



Drought Management : Beef Cattle Issues

This series of notes aims to provide guidance for producers on options for handling their stock during a drought.

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Estimating the Need for Supplementary Feed

Offering straw ad-lib is a simple and good indicator of the need for supplementary feed. Providing stock can harvest from grazing around 90% of their potential dry matter intake straw intakes will be relatively low at around 1 kg/head/day. However as the stock eat the sward down dry matter intakes will rapidly fall with a corresponding increase in straw intakes. With little or no grass growth this change will occur rapidly ie within one or two days. Hence for most stock, once straw intakes exceed 2 kg/head/day, supplementary feeding of higher quality feeds will be required if performance is to be maintained.

In many cases this will require having to feed some concentrates. However with rock hard ground conditions and little or no grass cover there is no reason why concentrates cannot be successfully fed directly on the ground. Not only will wastage be minimal, the expensive troughs and the physical danger of trough feeding starving cattle will be avoided. Furthermore reducing the speed with which animals can eat concentrates will help minimise any risk of acidosis etc. Finally it will significantly reduce bullying.

Drought Management for Spring Calvers

The first priority must be to introduce creep feeding for the suckled calves. This will significantly reduce their grass intake making more available for the cows, helping to maintain cow condition – but only for as long as there is pasture available ie sward heights above 4 cm.

A good guide to the need for supplementary feed is straw intakes when it is available ad-lib. Once intakes exceed 2-3 kg/cow/day, (for example when a group of 30 cows and calves clear a 4 ft round bale in two days) levels of supplementary feed will need to be significantly improved, particularly in terms of its protein content. Delaying will mean cows losing more liveweight and condition, severely increasing the risk of poor fertility. It is important to remember that during the first 5-6 weeks post service cows are particularly sensitive to nutritional stress which is seen in terms of early embryonic mortality and re-absorption.

Where pastures are extremely bare sensible rations might be:

- 25 kg big bale silage, or
- 4 kg dark grains/maize gluten, ad-lib straw + minerals & vitamins.

It is important to remember that starting to supplement cows early is a win-win situation, ie it will help maintain herd fertility and by helping to maintain cow condition will reduce the amount of winter feed which would otherwise be required if the cows were much leaner at the start of the winter.

Early Weaning

The outlook is for the hot dry weather to continue which will exaggerate current problems. If this does occur then one option would be to wean, as soon as the calves are eating 2 kg high quality creep/head/day. This will allow the dry cows to be fed normal winter rations and allow weaned calves to be managed completely differently:

- sold store earlier than normal,
- housed and finished intensively on ad-lib cereals,
- sent to rented grass in the west of the country etc.

PS don't forget the bull if he is still running with the cows. Feed requirements of today's bulls are nearly double those of the cows so try and make sure he gets his fair share of any supplementary feed.

Creep Feeding

Starting creep feeding spring born suckled calves earlier than normal will help maintain calf growth rates in excess of 1 kg/head/day and ensure high weaning weights so that if necessary, calves can be weaned earlier to help maintain cow condition later in the autumn. Further advantages of creep feeding are that it will greatly reduce the calf's intake of grass making more available to the cow helping to reduce any loss of cow condition – providing there is still some grazing available.

One problem in drought conditions is that hungry calves, are more likely to gorge themselves, with potential problems of acidosis than might normally happen. This is a particular risk if feeds containing high levels of starch – noticeably cereals, and where high starch feeds are finely ground. Feeds containing less than 20% starch such as maize gluten, distillers grains etc are safer feeds. High protein feeds will also reduce slightly the risk of acidosis due to the alkaline ammonia products they produce in the rumen. Hence initially it might be sensible to feed a 16% CP+ ration until the calves are fully adjusted to ad-lib creep feed when the protein content can be reduced down to 13% CP.

Where cereals are cheaply available some pointers for their safe introduction would be:

- Grind the cereals as coarsely as possible or even feed whole grain for the first few days.
- Start with as high a crude protein content as possible eg 16% CP.
- Consider using a low starch filler such as oatfeed. The initial mix could be 40% cereals, 40% oatfeed and 20% protein supplement. The inclusion of the filler can then be gradually reduced as the calves become acclimatised to ad-lib creep feed.
- Never let the hopper run out.

It is also important to include a high quality mineral/vitamin mix at around 2% of the overall ration.

Drought Management for Autumn Calvers

For the majority of autumn calving cows the drought will not yet have been a problem, if anything it might have helped by

- helping to avoid cows becoming too fat,
- keeping cows more active by having to graze for longer which will also help reduce calving difficulties,
- high temperatures/bright sun will have killed most disease organisms affecting new born autumn calves such as scour.

If however the drought continues, as predicted, cows will begin to lose condition more rapidly and be thinner than normal at calving. This will not be a problem providing cows are put onto a high ration as soon as they have calved.

Effectively if the drought continues cows will have to go onto full winter rations as soon as they have calved. Failure to do so will result in much poorer fertility this autumn. The target should be a minimum intake of around 120 MJ ME/head/day from supplementary feed. To achieve this intake would require:

- ad-lib pit silage, or
- ad-lib bale silage + 2 kg concentrates, or
- 3 kg 20% CP concentrates fed twice daily + ad-lib straw.

In-Calf and First Calved Heifers

Young heifers are particularly sensitive to periods of under feeding due to their additional requirements for their own growth on top of those needed for rearing a calf.

In-calf spring calving heifers

Systems for calving heifers at two years of age depend on heifers gaining around 100 kg over the summer grazing period and carrying a fair degree of condition (condition score of 2.5+) when they are housed in the autumn. This allows minimal winter gains to produce well grown but not over fat heifers at calving the following spring.

In many dry areas heifers are likely to be up to 50 kg lighter than normal this autumn which will require a similar increase in growth rates this winter if calving weights are to be achieved. It is essential that this increase in performance is achieved as early as possible so that any over feeding can be avoided in the critical 1-2 months pre calving to minimise the risk of calving difficulties.

First calved spring heifers

Fertility for early calving herds should not have been affected too much by the drought so that pregnancy rates in first calved heifers should be close to "normal". The main effect of the drought will have been to reduce their ability to maintain, let alone improve their condition due to the additional demand for their own growth. Without special attention first calvers will therefore be extremely thin next spring and at best will find it difficult to get back in calf again with their third calf. At worst they will become downer cows ie will go off their feet 2-3 days pre calving, produce a perfectly normal and viable calf by either induction or caesarean and then die. Again the solution is to act promptly eg by early weaning first calved heifers, and most importantly increasing their ration post weaning to ensure they achieve the target calving condition score by 1-2 months pre calving.

First calved autumn calvers

First calved autumn calvers are also likely to be much leaner when they calve this autumn. Although requirements for their own gain will be less than for first calved heifers it will still be sufficient to reduce their fertility. To avoid this rations need to be increased as soon as possible after calving to ensure condition is maintained, or even slightly increased.

Finishing Cattle/Weaned Spring Born Calves

Biologically the best option for finishing cattle when feed supplies are short, is to finish them intensively on ad-lib concentrates. The reason is the significant improvement in feed conversion efficiency ie the amount of feed required to

put on 1 kg liveweight gain, which occurs as daily liveweight gains increase.

Table 1 – Effect of daily liveweight gain on feed costs

DLWG (kg/day)	Silage* (kg/day)	Concentrates* (kg/day)	Feed Costs	
			(p/day)	(p/day)
0	21	-	42	infinity
0.4	27	-	55	137
0.8	30	1.0	74	92
1.0	24	3.2	90	90
1.4	8	8.0	124	88

* silage costed at £20/tonne and concentrates at £135/tonne

Table 2 – Effect of daily gain on days to put on 100 kg liveweight

DLWG (kg/day)	Days
0.8	125
1.0	100
1.2	83
1.4	71

Taking the whole finishing period into account this benefit is further increased with faster growing cattle achieving similar levels of carcass fatness at a slightly lighter weight. This reduces still further the time taken to finish with other savings in terms of labour and perhaps more importantly than ever this winter the straw needed to bed them.

When the decision is made to intensively finish this years spring born calves the easiest way of working them onto ad-lib concentrates is through a creep feeder while they are still sucking their mothers.

- Introduce the calves to creep in the feeder as normal.
- Build up to ad-lib almost immediately.
- Once intakes are around 2 kg/head/day and at least three weeks before they are to be weaned, gradually introduce the final finishing concentrate into the creep.
- When the calves are weaned continue to feed the finishing concentrate ad-lib through the creep feeder for 2-3 weeks while the calves grow accustomed to their new surroundings, indoor ad-lib hoppers etc.

Finishing on roughage diets

A similar approach can be taken to reduce roughage requirements for finishing cattle on traditional silage/hay based rations. As a rough guide every additional 1 kg of concentrates fed can improve daily gains by nearly 0.1 kg/day and reduce daily silage intakes by around 2 kg fresh weight. In addition the shorter finishing period also has a significant impact on reducing overall silage requirements by nearly 0.2 tonnes of silage/head/week.

Warning

Don't delay – the quicker finishing cattle are housed:

- the quicker they will be sold finished,
- the less silage and straw bedding they will have used,
- more grass will be available for the remaining grazing stock,
- the more profit they will leave.

Delaying putting cattle onto full finishing rations will move cattle into harder store condition:

- which will have to be put back on again,
- will increase slaughter weights, at the same carcass fatness,
- will significantly increase the length of the finishing period,
- will significantly increase overall feed requirements.

Store Cattle

There are two contrasting options for managing store cattle. The first is to move them onto finishing rations to bring forward date of finishing as discussed above or to accept store performance over late summer/early winter to maximise the compensatory growth for a delayed finishing period. This could either be a short intensive finishing period later this winter or to maximise performance and the proportion of cattle finished off grass next summer. This is effectively the American approach which stores cattle when overheads are low to maximise liveweight gains when the cattle enter feedlots with very high overhead costs. One approach would therefore be to give minimum supplementation to early weaned spring born suckled calves and to outwinter them on deferred grazing, based on the flush of grass growth which will occur when the drought eventually breaks.

Relative Value of Feeds

The table below gives the value of feeds relative to the energy and protein supplied by barley and rapeseed meal at £70 and £100/t, respectively.

	RV £/t
High energy, starchy feeds	
Barley	70
Oats	60
Wheat	71
Medium energy, fibre feeds	
Molassed sugar beet pulp	66
Citrus pulp	63
Medium protein feeds	
Wheatfeed	69
Maize gluten feed	82
Barley dark grains	84
Maize dark grains	101
Wheat dark grains	103
High protein feeds	
Rapeseed meal	100
Hipro soya bean meal	130
Forage replacers	
Draff	18
Big bale silage (35% DM)	21
Hay (average)	39

Beware Magnesium Tetany

When the drought does end there will be a surge of grass growth, similar to spring growth. As a result magnesium tetany will be a much bigger problem than normal, even affecting cows in mid – late lactation such as spring calvers.

With ad-lib, high quality grass available the traditional methods of providing magnesium in the autumn such as cobs and trough feeding are likely to be less effective with cows reluctant to eat supplementary feed. Methods of magnesium supplementation, commonly used in spring such as magnesium licks are likely to be more successful.

Straw

What cows will eat when grazing lush, highly digestible grass is straw – as they do in the spring. The benefit is that the long straw helps retain the grass in the rumen for longer. This improves utilisation – as can be seen in the much firmer dung they produce. As a consequence cattle will perform better on less grass so grass lasts longer. The improved utilisation will also apply to magnesium, helping to reduce further the risk of tetany.

Be prepared

Now is the time to check you have sufficient bottles of magnesium, a good flutter valve and sharp needles readily available should a cow go down.

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