

SUMMER SUPPLEMENTATION ON SOURVELD GRAZING

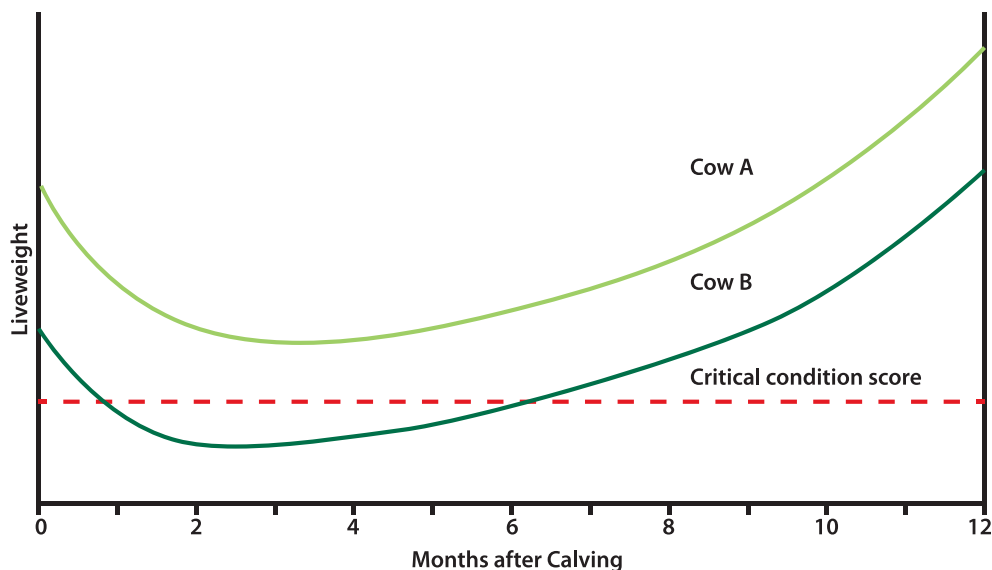
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The sourveld areas of the country are characterised by natural grazing that is of a very poor quality during the winter months but that recovers dramatically in summer and is able to sustain high levels of animal production.

Given the poor quality of grazing during the winter months, it is essential that livestock farmers maximise the utilisation of their summer veld in order to get the most out of their animals during this period. As always, sound grazing management forms the basis of this with strategic supplementation of the animals also being an important component of the system.

It should always be borne in mind what needs to be achieved with various classes of livestock during the summer grazing period. Maximising milk production in order to increase weaning weights of calves or lambs is the most obvious goal to be achieved on green summer grazing. It is however also important to think ahead to when these animals are mated again at the beginning of the next summer. Numerous studies have shown that the single most important factor influencing reconception rates in beef cows is their mass and/or body condition at calving. Cows calving at lower body mass or at a lower body condition score tend to drop below the critical condition score required for reconception after calving. This is illustrated in figure 1.

Figure 1: Pattern of liveweight change during the breeding cycle of the cow and its possible relationship to nutritionally induced infertility in the postpartum period. (Haresign, 1984)



Maximising body mass gain of animals on summer grazing will improve their chances of making it through to the end of the ensuing winter at a live mass that enables them to reconceive at mating. It will also reduce the reliance on expensive baled hay and supplementary feeds during winter.

In the case of replacement females, the same principle applies in that high mass gains during the summer months will improve their chances of meeting their minimum target mass at mating. Compensatory growth is a phenomenon that needs to be exploited during the summer months. Growing animals whose mass gains may have been lower than optimum due to low nutrition levels during the preceding winter, are able to make up for this by growing at a higher rate during summer, provided that they are given access to good quality grazing and that they are not deficient in any nutrients.

During the summer months, the digestibility and protein content of sourveld grazing is generally adequate to sustain most classes of livestock. Minerals, specifically phosphorus, become the first-limiting nutrient during this period and need to be supplemented. Lactating cows and growing heifers have a high requirement for phosphorus which cannot be met by the grazing alone. A deficiency in phosphorus has a severe impact on animal production. Digestibility and intake of grazing is depressed and growth and fertility are severely compromised if a deficiency occurs. A mineral lick which supplies animals with around 6 - 10g/day of supplementary phosphorus is required to maintain production during this period.



The supplementation of sulphur and magnesium also needs to be considered for grazing animals. Sulphur is critical for the synthesis of protein by rumen bacteria. A deficiency may result in an overall reduction in the quantity of rumen bacteria which eventually leads to a decrease in digestibility of the grazing and a lowering of the protein available for absorption by the animal. Sulphur deficiencies frequently occur in grazing due to the soluble nature of most natural sulphur salts in the soil, particularly in areas of high rainfall. The supply of sufficient magnesium is necessary for the utilisation of roughages as it is essential for all rumen micro-organisms, particularly those responsible for the digestion of fibre. Magnesium deficiencies often occur in grazing situations, particularly in young grass. Inclusion of sulphur and magnesium in supplements is therefore highly recommended, particularly as the cost of supplying these minerals is relatively low.

Animals may also experience deficiencies of trace minerals, such as copper, cobalt, zinc and selenium under grazing conditions. Deficiencies of any of these trace minerals can have a substantial negative effect on animal production and, depending on what is deficient, may manifest itself as poor growth, reduced disease resistance and lowered fertility. It is therefore important to ensure that adequate quantities of these trace elements are supplemented.

Ionophores such as Monensin and Lasalocid provide an opportunity to significantly improve animal performance on summer grazing. These compounds alter fermentation in the rumen such that both the protein and energy that is consumed is better utilised by the animal. The inclusion of ionophores is commonplace in feedlot and dairy cow diets, where they increase mass gain and milk production respectively. Numerous trials have shown that feeding ionophores to animals on natural grazing improves mass gains by an average of around 15 percent, even when animals are consuming medium to poor quality grazing. Significant benefits can therefore be expected by including an ionophore in supplements fed to animals on green summer grazing.

Examples of summer lick supplements:

The following are examples of licks which may be mixed for various classes of livestock on green summer grazing.

All of the licks below contain the following:

- Sufficient phosphorus, magnesium and sulphur to meet the animals' requirements and ensure optimum growth and fertility.
- All the essential trace elements, in the correct proportions, required for optimum fertility and disease resistance.
- An ionophore, Lasalocid sodium, which improves growth by 10 – 15%

Ingredient	Mineral Lick	Production Lick	Energy Lick	Veld Finisher Lick
Maize meal*	50	450	725	875
Monocalcium phosphate	300	150	75	25
Feed lime	50	50	25	25
Salt	400	250	125	50
Green Grazer Premix	200	100	50	25
Total (kg)	1000	1000	1000	1000
Composition (%)				
Calcium	10.18	5.99	3.01	1.77
Phosphorus	6.31	3.27	1.77	0.76
Magnesium	3.18	1.65	0.90	0.51
Sulphur	2.71	1.44	0.83	0.52
TDN (Energy)		36.9	60.1	71.8
Intake g/day:				
Cattle	100 - 200	200 - 400	400 - 800	1000 - 2000
Sheep	20 - 40	40 - 80	80 - 160	200 - 400

* Up to 50 kg per ton of maize meal may be replaced with Kalori 3000 to improve weather resistance of the lick.

These licks should be used as follows:

- Mineral lick:** Dry cows and ewes, pregnant replacement heifers and ewes.
- Production lick:** Lactating cows and ewes, replacement heifers, bulls and rams.
- Energy lick:** Growing out weaners or yearlings for market. Flushing of ewes prior to mating.
- Veld Finisher lick:** Finishing of animals for market.

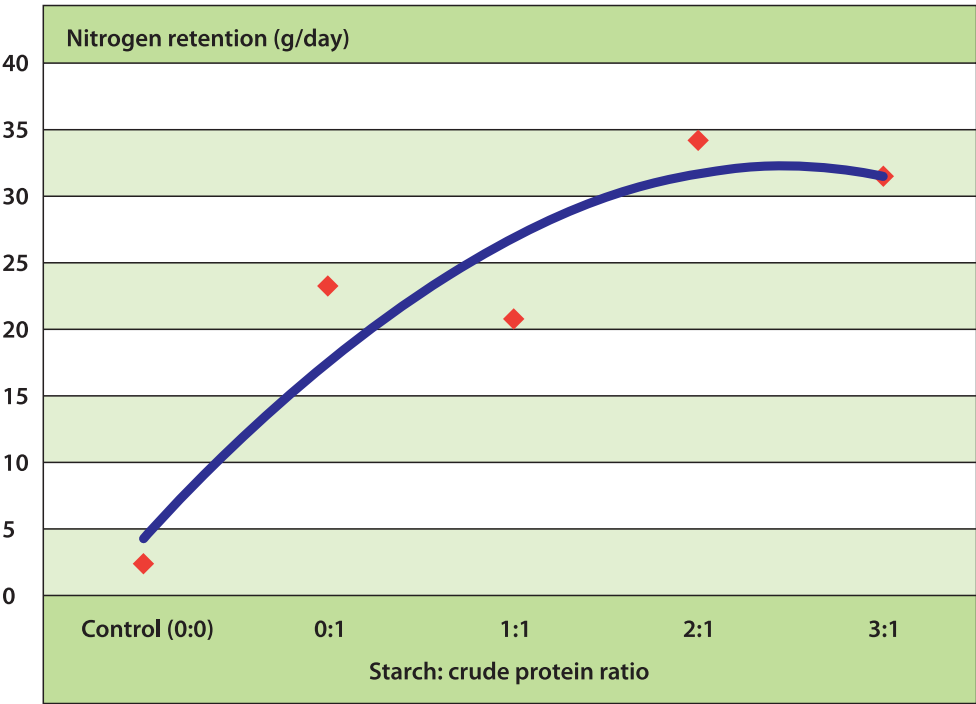
Animals must be given free access to these licks at all times, together with unrestricted grazing and/or roughage. These licks must not be fed to horses as they contain an ionophore (Lasalocid).

Urea inclusion in licks

Under some circumstances, animals may respond to supplementary protein on green summer grazing. Such situations may arise when the quality of the grazing deteriorates or when translocation of nutrients from the leaves to the roots of the grass takes place during late summer. This would also only be justified for animals having a higher nutrient requirement, such as lactating or growing animals.

If urea is used to increase the crude protein content of the lick, it is essential that sufficient energy be supplied in the form of maize and/or molasses in order to ensure that the added crude protein is utilised by the animal. A recent study by Franco et al (2017) examined the effect of different levels of starch on the utilisation of supplemental crude protein by young bulls on roughage diets. The results are illustrated in Figure 2.

Figure 2. The effect of starch:crude protein ratio on nitrogen retention of young bulls fed tropical hay with nitrogen and energy supplements (after Franco et al, 2017)



This trial demonstrated that nitrogen retention in young bulls fed on hay containing 7.4% crude protein was significantly improved by the supply of supplementary crude protein, mainly as urea in this case. It also illustrated that increasing the amount of starch that was supplemented to the animals further improved nitrogen retention in the animals, with the optimum starch:crude protein ratio being in the region of 2:1. In practical terms, these results suggest that with licks fed to animals on veld grazing, it would be advisable to feed at least 200 – 250 grams of maize for every 100 grams of crude protein that is supplemented.

The following is an example of a lick that can be mixed with additional crude protein (urea) for supplementing animals on green grazing:

Ingredient	kg
Maize meal	700
Monocalcium phosphate	50
Feed lime	25
Salt	125
Urea	50
Greengrazer premix	50
Total	1000
Composition (%)	
Crude protein	20.11
Urea	5.00
Calcium	2.61
Phosphorus	1.24
Magnesium	0.89
Sulphur	0.82
TDN (Energy)	58.15
Intake (g/day)	
Cattle	800 - 1000
Sheep	150 - 200

- This lick should be fed only when adequate green veld grazing is available.
- It should not be fed to animals grazing fertilised green pastures.
- It must not be fed as a winter lick or when only dry grazing is available.
- This lick contains urea and the necessary precautions must therefore be taken. Please read the warning on the bag label thoroughly.
- This lick contains an ionophore and must not be fed to horses.
- Intakes may vary from those shown, depending on grazing conditions etc. Intakes can be increased by replacing some salt with maize meal or vice versa.

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