Optimising heifer development

- ***Herd fertility was less than expected and can be improved***
- ***Only 56% of heifers joined were lactating and re-bred early***
- ***The key fertility driver was heifer conception which was only 72%***
- ***Heifer joining weight target range 350-400kg***
- ***Heifer growth rates ≥0.5 kg/d before joining & ≥1 kg/d during joining***
- ***Optimum re-breeding occurs at BCS 3-3.5***

New key performance indicator

In a profitable herd, heifers are expected to conceive early (in the first two cycles), calve unassisted, raise a viable calf and re-breed early. A new term, wet and pregnant early (WAPE), defines such a young cow, at her second joining she is lactating and re-breeds in a six-week joining.

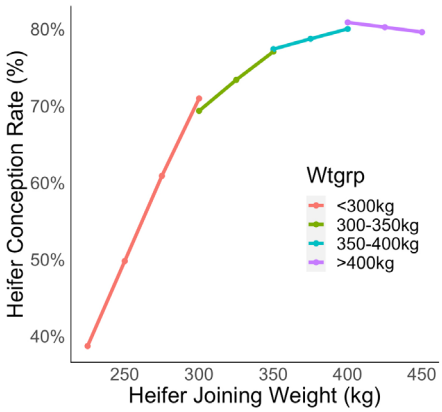
In a study of nine southern Australian Angus and Hereford herds (≥14,000 heifers across several years) WAPE was only 56%. The components of WAPE are early heifer conception rate (only 72%), the proportion of heifers that successfully calved and were lactating (88% of pregnant heifers) and the proportion of those that conceived early at their second joining (88% of lactating heifers).

Wet and pregnant early is a valuable measure of reproductive performance in young females and heifer conception rate was the key driver in achieving it.

72% Heifer Conception
x 88% Calved & Lactating
x 88% Re-bred Early
= 56%Wet & Pregnant Early (WAPE)

Joining weight is key driver of heifer conception

Current recommendations are that British breeds reach 300-330 kg by joining (60-65% mature cow weight, MCW). However, MCW has increased over the last 50 years. Recent results indicated closer to 400kg as a target. The results from this project suggest that to obtain adequate heifer conception (75-80%) in a six-week joining, heifers should be 350kg (and no more than 400kg) at joining.



Growth rate is also important

Growth rate or average daily gain (ADG) leading up to and during joining accounted for most of the difference between autumn and spring calving herds. Target growth rates depend on heifer joining weight. To achieve 85% conception rates (in a six-week joining) heifers that are lighter than 300kg at joining need to be growing more than 1.5kg/day pre-joining and 2.5kg/day during joining. In contrast, heifers weighing 300 – 350kg need to be growing 1.5 - 2.0kg/day during joining, while heifers that were 350 – 400kg only need to grow 1kg/day during joining. Pre-joining growth was less important in the heavier heifers. There was no benefit in having heifers greater than 400 kg at joining. Overall, heavier is better especially for autumn calving herds (joined in winter) with low weight gain during joining.

Drivers of re-breeding

Re-breeding rates were higher than expected given that producers often report that first calver re-breeding is one of their biggest issues. Heifers that got in calf early in the heifer joining period also re-bred early as first calvers.

To achieve 90% re-breeding conception, cows need to be approximately 500kg (85% MCW) with body condition score 3.0 - 3.5 (beef BCS scale 1-5). Body condition score is an adequate tool to predict re-breeding success.

Management strategies

Farm business profit is influenced by the ability to get heifers in calf and for those heifers to re-breed and remain in the herd, particularly for herds that can realise a premium for selling PTIC females.

It was identified that the biggest production gap is the proportion of heifers getting in calf within a six-week joining. Modifying the management of heifers before and during joining to increase the number of heifers getting in calf has a positive effect on herd profit. If heifers were joined at 350kg instead of 300kg, the conception rate would be 10% greater and the net benefit would be $64/heifer joined, even after factoring in the additional cost of feed. From the project data, we would expect 88% of the well-grown heifers to rear a calf to weaning, resulting in more kilograms of beef sold.

Further Enquiries

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