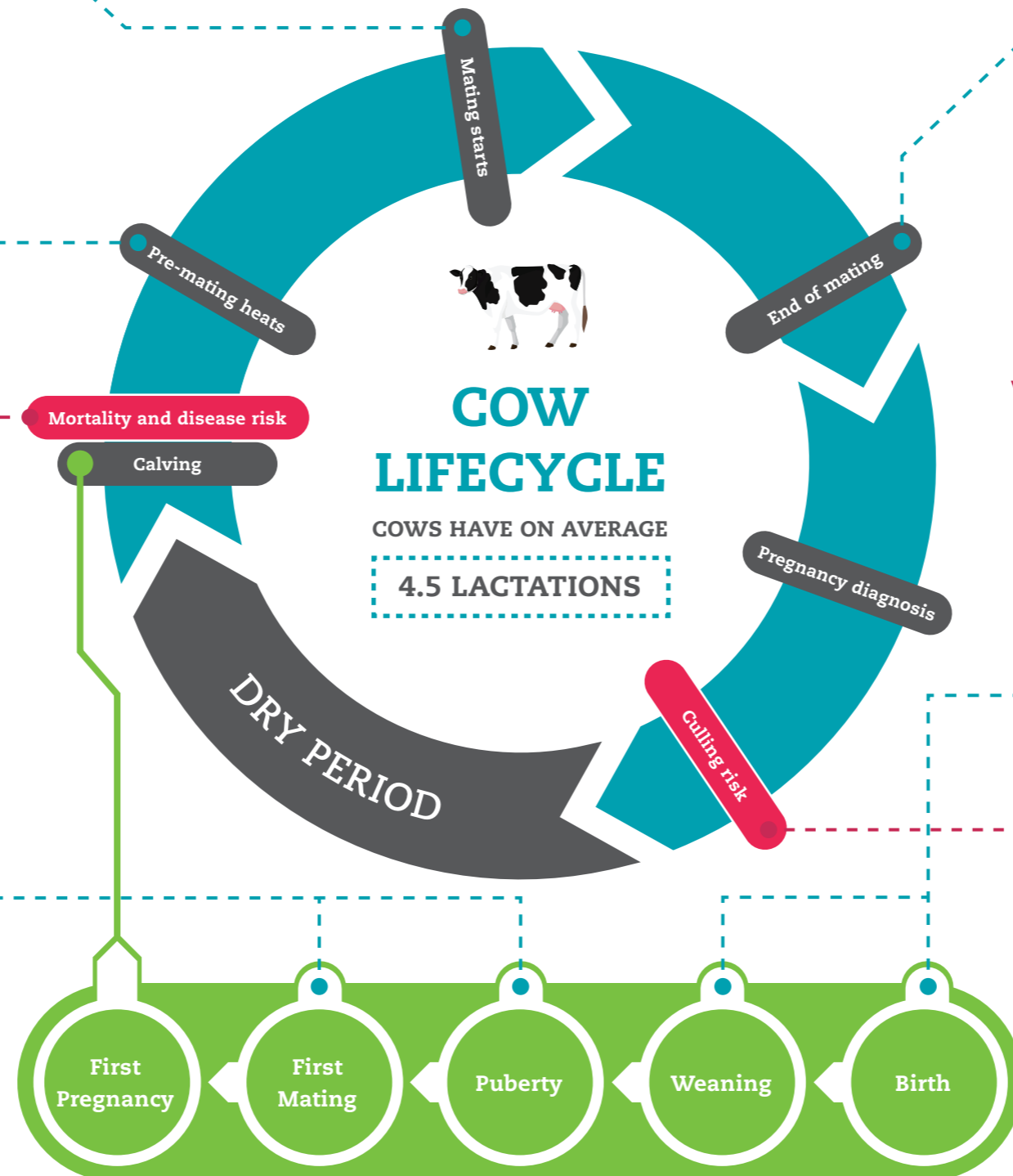


Improving cow fertility and lifetime productivity

A major research programme is investigating management and genetic solutions to improve cow fertility, health and longevity. Check out some of the key outcomes to date.



High Fertility BV cows have better in-calf rates

DairyNZ's studies using 500 cows with high (+5%) and low (-5%) Fertility Breeding Values (BV) showed that:

- high Fertility BV cows have over 30% higher 6-week in-calf rates during lactations 1 and 2
- final not-in-calf rates are very poor (approximately 40%) in low Fertility BV cows, reducing survival between lactations.

Using high Fertility BV bulls to breed replacements will increase 6-week in-calf rates and reduce not-in-calf rates.

High Fertility BV cows cycle better

We showed that high Fertility BV cows have a significantly greater ability to resume cycling after calving. This leads to increases in pre-mating heats and submission rates.

In contrast, low Fertility BV cows have a serious non-cycling problem. Our high Fertility BV cows had an 87% three-week submission rate during lactation 1, whereas low Fertility BV cows had only 48%. New traits using pre-mating cycling and heat characteristics may improve genetic selection for fertility.

Improving transition cow health

A smooth calving transition contributes to optimal cow health, fertility and longevity. Our studies showed:

- feeding synthetic zeolite pre-calving reduces risk of clinical and subclinical milk fever. We are now testing its effects on uterine health and reproduction
- changes in lying and activity behaviours using wearable devices could predict onset of calving and metabolic disease.

Using heifer traits to accelerate genetic gain in fertility

Our high Fertility BV heifers reached puberty 21 days earlier and 25kg lighter than the low Fertility BV heifers, despite growing at the same rate. They also had 9% higher 6-week in-calf rates.

A scale-up study using 5000 animals in 54 herds is underway. It will test if puberty onset and heifer reproductive measures are worthwhile traits for increasing genetic gain in fertility.

Improving conception rates

Most pregnancy failures in NZ cows occur in the first week after AB:

- 79% of cows initially conceive; the remaining 15% have fertilisation failure, and 6% are not truly in heat.
- Conception rates reduce rapidly to 66% at seven days after breeding. Fewer embryo losses occur thereafter, with 58% of cows pregnant at 35 days, and 55% pregnant at 70 days.

Aiming for 88% of the herd calved within six weeks and meeting body condition score targets at calving and mating improves conception rates by increasing the number of oestrous cycles before mating.

Key causes of cow removal

21% of cows are removed from the herd each year (16% culled, 2% died, 3.5% sold).

Most removals are involuntary or avoidable. Key reasons include:

- reproductive failure 37%
- udder health 11% and other health disorders 31%
- unknown 9%
- low production or poor conformation 12%.

Better genetics for cow longevity

DairyNZ has developed a new 'functional survival' trait that uses removal reasons to select cows that are less likely to be culled for health issues. It also uses TOP (traits other than production) to predict survival of cows at different ages, and accounts for removal reasons changing as cows get older.

We aim to have this new index available in Breeding Worth within 12 months.

Calf survival rates

Our research indicates that 94% of births result in a live calf 'pick-up', with top operators achieving over 96%.

Deaths to weaning average 4% but range from 0 to 11% between farms.

Improved colostrum management and disease control will help reduce calf death rates towards the best practice target of 3% or less.

For more information go to dairynz.co.nz/pillars

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