

Breeding

seasons

for beef cattle in South Africa

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INTRODUCTION

Optimal reproductive performance is of paramount importance for the success of a beef cattle enterprise. Reproductive performance is mainly influenced by:

- Nutritional status;
- Genetic merit;
- Health status (especially venereal diseases); and
- Breeding management.

Breeding season management is a very important tool to optimise the reproductive performance of a breeding herd and the pre-wean growth rate of calves. Breeding (and calving) season management is therefore one of the most important management decisions influencing the profit margin of a beef cattle enterprise.

AIM OF BREEDING SEASON MANAGEMENT

The aim of a breeding season is to get the maximum number of females pregnant in a relatively short period, as cost-effective as possible, for calving during a period most favourable for:

- Re-conception of cows;
- Calf survival; and
- Pre-wean growth of calves.

The major factor governing the ideal breeding season

OPTIMUM BREEDING SEASON

The optimum breeding season is one that makes optimum use of the cheapest source of high quality feed, namely summer grazing.

The main consequences of a breeding (and calving) season that starts too late, are:

- Calves are born too late and are too small to utilize their dams' high milk production from peak summer pastures. This results in lower weaning weights.
- Calves are born later in the summer season and, because of the higher nutritional level of the cows at that stage, this result in higher birth weights and consequently a higher incidence of distocia.

The main consequence of a breeding (and calving) season that starts too early is:

- Cows calve too early, i.e. too long before adequate summer grazing is available. The result is a loss of too much condition and consequently a lower re-conception rate.

The ideal calving time is $\pm 6 - 8$ weeks before adequate green grazing can be expected.

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DISADVANTAGES OF BREEDING THROUGHOUT THE YEAR

The disadvantages of calving through the year will become clear when the advantages of breeding seasons are discussed later. The main disadvantages of through the year calving are:

- The inefficient use of summer pastures and of expensive winter supplements;
- It is difficult to effectively select for fertility;
- Routine management practices cannot be consolidated;
- It complicates feed flow planning; and
- Performance testing and marketing cannot be done effectively.
- Higher costs for pregnancy tests, etc. due to more visits by the vet.

ADVANTAGES OF BREEDING SEASONS

The advantages of breeding seasons are:

- * The optimal utilization of the peak production period of natural pastures:
 - The best paddocks can be allocated to the breeding herd, resulting in a higher conception rate;
 - Females can be mated at optimum condition and weight, resulting in a higher conception rate;
 - The period of peak nutritional requirements of the cows (6 - 14 weeks post-partum) can be coincided with the peak production of natural pastures, resulting in:
 - o Cows maintaining their condition, resulting in a higher conception rate; and
 - o Higher weaning weights;
 - Pre-wean growth period of calves coincides with peak production of natural pastures resulting in higher weaning weights;
- * The period of low nutritional requirements of cows (after weaning) coincides with the period of low production of natural pastures (winter). Less

- supplementation is therefore needed during winter;
- * Cost-effective strategic supplementation of breeding cows is possible;
- * It simplifies feed flow planning;
- * It simplifies routine management practices, e.g. dosing, pregnancy diagnosis, calving observation, identification, inoculation, dehorning, castration, weighing, weaning, etc. With single sire mating, breeding groups have to be kept separate for only a short period of the year;
- * Calving season(s) can be coordinated with other farming enterprises and activities, e.g. planting, harvesting, etc.;
- * Attention can be focused on the breeding herd during the breeding and calving season(s);
- * Performance testing can be done more effectively because calf groups are larger and more uniform regarding age variation;
- * Marketing can be more effective because:
 - Calf groups are larger and more uniform regarding weight and age;
 - Non-pregnant cows can be marketed before winter in a good condition;
- * Selection for fertility is easier and more effective because:
 - Sub- or infertile females can easily be identified;
 - Sub- or infertile bulls and/or bulls lacking libido can easily be identified;
 - Non-pregnant females can be culled early, i.e. directly after the pregnancy diagnosis; and
 - Early vs. late calving cows can be identified.

DISADVANTAGES OF BREEDING SEASONS

The disadvantages of breeding seasons are few:

- The bull requirements are marginally higher than for through the year breeding;
- The bulls have to be kept in separate paddocks, away from the cows, during the non-breeding periods of the year.



- The flow of weaner calves to be marketed is not spread throughout the year.

Please note: The following guidelines and recommendations are applicable to a summer rainfall region and should be adapted accordingly for a winter rainfall region.

WHICH TIME OF THE YEAR?

The primary principle is to choose a time of the year at which the cows reach optimum condition for breeding. This time is usually about three months after the month of the highest rainfall. For a summer breeding season, the best re-conception is achieved if cows calve about one month before to about one month after the first effective rains have fallen. (E.g. if the first effective rains in a specific area usually fall in October, cows should calve from September to November. This implies that the breeding season should be from 15 November to 15 February.

If no breeding seasons exist on a particular farm, the current calving pattern of the herd can be used as a guideline. Determine in which three consecutive months most calves are born and use this to determine the optimum time for a breeding season.

In general, breeding seasons in drier regions (where the rain usually starts later in the season) should be later than in wetter regions (where the rain usually starts earlier in the season). Table 1 gives a guideline in this regard.

TABLE 1: TIME OF THE YEAR GUIDELINES FOR A THREE MONTH SUMMER BREEDING SEASON FOR SOME REGIONS IN SOUTH AFRICA

Region	Breeding	Calving
Eastern Highveld	Nov - Jan	Aug - Oct
Western Highveld	Dec - Feb	Sept - Nov
High rainfall Bushveld	Jan - Feb	Oct - Dec
Low rainfall Bushveld	Feb - Apr	Nov - Jan

The availability of planted pastures, crop residues, silage, etc. and synchronization with other farm activities (e.g. planting, harvesting, etc.) should be considered in deciding the specific breeding period.

ONE OR TWO BREEDING SEASONS?

The main advantages of two breeding seasons per annum are:

- Bulls can be used more effectively;
- Cows that skip and which are not culled, can be mated again sooner – they will skip only six months and not a full year; and
- It facilitates the mating of heifers at 18 months of age vs. the normal 24 months of age.

The main disadvantages of two breeding seasons per annum are:

- The farmer may be tempted not to cull cows that have skipped, because they can be bred again within six months. This practice will result in a lower reproduction rate;
- Contemporary groups will be smaller, because the annual calf crop will be spread over two seasons; and
- It requires higher management inputs, because all routine management practices need to be done twice per year.

A winter breeding season should only be considered if:

- Sufficient feed of a high quality (e.g. crop residues) is available at low cost during winter; and/or
- Heifers need to be mated at 18 months of age because they become too fat at 24 months of age.

ADVANTAGES OF A SUMMER BREEDING SEASON

Except for breeding heifers at 18 months of age (in winter), a summer breeding season usually is better than a winter breeding season, because:

- Cows are normally in a good condition during mid-summer, resulting in higher conception rates;
- The period of the peak nutritional requirements of cows coincides with the peak production period of natural pastures (summer), resulting in higher weaning weights; and
- The period of low nutritional requirements of cows (after weaning) coincides with the low production period of natural pastures (winter), resulting in less supplementation needed during winter.

DISADVANTAGES OF A SUMMER BREEDING SEASON

- The internal and external parasite load is high during the pre-wean phase of calves, resulting in lower weaning weights;
- The growth rate during the period directly after weaning (winter) is low; and
- Summer droughts may result in lower conception rates due to the poor condition of cows in the breeding season.

ADVANTAGES OF A WINTER BREEDING SEASON

- Excess crop residues and hay can be utilized optimally;
- The parasite load is lower during the pre-wean phase of calves, possibly leading to higher weaning weights; and
- The growth rate during the period directly after weaning (summer) is high.

DISADVANTAGES OF A WINTER BREEDING SEASON

- The cows are normally in a poor condition at breeding, resulting in lower conception rates;