



Health and mating management of heifers from weaning to first calving

Updated: February 2006

AG0506

ISSN 1329-8062

John Moran, Kyabram

This Agriculture Note describes the management of heifer from weaning to first calving.

Introduction

Heifers should be mated at 15 months of age to calve as 2 year olds. Calving at 3 years of age does not return sufficient milk to cover the increased costs for that extra year as non-producing animals. Furthermore, the management of the heifer herd is more complicated if some of them have to be mated later.

This Agriculture Note provides recommendations for their health and mating management. An accompanying Agriculture Note details 'Heifer nutrition from weaning to first calving'.

Managing grazing heifers

When yearling heifers graze with older cows, they become exposed to and hence developing immunity against other diseases carried by these animals. This immunity is then transferred to their offspring via their colostrum. If reared in complete isolation, heifers risk becoming infected after they calve and first come into contact with older cows. This is a time when they should be in peak health to produce milk, get back in calf and adapt to their radical change in management. Prior to first calving, heifers are relatively unstressed as they are only occasionally yarded and spend most of their time at pasture. On entering the milking herd, they experience more competition for feed and social position in the herd. Careful monitoring is required to ensure that they still achieve target live weights, while competing with older cows for limited pasture over winter.

Young stock are inquisitive. They should be kept away from steep-sided drains, cliffs and other dangerous locations. They may also try to eat wire or baling twine, which can injure them.

Young stock should be handled frequently. After calving, it will be easier for them to adjust to milkings and find their place in the herd's social structure if they are used to human contact. Hand feeding them for their last few weeks of pregnancy provides extra feed to build up body condition and also adapts them to handling. For example,

they could be fed while run quietly through the milking shed.

Animal health

It is important to plan and undertake routine control for both internal and external parasites, and vaccinate against diseases, using regional recommendations. These include drenching for round worms and liver fluke and vaccination against *Clostridia* and *Leptospirosis*.

Vaccination for *Clostridia* is vital and cheap. Calves should be vaccinated at weaning, with boosters given six weeks later, at one year of age and again at drying off. The last vaccination ensures some immunity is passed through their colostrum. Clostridial diseases will become more common as young stock are fed more concentrates and achieve better body condition.

Worm burdens can build up on pastures where heifers are set stocked for lengthy periods. Routine faecal egg counts should be undertaken to check for sub-clinical parasite infestations. The common symptoms of clinical parasite infestations include ill-thrift, roughness of coat, scouring and coughing.

Cattle under the age of 12 months are susceptible to Johnes disease and is important that such heifers are excluded from pastures previously grazed by older stock. Johnes's disease bacteria are shed in the faeces of cattle over two years of age and can survive up to 12 months in cool, moist conditions. This is reduced in warm, dry conditions or when the bacteria are directly exposed to sunlight.

Heifers should be regularly checked for pink eye and bloat. Mineral levels in grazed pastures are usually sufficient to achieve target growth rates. However, additional minerals may be required if high levels of supplements are fed, particularly cereal grains.

Heifers can develop their first permanent incisor teeth any time between 22 and 28 months of age, although the majority of heifers do not show teeth eruption until after calving. However, well-grown heifers can show teeth eruption prior to calving. When the temporary "milk" teeth fall out, with the newly erupting permanent teeth only just showing through in the gums, their efficiency of

grazing short pasture may be impaired.

It could also reduce their ability to compete for available feeds during their second winter. If individual heifers are not growing or do not compete well at pasture, their mouths should be inspected for the condition of their gums and teeth. Some may have loose teeth, which can be pulled out, or ulcers or infections, which can be treated. Preferential feeding of these heifers is advisable.

Reproductive management of heifers

For farmers to achieve the greatest genetic gain in their herd, they should mate their maiden heifers by artificial insemination (AI) using semen from proven bulls of known Australian Breeding Values (ABV's) for milk, fat and protein and a rating for ease of calving. The advantages arise from:

- production benefits from their progeny
- reducing the generation interval
- increasing the number of calves of higher genetic merit available as herd replacements
- reducing the number of bulls required on the farm
- a shorter mating program, resulting in a shorter calving period and less time spent on calf rearing

The traditional management system of naturally mating with terminal sires leads to a 5 year interval between the birth of replacement heifers to the entry of their progeny into the milking herd. If heifers are mated to AI at 15 months of age, their first calves will enter the herd when they are 4 years of age.

A herd of 100 cows requires 25 to 30 heifer replacement calves each year. If beef bulls are used on the maiden heifers, these replacement calves must be bred from nearly all the early cycling cows, allowing little chance for selection of better cows for future replacements. Using AI over the heifers as well provides greater scope for selection and genetic improvement of the herd.

Ease of calving depends on the condition of the dam and calf factors such as gestation length, calf weight and presentation at birth. A bull rated highly for calving ease can still produce calves that have the potential to grow into large framed cows, even though they should have lower birth weights. When using AI, it is important to select easy calving sires. These should have "calving ease" values of 2 to 3%, that is, only 2 to 3% of the calves born to that sire in mature cows will present calving difficulties.

Heifers should be gaining weight for at least 60 to 80 days before mating, have a condition score of 5 or more, and be seen to be cycling. Heifer heats are much less obvious and of shorter duration than those in older animals. An 8 hour heat period is not uncommon, so successful heat detection in an AI program requires the input of time from the farmer. Tail paint, Kamar pads and teaser bulls with chin ball harnesses are useful aids for heat detection.

Friesians show puberty at about 240 kg live weight, but this can occur at any age between 8 to 20 months. Target

live weights for Friesian heifers at mating are 300 to 360 kg, but they must be at least 280 kg to ensure reasonable success. Corresponding live weights for Jersey heifers are 240 to 275 kg targets with a minimum of 210 kg.

Heifers in poor condition, and losing or only maintaining weight will have reduced fertility. Not only will smaller heifers have poorer conception rates, they can also have a higher incidence of calving difficulties. Live weight at mating is a better predictor of calving difficulties than live weight or body condition at calving.

Oestrus synchronisation in heifers

A synchronisation program can reduce the AI period to one or two days, with obvious management benefits. Such a program would also "tighten up" the calving pattern, reducing the days required for frequent observation of calving heifers.

In seasonal calving herds, a heifer synchronisation program advances the average calving date up to 10 days. This is partially offset in AI programs by reduced submission rates. If the heifers are mated say, 10 days before the cows, then their earlier calving date will give them 10 extra days prior to the start of the next mating. This is important for first calf heifers as they take longer to recover from the stresses of calving and commence cycling.

Use of AI with maiden heifers is most practical following a program of oestrus synchronisation. Results are better under ideal conditions, such as during fine weather, with access to good yards and handling facilities and when heifers are in good body condition.

Three main systems are currently used:

- CIDR or controlled internal drug release. These devices release progestagen (synthetic progesterone) and are often used with oestradiol capsules at insertion or with a prostaglandin injection on removal.
- Syncro-mate B pellets as ear implants. These also release progestagen and are often used with oestradiol injections at the time of implant insertion.
- Prostaglandin injections (Lutalyse or Estrumate). These systems usually require two injections, 10 to 15 days apart.

None of these system can guarantee tight synchrony, where the ideal is a single AI at a fixed time after treatment. Experience has shown that best results are usually achieved with insemination on heat detection 2 to 5 days after treatment. The programs require multiple yardings of heifers, so they must be quiet and used to being handled. Hygiene is also critical.

Oestradiol and prostaglandins are schedule 4 (S4) drugs and so can only be supplied by veterinarians, whose responsibility it is to prescribe the program and drugs used.

Some treated heifers may produce an unpleasant discharge at CIDR removal, although this is unlikely to adversely

affect fertility. A few heifers may also suffer damage from CIDR's due to pressure on the vaginal wall.

The biggest single cause of failure in synchronisation programs with maiden heifers is low mating live weights. Such programs cannot tighten extended calving patterns in herds, since they have no effect on non-cycling heifers or cows.

If natural mating is preferred, the synchronisation program can be staggered over several days. Some farmers may prefer natural mating of heifers, especially if they do not have the time to spend observing heats and handling them.

Whatever the system, heifers should be mated to "easy calving" bulls. Heifers which have difficult calvings can suffer significant growth checks and are more likely to conceive late or not at all during their first lactation.

Despite attention to achieving higher live weights at mating and the publication of calving ease values for AI bulls, many farmers still find that Friesian heifers mated to Friesians leads to too many difficult calvings, compared to AI or natural mating with Jerseys. They may still prefer to use Jerseys for mating their Friesian heifers, either for ease of calving and/or to produce herd replacements. This is a practical option as herd recording data show that Jersey x Friesian cows can be very competitive in milk production, and may even have superior feed efficiency, after taking into account their lower live weights.

To ensure good results with natural mating, bulls should be physically examined for reproductive abnormalities and have their feet trimmed at least 6 weeks before the mating season. They need to run at the rate of one bull to every 30 heifers expected to cycle, plus one extra bull in the breeding herd. The numbers can be reduced as more heifers become pregnant. Any heifer not in calf after a three month mating period should be culled.

Maiden heifers often produce low quality colostrum. If so, their calves should receive additional or alternative colostrum from older cows. If the heifers are calved down before the older cows, this can be supplied from a frozen colostrum bank, from neighbours who calve their cows down at the same time or even by inseminating selected cows to calve down with the heifer herd.

Further information

Agriculture Notes:

- Heifer nutrition from weaning to first calving
- Weighing and condition scoring of replacement heifers and dairy cows
- Contract rearing of dairy replacement heifers

The previous version of this note was published in December 2001.

The advice provided in this publication is intended as a source of information only. Always read the label before using any of the products mentioned. The State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.