feed budgeting, good water supply and rotational grazing, good dry feed can stretch a long way.
- Water supply is critical in droughts and could be improved in good years. This would enable more use of paddock feed.
- Good use of unusual feeds was made especially as a source of roughage, eg straw, grape marc and almond hulls. However, the quality of these by-products varies greatly and it’s important to feed test them (or feed more than the minimum).
- Potatoes can be fed but if the supply is not constant it creates big problems.
- Canola hay was used with success - as long as it was not fed to hungry stock.

Stock management

- Grain poisoning is still the major cause of deaths. You can’t be too careful. Problems occurred when farmers were; increasing the ration at the start, first putting them into a containment area, when increasing grain in late pregnancy, when changing grain type and when the nut manufacturer changed grain type and did not tell people.

  However, one producer said that this year he “followed the book” and had less trouble with grain than other years.
- Draft young stock off and feed them a good quality ration (higher protein and energy).
- Draft stock into mobs on condition score at the start. This saves on feed if the good stock can be fed less. It makes sure poorer animals have the strength to get their share.
- More weighing could be done (in conjunction with condition scoring) as a method of monitoring.

- Stock can be allowed to fall in condition score if management is good. The ideal condition score, even when feed prices are extreme, is about score 3 (from the Lifetime Wool project). However, if feed or finances are very short they can be fed a “survival” ration and the sheep can slowly drop to score 2 - if they are in good condition at the start and they are managed very carefully. Do not allow the sheep to drop in condition and then try to build them up – it’s uneconomic.
- Feeding more than is necessary to keep them in score 3 is uneconomic. Although, some chose to feed more simply for their own “peace of mind”.
- Feeding the grain only twice a week reduces labour and ensures the “gutses” can’t eat too much. However, if grain is fed three times a week, or even every second day, there is less chance of grain poisoning as less grain is fed each time. If you do this ensure there is plenty of trough length (at least 20cm a sheep of double sided trough) so the shy sheep always get a feed.
- Feed the roughage before the grain so that the stock all have some fibre in their rumens.
- Creep feeding could be used more.
- Early weaning was good if the calves, or lambs, could be put onto a high protein, high energy ration.

Containment feeding

- Containment feeding can save time once the area is built. People who spent more time with their stock generally had less deaths.
- Dust in containment areas did worry farmers. It is probably of minor economic importance but it’s important not to locate the area up wind of the house or work areas. Ways to reduce the dust need to be established. Containment areas down to 2.5 sq m a sheep were used with success and these tended to pack down more quickly.
- Some people spent a lot of money setting up containment areas while others did it quite cheaply.
- In containment areas shorter water trough length than recommended appeared to work if the flow rate was good. One farmer used a 2.4m trough for 2000 sheep.
- People held up to 2500 sheep in one containment area. If management was good (such a big mob makes management a bit more challenging) this appeared to be very successful.
- A break-in-the-wool was rarely experienced which indicated the transitions onto grain, and onto green, were both well done. The minimum “survival” ration was rarely used which helped.
- Instead of troughing one farmer used a strip of rubble laid down, crowned and compacted. This seemed the best cheap form of trough. The other one was second hand conveyer belt laid flat. Shade cloth strung between wires also worked well although it does have problems (sheep get in and damage it, additives fall through).
- Sheep mate very well in containment areas. The conception rates will depend on their condition.
- Have a “sick pen”. Also have small paddocks near the containment area so that sheep can be released but still fed the same ration if the area gets too wet. This is also useful to get the stock used-to green feed.

Cattle

- Cattle producers tend to rely on hay, which is scarce and expensive in droughts. They are less inclined to feed grain. Less energy is needed when higher energy rations are fed.

Producers say the problems with feeding grain were; the need for troughing, a percent of grain is not digested when the grain is not cracked, the stock need to be introduced to grain and the need for augers and silos.

A lot more could be learnt about cattle nutrition, which would help in all dry years.

- Some cattle producers fed less than the recommended ration. Cattle in good condition at the start tended to stay OK while the poorer stock slipped. This shows the importance of condition scoring. Stock, especially adult cattle, can lose condition to a point. Some people managed this very well.
- Calculate the energy level of the ration but most importantly look at the condition of the stock. Some people let the cattle slip too much. There were more health problems, and even deaths, with cattle after the break. It is better to reduce numbers early rather than under feeding animals to get them all through.

Other issues

- Some people had stock that needed to be finished and they learnt that they could do it with grain. More use of computer programs (such as Ready Rations Pro) could be made when finishing stock or, occasionally, when feeding unusual feeds for maintenance.
- Annual pastures after the drought were very good. The removal of most of the dry feed (where erosion risk was low), and the deferment at the break, helped produce a mass of early pasture growth.

Results of containment feeding sheep

A survey was sent to farmers in the South East, and on KI, who locked sheep in containment areas to get them through the drought.

Four people who replied finished lambs in feedlots. These results are not included here but they did well and a couple said they learnt a lot from the experience.

Thirty-six farmers replied. Together these farmers held over 64,000 sheep in containment areas. The sheep were locked up for an average of 17 weeks (the range was 4 to 43 weeks). The first sheep were locked up on the 15th of July 2006 and the last ones the 10th of April 2007.

Level of success
All the farmers considered confinement feeding in the drought to be a worthwhile practice. Eleven said next time they would confine more sheep, lock them up earlier, or both.

The average number of sheep per yard was 592 and the maximum was 2500. Most people fed ewes but four fed adult wethers and considered it worthwhile (one fed 1600 adult wethers for 12 weeks).

The most common feeds used were barley and either hay or straw.

Advantages of containment feeding
The main advantages in containment feeding were saving the paddocks from erosion (30 farmers).

Other benefits included;

- saving time in feeding or checking sheep (14)
- retaining stock - especially breeders (6)
- paddock feed recovered quickly when it rained (6)
- good conception rates were achieved (4)
- we felt we had more control over the situation (4)
- reduced wastage of grain fed out or sheep wasting less energy walking (4)
- easier to supply water with dams drying out (2)
- enabled us to save the paddock feed for the cattle (2)
- confined weed seeds in bought feed to one area (1)

Condition and level of feeding
Most people kept their sheep in good condition. Approximate condition score at start was 2.9 and at the end was 2.6.

Not all people had calculated the amount of energy they gave the sheep each week. This is the most important figure because it determines whether the sheep will put on weight or lose weight.

We estimated the amount of energy fed based on average feed test results for this season (much higher than in other years). The figure was often higher than the farmer's estimation which meant people were often feeding more energy than they thought. This shows the value of having a feed test done on the feed to get an accurate guide to its nutritive value.

Many people fed more than the minimum required to keep the sheep in reasonable condition. However, when the sheep entered late pregnancy 30% of people under-fed them. The ewe in late pregnancy requires 60 percent more feed.

Only eight farmers weighed a sample of sheep at some time during the feeding. This was a little disappointing as the farmers who did weigh said it helped their decision-making a lot and gave them confidence.

Most sheep only took 15 to 30 minutes to eat their grain ration but some took up to three hours.

Deaths
The average number of deaths was 12 (1.1%) and the maximum 160 (7.5%). Only two farmers lost more than 3% and only one farmer had no deaths. This is considered an exceptionally good result given the circumstances and is probably no more than would have died in the paddock. Sheep losses were also low when they were released onto green feed.

The main causes of death were considered to be; grain poisoning (5 farms), shy feeders or poor doers (5), flystrike (4), suffocated around a hay bale (3) and pregnancy toxaemia (2). One considered sand impaction caused deaths from sand blowing into the grain trough even though it was cleaned out once a week. Some did not determine the cause of death.

One person lost 8% of her Dorper ewes during the ration build-up for late pregnancy even though she built up the grain over two weeks. The reason for the grain poisoning is not clear but once again shows that you can't be too careful when increasing grain rates. Dorpers may respond differently to high rates of grain feeding.

One producer fed the grain twice a week and the straw once a week. After 12 weeks he started having deaths from grain poisoning. It is best to feed some roughage before each grain feeding.

Some people lost a few stock when they were smothered around a hay bale or self-feeder. This indicates they were very hungry or craving roughage.

One producer lost 7.5% of his sheep. He runs his sheep at a higher stocking rate than the district average. They were late lambing ewes and because of the lack of spring growth they were poor by the time the lambs were weaned off. They were put into containment areas and initially fed a minimum ration. Straw was fed once a week. Young ewes were initially in with the older sheep. The farmer said the young sheep would have all died so they were separated and fed a higher protein ration. The sheep started to die so the ration was increased. Unfortunately, it was difficult to build the sheep up again. This farmer still considers containment feeding was the best thing he could have done given the season.

One person used very low quality straw (cut some time after harvest from a stubble paddock in 2005). After 15 weeks some sheep died and post mortem showed they had hard fibrous lumps in their stomachs called "bezoars". This shows the value of a feed test.

One farmer, who did not add stocklime, considered he started losing sheep due to calcium deficiency. This was not confirmed.

Poor doers
At the start about half the farmers drafted poorer sheep into a different mob. During containment poor doers were removed from 60% of mobs. Of these, an average of 5.4% poor doers were removed.

Roughage
In early pregnancy about half the people used straw as the source of roughage instead of hay. On average, 2 kg of straw was fed a week. One fed grape marc. This is an excellent use of alternative feed as hay was so expensive. In late pregnancy hay was preferred because of the ewe's higher demand for energy, however eight people still fed straw in late pregnancy.

Most people fed three times a week but some fed every other day and some only twice a week.

Additives
Almost all the farmers fed the recommended rate of stock lime and salt, 10 gave vitamin A,D,E injection and 2 gave a vitamin E drench. Fifteen also fed some other supplement such as mineral mix or stock blocks. Two farmers added urea to the grain - for the young sheep or in late pregnancy. Two added sodium bentonite, or sodium bicarbonate, to reduce the risk of grain poisoning (one only for the first 2 to 4 weeks).

Facilities
Most people (26) used an area about 5 to 10 sq m per sheep, however two used down to 2.5 sq m and had no trouble. Over time the smaller areas did reduce the dust.

Most people had a separate feed pen to make feeding easier and to save in troughing. However, some fed in the main yard and said it worked well.

Many types of troughing were used but 18 people fed on the ground. This did not appear to cause disease (eg. e. coli, coccidiosis, salmonella or vibriosis) or sand impaction.

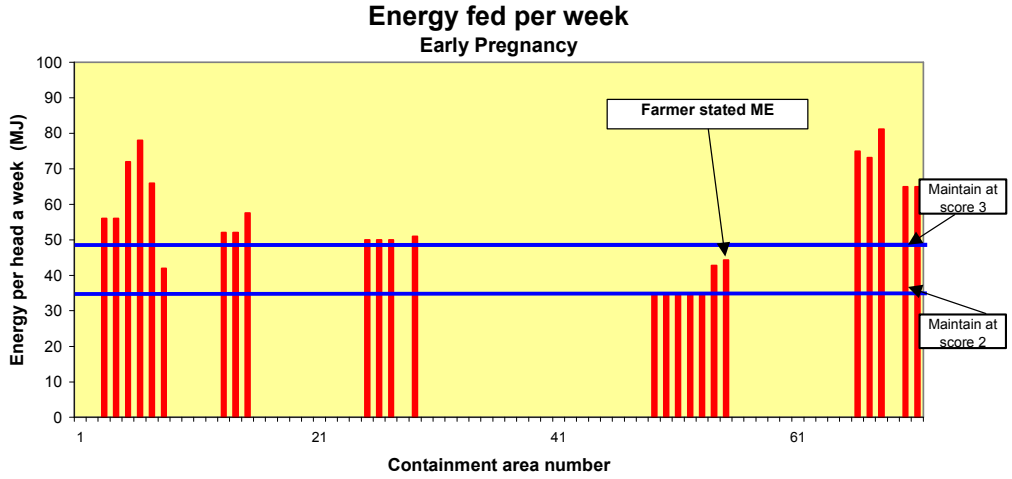
Problems faced
The most common problems were; dust (10), pink eye (2) and maiden ewes refused to eat straw and had to be fed hay (2). A number had grain poisoning problems when changing feed level, eg. at the start, when going to late pregnancy, or when adding wheat.

Changes next time
When asked what would they do differently next time people said; “have a small pen to put poor, or sick, sheep into”, “have a small paddock nearby to let the sheep into when it gets wet”, “decide early”, “feed more fibre to pregnant ewes” and “do your research”. One farmer said he started losing sheep so he gave a vitamin E drench. In hindsight he said he should have increased the ration.

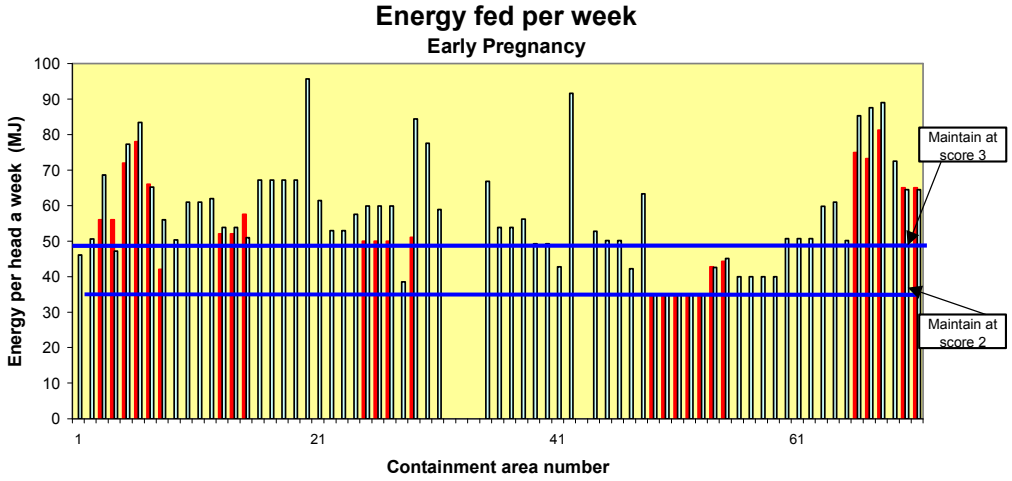
Feelings about containment feeding
Comments on how people felt about containment feeding varied, however the vast majority were positive - given the circumstances.

- “I was anxious at the start; satisfied in hindsight”
- “Once the decision was made it was easy”
- “Easier than I thought”
- “Easy - but a little painful”
- “A very positive experience”
- “Once decision was made it alleviated stress”
- “The biggest mistake I made was leaving a third out in the paddock”
- “Necessary - but not enjoyable”
- “I was in denial and a bit lost. It gave me renewed focus and I’m very pleased I did it”
- “Very reluctant at first and so I only confined 50%. I would be happy to confine all the sheep next time. I was amazed how quickly the sheep adapted”.

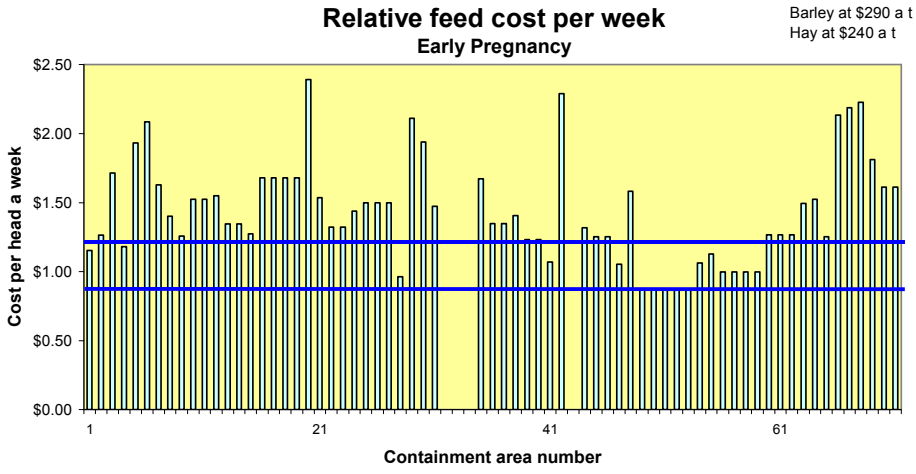
Graphs of the survey results



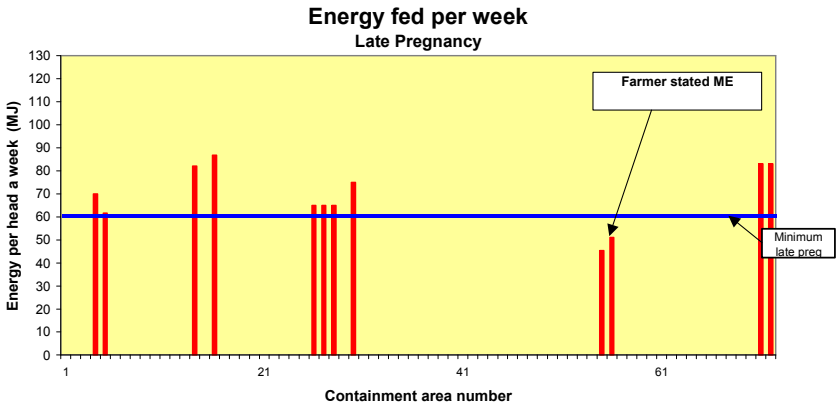
Farmers were asked if they knew how much energy they fed each week. The graph shows (solid columns) that not many people were confident to give an answer. The lines show the “survival” ration and a good “maintenance” ration levels.



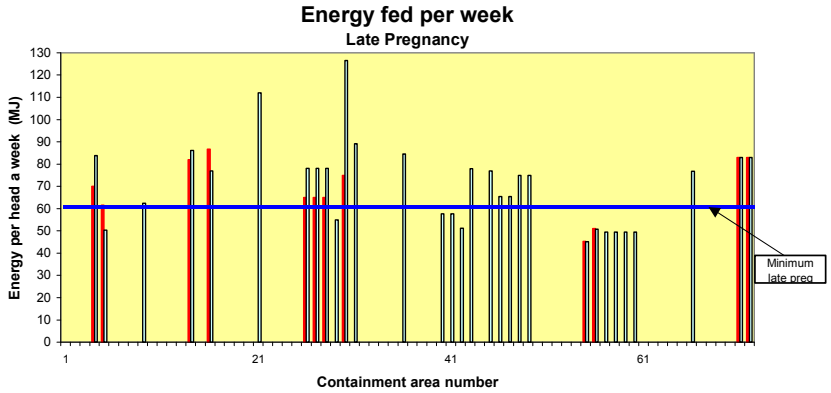
We estimated the energy fed using average feed values (hollow columns). Many people were feeding more than 49 MJ a week (this is OK, but costly). Only a few fed the minimum (36 MJ).



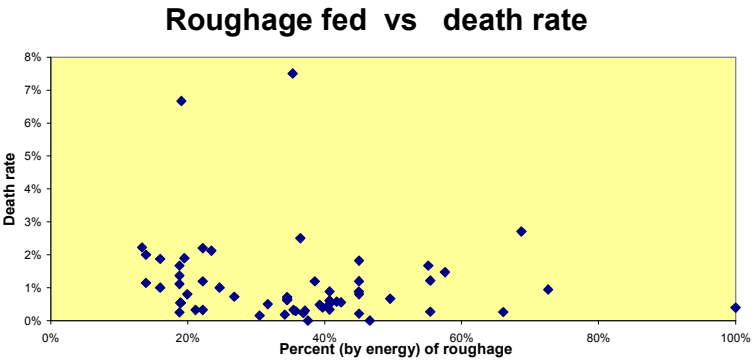
We estimated the weekly cost of these feed levels assuming a cost of 2.5 cents a MJ eg barley at $290 a t, hay at $240 a t. Note, some of the high level rations may have been fed because the farmer got the feed for much less than this price.



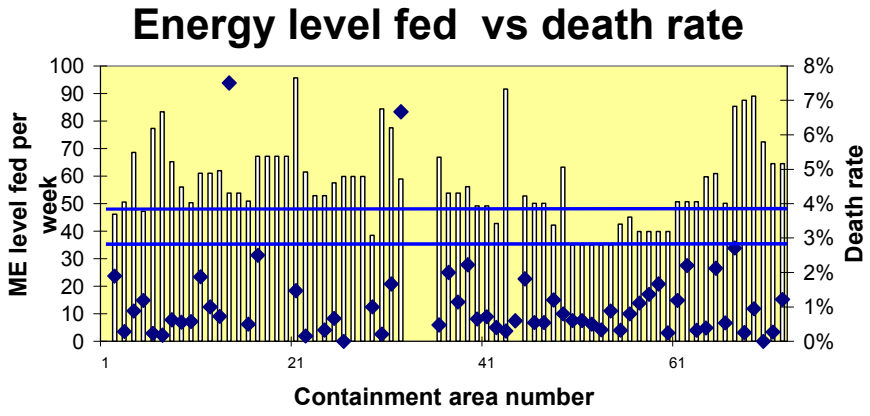
Not all people fed sheep in late pregnancy.



In late pregnancy some people fed less than the recommended minimum.



The level of roughage did not appear to affect death rate so long as at least 15% roughage was fed. Note; the time in the feedlot would also affect death rate.



The ration level did not seem to affect the death rate so long as the minimum energy level was fed. Management issues cause deaths. Note; some people did change their level of feeding.

More comments from the survey

Number of farmers with this comment	What were the main advantages to you?
30	Reduced erosion or damage to the pasture
14	Saved labour. Ease and speed to feed and check sheep. Close to grain silos. Reduced travelling. Easy to make daily observations.
6	Paddocks able to recover quicker after rain (deferred grazing).
6	We were able to keep our sheep, especially breeders
4	Good lambing conception rates. Sheep mated well in the yards. Lowest % of empty ewes at scanning ever!
4	More control. We knew exactly what sheep were consuming. I could keep an eye on all of them.
3	Didn't waste energy walking. They were eating less in the feedlot, than in the paddock, so it was the cheapest option.
3	Kept sheep in good condition
2	Able to save paddock feed for cattle
2	Easier to supply water. Prevent drowning of stock in dams
	Confined any weeds in brought grain to the one area.
	Less wasted of grain (fed on ground if paddock feeding).

	How would you describe the experience?
2	Very pleased.
	A daily chore, Big job to get set up for feeding - making pens , troughing, water points.
	A very positive experience.
	Anxious at start (regarding outcome). Satisfied in hindsight.
	Decision made. No qualms really.
	Demanding, but no more so than paddock feeding.
	Easier than I thought, especially now I'm set up with pens.
	Easier to manage feeding but would prefer to have feed in paddocks.
	Easy but a little painful.
	Good animal husbandry
	Hard. A big learning curve, very expensive wake up call, but good because it was a success.
	Hardest part getting ration right. Once this was done it was routine. Difficult knowing you were responsible for any sickness or deaths.
	Intensive, requires accuracy. I felt I had control of situation. Once the decision is made it alleviates stress.
	It made for very long days, but in the long run it was all worth it.
	It's the best thing we could have done for the sheep and the paddocks
	Long
	Necessary - but not enjoyable
	Ok - but feeding for 7 months was too much!
	Ok given the year but very expensive.
	Positive
	Started out as a lot of work, but once sheep settled in it was quicker than feeding in the paddock.
	Surprisingly simple and very worthwhile
	Very constant. The worrying part was when would break occur and whether to extend ourselves financially further with grain.

	Very pleased I did it. Earlier I was in denial and a bit lost. It gave me renewed focus
	Very reluctant at first and so only confined about 50% of sheep. Would be happy to confine all sheep next time. I was amazed how quickly sheep adapted to being locked up, and was surprised how they came out of containment condition wise.
	Worked well once set up. Quite easy.
	In a drought year it was a great management tool.

	What do you think was the main cause of death? (not usually confirmed)
5	Grain poisoning / acidosis
5	Shy feeders or poor doers
4	Fly strike
3	Crushed, or smothered, under stampede for straw or hay
2	Pregnancy Toxaemia
2	Old age
2	Fox
1	Mouldy silage
1	Stuck in bale feeders
1	Sick entering the feedlot
1	Dust blinded
1	Miss-adventure eg Drowned
1	Calcium deficiency

	Did you have any problems with containment feeding?
10	Dust. Soil type too light. Didn't seal over until big rain. Ground level feed trough dusty.
2	Pinkeye
2	Maidens didn't like the straw and scoured - had to feed them hay
	6 deaths in 2 days after increasing food intake from 3kg/w which I did over 6 feeds. I was informed that it was acidosis.
	Changed grain to a lot treated for weevils and they refused to eat it. Water too salty for weaners
	1.5 kg of feed per feed was the maximum they could eat
	Difficult to supply enough feed for late pregnancy. Some loses in lambs when reintroduced to pasture.
	Sourcing one place to get grain. Sourcing large volume of roughage.
	Included wheat at one stage and had a bit of trouble
	Cleaning troughs was time consuming. Next time I'd lay rubble first. Need to fence off trees to stop ringbarking
	Long wool not suitable. Last month of gestation demanding.
	Put sheep in when only on 450 g/day had to increase to 600g/d.
	Sheep were quick to get out of gate when I went in with the hay bales to feed through yard. Problems with acidosis on initial 2 weeks in confinement yard even though sheep were being fed grain twice a week in prior paddock.
	Wasteage of feed when wet.
	Would have worked better with much smaller paddocks
	Noticed in the feed lot none particularly were lame but after being out for a month several are.

	What would you do differently next time?
2	It would have been good to have a small empty pen to put the sick ones/ very poor doers into.
	After the rain came I was waiting for 3 weeks to let them out, but was caught at 2.5 weeks to let them out when the pens got flooded. I should have had a few paddocks around the feedlot empty they could have gone into.
	At the start we did a budget but forgot to consider the extra grain at the end.

	Decide early. Feed more fibre to pregnant ewes.
	Drafting weak and skinny one out is a good idea. You need a site that will drain well
	Hay quality needs to be checked. They seemed to like barley the best.
	I didn't treat for Pulpy Kidney !
	I sacrificed 2 paddocks heavy country with excellent shade. Should have been smaller to stop excess walking
	I started to lose some and gave Vitamin E. Should have increased the ration instead
	It pays to move sheep off the paddocks prone to drift early.
	Need a better system so could feed the sheep quickly and leave grain for the slow eaters
	Next time will start feeding straw 2 times per week after 12 weeks, so they have a full gut prior to grain feeding.
	Only drafting out poor doers every 4 weeks, should have done every 2 weeks
	Separate area to feed grain caused wasteage. Then fed in main yard with more success
	Should have trimmed feet - have had severe problems since. Probably lime made nails grow more. Should have drenched at release.
	Some sheep adapted well but some not. Next time; use one type of grain, draft on condition pre entry, offer lime from start.

	Types of troughing
18	On the ground
18	Corrugated Iron. Roof iron
9	Shadecloth between two wires
5	Old steel water troughs
3	Commercial trough eg Denyer
2	Rubble road
	Conveyer belt laid flat
	Galvanised iron along fence
	Galvanised iron flattened and between two pipes
	Metal troughs on ground
	Polylok cattle trough
	Self feeders
	Sheep trough

	Other comments
3	Would like to do the same each year to increase stocking rate. Not sure of economics. When the seasons get tight we now know we can keep our ewe numbers by confinement feeing .
2	The workshops which you put on were very worthwhile and much appreciated.
	Fibre is the biggest challenge. More fibre = less deaths & more droppings to reduce the dust. Grain is always available but good fibre hard to find and pay for
	It was good having a neighbour also containment feeding . We "bounced" off each other.
	Now that we have done it next time we will be able to tackle it very confidently and get through it with minimum losses.
	Used one 8 foot trough to water 2000 sheep - fine
	We built 7 pens I will use them now for Autumn feeding and at shearing time to segregate mobs
	We didn't know how the larger mobs would go. We were told mobs 200 to 500 are best, but our mobs of 1000 did OK.
	We were fortunate to have all feed on hand. Feedlot was cheap as used second hand equipment ($3.3 a head)