MONARO FARMING SYSTEMS

Feeding sheep in stock containment areas during drought

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When to establish a containment area?

- When stock are being fed full drought rations in the paddock and / or when pasture cover has fallen below; 70% (30% bare ground), benchmarks 800kg DM/ha flat country, 1200kg DM/ha on hilly country.

Why establish a containment area?

- Protect's vulnerable country prone to soil and gully erosion from permanent damage.
- Minimize soil and nutrient loss from bare ground.
- Protect established improved pasture (re-establishment costs range **$150- $300/ha).**
- Protects native pasture.
- Retention of long term super phosphate investments in pastures.
- Pasture response and recovery is much quicker when it does rain.
- Sheep expend less energy walking and feeding therefore feed requirements are reduced.
- Facilitates stock feeding, watering, monitoring and handling (saves time and energy checking sheep and water daily and gives higher degree of control over stock).
- Retention of valuable genetics which would be lost by a de-stocking strategy.

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The planning process?

There are numerous factors wool producers should consider prior to establishing a containment area. These factors will have a major influence on the effectiveness of the operation and the cost to the farm enterprise in terms of valuable income and resources.

Plan ahead. Is it likely that a containment area will need to be established? This requires a consideration of the amount of feed currently available and the likelihood of further pasture growth. Consider the factors influencing long term weather patterns (eg La Nina, El Nino, Indian Ocean Dipole) for the area combined with historical rainfall probabilities when assessing this aspect.

- Make decisions early!
- Prioritize stock – which are the most valuable? Plan to sell non-essential stock early.
- Is agistment an option?
- When considering options, factor in the following; likely feed costs, estimated duration of feeding, the current value of animals, the probable cost of buying back and costs and time taken to breed animals back.
- Financial obligations such as debt overdraft servicing, interest repayments and cash flow requirements of your business need to be considered.
- Know the fat score of your stock and look at gross margin analysis of your enterprises to decide which sheep to keep and feed, which to sell and possible numbers to agist?
- In a lot of cases, the best economic option is to feed core breeding stock.
- Partial budget analysis and or the use of a decision support tool will demonstrate the most economic feeding or selling strategy for certain classes of stock and age groups to suit your enterprise.
- The use of decision support tools (ie. Stock Plan) are extremely useful to look at the impact certain decisions / strategies will have on your cash flow over a long term period (projections to five years) and will enable more informed decisions to be made.
- Confining sheep at high stocking rates can have a number of effects on wool quality namely staple strength and dust levels. These can be managed by ensuring a smooth and gradual transition from pasture to grain diets and by optimizing stocking rates in the pens to encourage soil compaction. However it is difficult to achieve dust suppression in a drought lot situation and if feasible, sheep should be shorn prior to entry.

**The following feed calculator can be useful when determining feed budgets & strategies
http://www.dpi.nsw.gov.au/agriculture/livestock/nutrition/values/feed-cost-calculator

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Site selection and design

Choose a site that can be retained as a permanent structure which will help to drought proof your farm in the future**.** The versatility of containment areas is significant. They can also be used for resting country at critical times of the pasture growing season, opportunistic feeding of surplus stock, fattening of lambs or sale stock, ram preparation for joining and as holding yards. The drought lot should be located away from dwellings to minimize dust issues and annoyance from birds. The selected site should have the following attributes;

- be well drained (on a slight slope) away from water courses;
- easily accessed and preferably away from neighbours;
- **most importantly** (the deciding factor), have access to good quality, clean, reliable WATER supply;
- Shade should be provided. Trees in drought lots can be damaged by stock and need to be protected. Where trees are not available shade cloth shelters can be cheaply erected to provide stock shelter.

There are numerous designs available which show a variety of pen lay-outs with various gate and trough positions. Choose a layout and design which best suits your situation and your available resources.

An excellent AWI publication which shows detailed plans of several case-studies of containment areas in southern NSW is called “Managing Sheep in Droughtlots, a best practice guide” and can be accessed through the following internet link -

http://www.wool.com.au/mediaLibrary/attachments/Publications/Managing_Sheep_Feb07.pdf

Design & management suggestions

- Allow 2 - 5 square metres per sheep (a good manageable mob size is approximately 500).
- Stocking rate should be no more than 3000 head per ha (3.33 square metres / sheep).
- Higher stocking densities than 2,000 sheep per ha tend to be associated with higher mortality rates and poor doers.
- **Allow 5cm trough space per sheep** when feeding single sided, 2.5cm per sheep if double sided
- Trough capacity must be at least 1.5kg per head.
- Feed troughs can be bought or made cheaply from materials such as corrugated iron, conveyor belts (approx. $12/m), roof capping, folded roofing iron, suspended shade cloth.

***Quote from "Prattley Livestock Equip**." in Wagga as of the 1st Dec 2008 for Sheep Feed Troughs;*
- pressed 1.5mm sheet, 3.0m long, 350mm base, 175mm high sides (tapered so can fix tog)
1. black sheet - $111.77 (GST excl), 2. galvanized sheet - $123.97 (GST excl) (ex Wagga)

- Grain can be successfully fed on the ground, although when it does rain this can get messy and stock may need to be temporarily removed until the soil dries out.
- Consider separate pens for segregating mobs such as pregnant/lactating ewes, weaners and wethers. This is necessary because these groups of stock will require different feeding strategies due to their variable feed requirements.
- Isolate sick animals.
- Rectangular pens are preferable with the longest side housing the feed trough / s.
- Gates should be at the opposite end to the feed trough and a laneway is very handy leading to and from the entrance to the containment area to facilitate removing shy feeders.
- Locate feed troughs on the top side of the feedlot (if a slight slope) to ensure run off is away from the trough.
- Water troughs should be located as far away as possible from the feeding area.
- Feed troughs can be built on the outside of the pen ie. allow sheep to feed through the fence which minimizes feeding time, eliminates fecal contamination of the feed and can be easier to fill using a side delivery system.
- When feeding in pens, a two pen system to enable filling of the feed troughs prior to releasing sheep back adds a little more time but makes managing sheep easier, particularly if there is a high density of sheep in the pen.
- When designing your lay-out consider access of vehicles, ease of feeding, watering and CLEANING troughs (should be cleaned daily).

*the 150mm poly water trough is very good and cheap to make

Feeding and watering sheep in a containment area

The main aim of any drought feeding is either a maintenance or survival ration rather than aiming for growth and performance. Understanding animal requirements on a "survival" or "maintenance" ration will help your feed program be cost effective and successful.

Formulating a feeding strategy involves some simple steps;

- Calculate total metabolisable energy (ME) and protein requirements of each class of sheep (see table).
- Provided minimum protein requirements are met, energy is the critical factor in feeding an animal.
- Do your homework on the cheapest source of quality grain and hay/roughage.
- Have your feed quality tested to ensure you are getting value for money and energy & protein contents are meeting requirements.

Feeding and watering sheep in a containment area cont…

- Calculate your expected feed costs.
- Slowly build up sheep to a full drought ration in the paddock (3kg wheat/week).
- Test water for quality and salt and calcium levels to help you provide the desirable levels of salt. Especially bore water quality will need to be monitored.
- Plan for an average daily water consumption of **4L/head/day** but the system must be able to supply up to 9L/head/day on very hot days. Type of feed will influence water intake ie. salt bush, lucerne hay and high protein stubbles tend to significantly increase daily water intakes.
- Size of water trough is not as important as replenishment rate of trough. A 2.4m (8 foot) trough can water 800 sheep if the replenishment rate is very good. Small troughs with good replenishment rates do not get as hot and take less time to clean.
- It is recommended sheep are on a full drought ration in the paddock prior to entry however if not, build up grain diets gradually over first two weeks (ie. feed mostly hay with 50g/hd/day grain initially).
- Feeding **adequate roughage** with a grain diet will reduce mortality rates ie. low quality straw or hay at 1kg/hd per week is ideal. Straw also slows down the passage of the grain and results in better utilization.
- A hay rack or mesh wrap is very useful when feeding roughage to reduce wastage.
- Watch for grey scouring – a sign of acidosis – remove and treat.
- **Feed cereal grain twice per week (1.5kg/head/feed) which equates to approx. 3 – 3.5 kg of cereal grain (wheat) per head per week to maintain a medium frame sheep (40kg) in store condition.**
- Be aware of deficiencies on grain such as sodium, calcium and vitamins A & E.
- Limestone (1.5% by weight) and salt (0.5-1% by weight) should be added to the ration and injections of vitamins A & E should be given at entry and possibly repeated, depending on time in feedlot.
- Lime can be fed from separate small troughs in the pens rather than through the feed-out cart as it may inhibit the flow rate of the grain.
- Remove shy feeders, “poor doers” and animals that look sick and unwell.
- Use a good spreadsheet to keep track of numbers, quantities of grain fed, dates fed, etc.

Table 1 – total drought rations for sheep

Class of stock	**energy recq (MJ/week)**	**min crude protein %DM**	**ration kg/hd/wk**
Adult dry sheep 40kg live weight	42	6	3.5 - 4 (wheat or oats) OR 5 (good hay) or 7(poor hay)
Crossbred ewe 60kg live weight .	57	6	4.7-5.7 (wheat or oats) OR 7(good hay) or 10(poor hay)
Pregnant ewes (last 4-6 wks pregnancy)	62	8	5-5.6 (wheat or oats) PLUS 1 (good hay) OR 7 (alone)
Ewes with lambs *	84	10	7-9 (wheat or oats) PLUS 1.5-2 (good to av hay)
Lambs (weaned, up to 15kg)	35	12	3.5 (cereal grain 3pts, 1pt lupins) PLUS 10%good hay

**Drought Feeding & Management of Sheep, DPI Vic 2002*
**assumes medium framed ewe with lamb at foot for first 6-8 weeks only*

- See your local DPI advisor, RLPB veterinarian for specific targeted advice on formulating rations including kg/hd/wk and choice of grains and hay qualities.
- Remember that rations need to be adjusted depending on animal live weight and energy demands of different classes of sheep.

Animal health issues

- Adult animals are the easiest to manage in a confined area, if possible avoid feed lotting ewes with lambs at foot (creep feeding of lambs may be an option in some cases).
- Drench and 5in1 vaccinate all animals on entry to the drought lot area and regularly monitor stock worm burdens.
- Be aware of symptoms of grain poisoning and watch for diseases such as pink eye and flystrike.
- Disease most likely to occur in concentrated mobs are "salmonella and coccidiosis" infections. Outbreaks are extremely hard to manage in a feedlot once contamination has occurred. There are vitamin mineral premixes available which contain Bovatec which can reduce the incidence of coccidiosis.
- Look for signs of listlessness and diarrhea and remove any dead or unwell animals. Seek veterinary advice if there are a significant number of deaths.
- The most common causes of death in a feedlot situation is grain poisoning (caused by high starch content of most grains (except lupins)) followed by pregnancy toxemia.
- As mentioned previously, mortality rates can be managed by **building up grain rations slowly over a two week period** initially, providing plenty of **roughage** and by recognizing the higher energy demands of pregnant ewes and adjusting rations accordingly.
- Adding 1-2% sodium bentonite (bicarbonate) or 1% salt to grain rations helps to reduce the risk of grain poisoning.

Table 2: Causes of mortality in drought lots

Cause	**%**
Acidosis	48
Tail end (poor condition)	37
Accidental	3
Unknown	16

*source: Holmes Sackett & Associates

Table 3. Grain introductory program to help reduce acidosis risk

Days	Grain grams per head	Frequency of feeding
1 - 2	50	Daily
3 - 4	100	Daily
5 - 6	200	Daily
7 - 8	300	Daily
9,10,11	370	Daily
12, 13, 14	430	Daily
15 -17	860	Every 2nd day
19, 22, on-going	1290 - 1500	Every third day / twice a week

**NSW DPI,"Managing Drought 5th Ed 2006", compiled by Bruce McKay*

Feedback from producers who have used containment areas has been generally positive and a worthwhile exercise. However it is an intensive exercise and requires constant vigilance and effective management to be successful.

It does allow greater control over your stock and the ability to keep valuable breeding stock alive while preventing degradation and devaluing of your asset base ie. your country.

References & Contributors

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**Grant Burbidge, Livestock producer "Connemara", Oberon Valley, Tarcutta NSW*

**Andrew Wilson, Livestock Nutrition Advisor, Lienert Australia Pty Ltd*

**Drought feeding & management of sheep, DPI Vic 2002*

**NSW DPI Managing drought 5th Edition, 2006, compiled by Bruce McKay*

**Feeding & managing sheep in dry times; Nov 2005 (AWI & Dep of Ag WA)*

**AWI Ltd., Managing sheep in drought lots, a best practice guide, Oct. 2006*

**DPI livestock advisors drought feeding advice, news releases 09, June 2005*

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