

How to improve reproduction in a beef cattle herd

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Optimal reproductive efficiency is a key factor in the operational success and profitability of a cow-calf production system. Each cow in the herd is expected to produce a healthy calf at roughly the same time every year, and to rear the calf within a specific period so that it reaches a specific weaning weight. Cows that fail to produce a calf every year are not only impeding efficiency, but are also utilising resources that more productive animals could have put to better use.

One-year calving interval

In order to calve every 12 months (280 days gestation + 85 days = 365 days), a cow must be mated and come into calf again within 85 days of having calved (Figure 1). Once she has calved, however, allowances must be made for a 30- to 45-day period in which her reproductive organs can recover. If she had no calving problems, is healthy and in good condition, she has only 55 days after the recovery period in which to reconceive.

Achieving an average 12-month calving interval in a herd is no easy feat. Several factors play a role and each cow-calf system is different, as are the breeding methods and programmes. Various aids and reproductive programmes can be employed to pursue one's goals, for example natural breeding, artificial insemination, synchronisation and embryo transfer, or combinations of these.

Evaluate efficiency

The reproductive efficiency of a herd needs to be evaluated continuously, regardless of the reproductive programme used. After all, there is a direct link between the success and profitability of a cow-calf system and the number of calves produced and marketed annually. Improved herd management and selection for top reproductive performance therefore play a key role in improving profit potential.

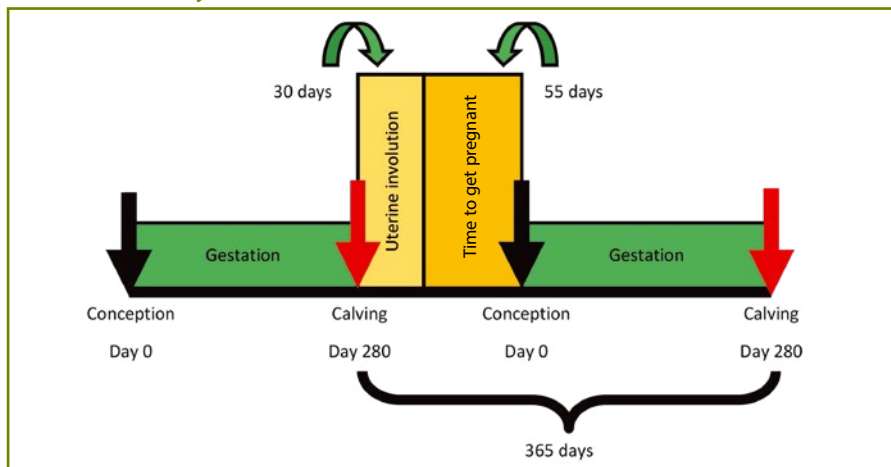
Suppose there are four similar cows in a herd and the bull has access to the cows throughout the year. The cows have the same birth date, reach puberty at 12 months and conceive at 15 months of age (60% of mature weight), but differ with regard to subsequent calving intervals.

Cow one has the ideal 12-month calving interval (Figure 2). She raises a calf every year and produces ten calves in her 12-year lifespan. Cow two has a 13-month

calving interval, but needs 12 years and nine months to rear ten calves. Cow three has a 14-month calving interval and takes 13 years and six months to produce ten calves. Cow four has a calving interval of 15 months and requires 14 years and three months to produce ten calves.

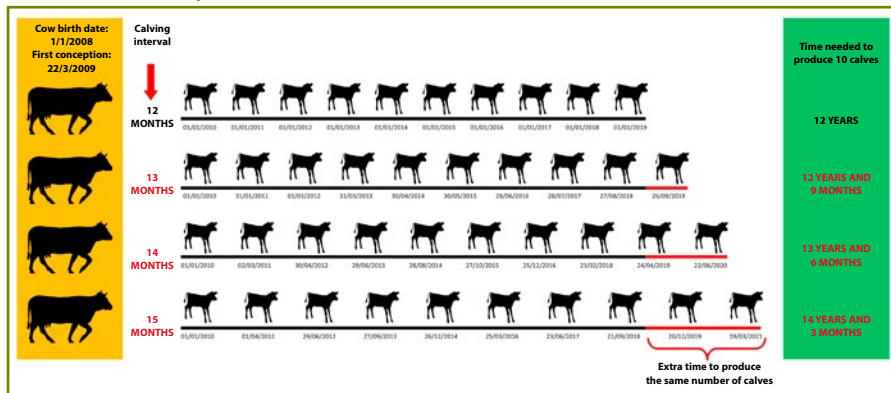
The additional two years and three months it takes for cow four to produce ten calves, and the subsequent delay in income and increase in expenses, speaks for itself. For this reason, it is essential to

Figure 1: Calving interval of beef cattle in an annual breeding programme.
(Source: University of Florida)



The cow conceived on day 0 and calved after approximately 280 days of gestation. After calving, she needs 30 to 45 days to recover (uterine involution) and prepare for remating. After recovery, she has less than 55 days in which to reconceive to achieve a 12-month calving interval.

Figure 2: Effect of calving interval on number of calves produced per cow.
(Source: University of Florida)



evaluate reproductive efficiency regularly and to cull less efficient animals in a timely manner.

Compact breeding/calving seasons

Herd management is usually easier in a cow-calf production system that has a fixed breeding season and compact conception period, compared to herds that breed and calve throughout the year. A compact breeding season means that calving is concentrated over a few months of the year, which is very advantageous in terms of cost and labour management.

Another important advantage is that unproductive cows can be identified and culled timeously. Cows that fail to conceive are identified using pregnancy diagnosis. These passengers can be culled immediately, or once their calves have been weaned, so as to limit further unnecessary costs and earn an income.

Cows that conceive early in the breeding season are generally more productive given that they have a longer period in which to recover post calving, which improves the probability of reconception. These cows calve in a more favourable season of the year, which

increases the chance of healthier calves and promotes higher weaning weights. Heifer calves born early in the season therefore adapt more easily to the next compact breeding season.

Evaluation of reproduction

It is firstly important to set reproduction goals and to measure it continuously. To achieve reproduction success, it is best to plan your breeding and calving seasons and constantly be on the lookout for potential reproductive problems as well as possible causes hereof. Consult a nutritionist and veterinarian about a nutrition, health and fertility programme.

Key indicators of reproductive success include conception rate, pregnancy rate, calving rate, calving interval, weaning rate, weaning weight and kilograms of meat produced per livestock unit.

Pursue the following reproductive goals and benchmarks:

- Conception rate of 90 to 95%.
- Abortion rate of under 2%.
- Compact calving: 80% of cows that calve within 60 days.
- Less than 5% calf mortality rate at 28 days.

- A calving interval of less than 370 days.
- Calving percentage of 90%.
- Weaning percentage of at least 85%.
- Replacement heifers that reach puberty between ten and 12 months of age. Note that weight, age and breed composition have an effect.
- Heifers mated at 60 to 65% of mature weight to calve at two years of age.
- Low culling rate (less than 5%) for infertility.
- Average five to six calves reared per cow per lifetime.

In a nutshell

Meticulous management, nutrition, herd health, selection and record-keeping are essential for establishing and maintaining high reproductive rates in the herd. Herds should be closely monitored to identify and address reproductive problems early, which helps to improve profitability. A well-established breeding season enables the producer to quickly identify the best cows and cull those that are not as efficient. ^{SF}

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