Improving Female Fertility
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Most astute cattle breeders know that if they can wean a higher percentage of calves from a set number of females and over a defined period (eg 5 months) they are almost certain to make more money. The fertility of the breeder (female) herd is one major aspect that impacts on number of calves weaned.

Female fertility is a complex trait with many factors intertwining to result in a calf or no calf. There are too many factors to mention and discuss in this article but they can be broadly grouped under:

- Nutrition
- Genetics (selection)
- Management
- Disease

In this article I will focus on the Management components.

Managing Female fertility

**Controlled Mating:** This management technique is exposing breeding cows to a bull(s) for a restricted period each mating season. This ranges from 6 weeks in intensive situations to 9 months in extensive situations. The main reason for controlled mating is to concentrate the number of females raising a calf (lactating) under the best possible nutritional conditions. Cows which calve early in the season generally carry more condition through the dry into their next mating (see monitoring condition score). Calves which are born early in the season are also generally your “better”, more profitable calves as they are exposed longer to the best possible nutrition. Other benefits of controlled mating include:

- Improved genetic selection in the calves as they are born closer together therefore their difference in performance is less influenced by environment.
- Improved selection and culling for female reproduction/fertility.
- Economies of scale through handling and undertaking procedures (branding, weaning, vaccinating etc) on larger groups of calves of similar ages.
- Improved marketing with even lines of cattle.

**Pregnancy testing:** The most common technique for pregnancy testing (pregnancy diagnosis) is by rectal palpation. Most experienced practitioners can accurately pregnancy diagnose down to foetal age of 8 weeks. For producers that control mate and in relatively intensive production, the best time to pregnancy test is 8 to 13 weeks after the bulls have been removed from the breeder herd. For extensive situations the most convenient time is normally at weaning.
The main reason for pregnancy testing is to identify cows and heifers that have had a failed mating (pregnancy test empty). These females can then be managed differently to those that are in calf. A normal and efficient practice is to cull all females that are empty. Some people will debate that females not in calf may not be a fault of their own (ie could be disease, bull breakdown etc). This may be the case but to quote Tom Lasater, developer of the beefmaster breed in the US, “By culling females that do not conceive you may get rid of some good ones BUT you are sure to get rid of all the lemons.”

Foetal aging is also a technique that can be undertaken at a pregnancy testing to estimate the stage of pregnancy. Foetal aging is most accurate early in the foetal development. Foetal aging allows breeder herd segregation (ie breeders split into mobs based on age of foetus) and selling or disposal of females that conceived late and therefore will be late calvers.

**Monitoring condition score:** Condition or fat scoring breeders is an important but underutilised management technique. This technique is a standard system to subjectively score females on their condition at particular points in the production cycle. The scoring system ranges from 1 - Very lean, 0-2mm P8 site, to 6 - Extreme, 33+ mm P8 site (Figure 1.). The complete condition score table can be downloaded from the TBTS website ([http://tbts.une.edu.au](http://tbts.une.edu.au)) under the technical documents title.

Basically, the higher the condition scores the increase percentage of females cycling and increase percentage conceiving when exposed to a bull. To maximize the number of females cycling the condition scores should be in the 4 to 5 score range pre-joining. Females with 1 and 2 condition scores will have reduce incidence of cycling therefore reduced calves on the ground.

A study by G Fahey (2000) verifies this by finding that only 66% of females with a condition score of 1-2 were observed cycling (in heat) 90 days after calving. 100% of females with a 4-5 condition score were observed cycling after the same period.

Condition scores can be managed by nutrition (eg supplementation) and selection (i.e. breeding and selecting females that are adapted to your country and given nutrition).

**Weaning:** This is a strategy that can be used to improve female fertility and links closely to the topic above on monitoring condition score. Many producers wean based on time (ie 6-9 months) but should consider weaning on the condition score of their breeders. This is particularly relevant in times of poor nutrition (eg drought) or to herds running on more extensive, lower quality country.

Weaning based on condition score allows females to carry that condition into their subsequent calving and joining. An early weaning study on 167 Bos indicus cows and calves by Schlink *et al* showed that by weaning calves that weighed 49-92kg instead of
the conventional 180kg, cow weight increased (part of which is condition), pregnancy rates increased by 48%, and conception was on average a month earlier.

The information from the study above shouldn’t be used as a motive to early wean every year, but used to show that the time of weaning will impact on breeder herd production.

Conclusion

Female fertility is a multifaceted trait and this article only touches on a few components within the management segment. Many of the above management techniques can be implemented to both commercial and seedstock herds. Before doing so I suggest contacting your local Beef Extension Officer or trusted cattle vet for further information.

References


CONDITION SCORES FOR MATURE COW WEIGHTS

1
Very Lean
0-2mm
ANGULAR AND NARROW, HIPS, PINS, BACKBONE AND RIBS VERY PROMINENT. NO FILLING IN BRISKET, CUT UP FLANK

3
Medium
7-12mm
MODERATELY ROUNDED APPEARANCE. HIPS, PINS, BACKBONE AND RIBS LIGHTLY COVERED. FLANK FILLED TO ABOUT STIFLE JOINT. MORE FILLING IN BRISKET

5
Very Fat
23-32mm
HEAVY FAT COVERING, STARTING TO BE LUMPY, OVER HIPS, PINS, BACKBONE AND RIBS. PRONOUNCED FAT DEPOSITS NEAR TAIL HEAD. DISTENDED BRISKET.

(These are standard AUSMEAT SCORES, fat readings in mm at the P8 site)

Fig 1. Condition scores