THE IMPORTANCE OF SUPPLEMENTARY FEEDS FOR BEEF CATTLE

SOME BASIC PRINCIPLES

INTRODUCTION

Due to the fact that beef cattle are kept in restricted areas and are not free to roam fully like game in the wild, they are not able to consume a variety of feedstuffs that will give them a balanced diet that will keep them in good condition all year. This is the main reason why we have to supplement the grazing of cattle to maintain optimum performance. The Zimbabwean Beef Manual, dating back to Rhodesia days, presents years of very valuable research and practical findings which have hardly been surpassed in beef nutrition. Included in this manual are several studies on the cost effectiveness of supplementary feeding. There is no doubt that supplementary feeding in both summer and winter is cost effective. Many a farmer will state that he cannot afford to make use of supplementary feeds. The flip side of this is that we cannot afford not to give supplementary feeds when we see the benefits. The single biggest contribution to profitability of beef production (assuming the prices are fair) is fertility. The higher the calving percentage, the higher the number of calves weaned, and the greater the profitability. The correlation between good nutrition, herd health and reproductive health is very high.

SUMMER

It is well known that much of Southern Africa is deficient in phosphorus. In addition sodium chloride (salt) is vital to normal functioning of any mammal’s body. These are probably the first two limiting factors when it comes to general herd performance in the wet season. While some areas of Zambia are rich in certain minerals, there are also significant mineral deficiencies across the country (notably selenium in the Mazabuka area, Se is very important for good health and fertility). It is therefore also advisable to take a “shotgun” approach when feeding a summer phosphorus lick and supply the trace minerals which are not very expensive. Vitamins are usually in plentiful supply in summer, with the exception of Vitamins A, D, and E (fat soluble) which are recommended especially for breeding cattle. The rule of thumb is to feed 6 grams of phosphorus per head per day to non-lactating animals, and double this to cows with calves at foot. One can use salt to control intake.

With growing weaners off the veld when the grass is growing well, (when protein is at its peak) energy and phosphorus/sodium can limit optimum performance. There is no doubt that fattening cattle off the veld is far more cost effective that feedlotting if one calculates cost per kilogram of gain. A small supplement of energy and possibly some protein with well managed strip grazing.
can realise good gains (+/- 0.8 - 1 kg/day) for 3 to 4 months in the peak rainy season and the transition stage between wet and dry seasons. Strategic use of supplements can have very desirable effects on veld management and not only keep the undesirable sporobolus at bay, but gradually push it out.

Bernard Rhodes, an extremely experienced and practical ruminant nutritionist who has worked in Zambia and Rhodesia for years, states very accurately, that winter supplementation should start at the beginning of summer. If cattle enter winter in good condition they will have the capacity to eat lots of the poor quality roughage and hence maintain condition.

**WINTER**

Winter is the opposite to summer in that energy is in abundance (just put a match to the veld to see) and protein is in short supply (less than half of what it was in summer). Cattle and sheep have the incredible ability to harvest poor quality roughage in the form of cellulose and lignin and convert it into milk and meat. The two greatest assets these animals have are their rumens and their four legs. The rumen is a large chamber that is full of rumen micro flora. These micro flora need protein and readily available energy to function well. As the grazing drops off in condition at the end of March/April, the rumen micro flora start to decrease in numbers if they are not fed additional protein as there is not enough in the grass at this stage. As the grass population dies off so the rumen literally shrinks. Now the animal which has just come out of summer eating luscious protein-rich grass has double odds stacked against it. Firstly the grass has half or less protein per kilogram and is far less palatable, AND the rumen micro flora population that is the powerhouse of the digestive system is rapidly declining. The solution to this is to start with small quantities of protein supplementation early at the end of the rainy season before the micro flora population starts declining, and then gradually increase this as the grazing quality declines. Once cattle have started dropping off in condition it is very expensive to regain that loss. The rule of thumb is to be supplying 150 - 250 grams of protein per head per day in the middle of winter. This figure varies both for the time of the dry season and for the category of animal, be it growing, in calf, in calf and with a calf at foot etc. Tables for these categories are readily available.

Urea is the cheapest way of feeding protein. If this is done in conjunction with vegetable protein, particularly cotton or sunflower cake, with some readily soluble energy in the form of molasses then one gets good rumen function, good roughage intakes and hence good condition when the cows calve down. A cow that calves down in good condition has a lot more chance of re-conceiving, and hence making a positive contribution to profitability.

Unfortunately there is a misconception that feeding lots of cheap molasses or maize bran (both full of energy) in winter is beneficial. The exact opposite is the case. Energy intake determines feed intake. Hence when one feeds high energy supplements the negative feedback system tells the animal that its requirements are satisfied, and so it does not go out and graze. This simply defeats the whole objective of winter supplementation and can be very expensive.

At the end of winter when the grazing is getting very poor and cows have calved then one can start supplementing small amounts of energy so that cows are in good condition to re-conceive.

Supplementing empty cows through winter is extremely expensive. It is well worth the cost of having cows pregnancy diagnosed so one can cull the empty ones. The sale of these cows will
pay for the winter supplement, which in turn will result in high conception rates and hence maintain a positive cycle.

Please note that this article is a simple overview of the principles of supplementary feeding and by no means covers the subject comprehensively or gives details of what to feed. All supplements should be fed on a basis of not only what is needed by the animal, but also on the basis that it will yield a cost effective return. Hence, the need to review the make up of supplements from time to time with regard to their costs. A nutritionally sound feed will be nutritionally effective for a year, but only cost effective for a season.

For more details on specifics of the supplements and the costs of them please contact Peter de Wet. 0966665480