

CATTLE STANDARDS AND GUIDELINES – INDUCTION OF CALVING

DISCUSSION PAPER

Prepared by the Cattle Standards and Guidelines Writing Group, February 2013

ISSUE

The main issues are:

- 1) Cattle health and welfare consequences
- 2) Humane killing of non-viable calves.

RATIONALE

Induction of calving is used predominantly in pasture-based seasonal dairying systems as a management tool to achieve a compact herd calving pattern to maximise milk production from pasture. It is generally done during the third trimester of pregnancy on cows with a late calving due date (typically later than 8 weeks into the seasonal calving period). Induction is also used by veterinarians as an individual cow treatment to hasten calving to address cow and calf welfare concerns. Farmers report that induction is used less as a routine industry practice for reproductive management. Recent estimates from dairy veterinarians indicate calving induction is used in about 4% of cows nationally.

The reasons for artificial induction of calving in cows due to calve late in the season are to be able to retain the cow in the herd or to hasten a problematic calving. Calving induction is used to achieve:

- More compact calving patterns
- Earlier calving at subsequent lactations
- Potential to increase milk production due to extra lactation days and link higher nutrition demands to peak feed production
- Increased opportunity for fertile oestrous cycles to commence before the next mating season
- Reduction in culling non pregnant cows.

Studies of calving induction in pasture-based production systems in both New Zealand and south-east Australia (Moller & MacDiarmid 1981a; Moller & MacDiarmid 1981b; Verkerk *et al.* 2002; Mansell *et al.* 2006) have shown that the economic benefits of the earlier calving date achieved with induction are partially offset by:

- The cost of the treatment
- The high rate of calf deaths and low commercial value of live calves

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- Lower fertility in the subsequent breeding season (although Australian In-Calf fertility study reports that induced cows have the same likelihood of becoming pregnant as the rest of the herd)
- Reduced chance of surviving to subsequent lactations than cows that calve naturally
- Reduced daily milk production.

The Australian Dairy Industry supports implementation of agreed management strategies to achieve a reduced requirement for calving induction.

RECOMMENDATIONS

The writing group reviewed the reasons for calving induction and agreed that the procedure is necessary for dairy cattle husbandry. Circumstances will dictate the choice of method and timing, no one method being ideal in all circumstances.

The proposed standards are recommended for the following reasons:

- Desirable for cattle welfare – will protect cattle welfare and reinforce the need to perform the procedure on selected cows only. Industry communications and extension campaigns aim to promote the recommended guidelines.
- Feasible for the majority of industry to implement – the procedure essentially requires a veterinarian to implement.
- Feasible for government to implement – veterinarians are well regulated by specific legislation.
- Important for the cattle welfare regulatory framework. The current MCOP for Cattle recommends that “Induction of birth must only take place under veterinary advice and supervision; calves should receive colostrum, or be humanely destroyed”. The writing group believes that these recommendations must be incorporated in a standard.
- The valid outcome sought is that calving induction is only done where necessary, at an appropriate time and in a manner that minimises pain and distress. The proposed standards will not cause an increase in pre-emptive calving inductions or a decline in cow / calf welfare due to calving induction not being able to be done if required.

The writing group recommends that the following standards be introduced into legislation and the following recommended guidelines be published for industry consideration.

STANDARDS AND GUIDELINES PROPOSAL

OBJECTIVE

Calving induction is done only when necessary and in a manner that minimises the risk to the welfare of the cow and calf.

STANDARDS

- S7.3 A person in charge must ensure calving induction is done under veterinary advice.
- S7.4 A person in charge must ensure that induced calves receive adequate colostrum or be humanely killed at the first reasonable opportunity, and before they are 12 hours old.

GUIDELINES

- G.1 Herd management strategies should be adopted to minimise or eliminate the need for induction of calving.
- G.2 Cows subject to an induction program should be inspected twice daily. Any cows requiring calving assistance or treatment should receive this at the first opportunity.
- G.3 Calving induction should only be done when necessary for the welfare of the individual cow or calf.

NB The following material relates to the breeding management of cattle and has been written to reflect a single chapter in the draft document.

- G.4 In the last 4–6 weeks of pregnancy, management practices should minimise stress on cows and reduce metabolic diseases.
- G.5 Calving should occur in a sheltered and well-drained area where surveillance is possible. Unless birthing assistance is required, disturbance of cows should be avoided.
- G.6 Care should be taken to minimise calving difficulties by adopting suitable management practices, which may include:
- Selecting heifers for mating only when they have reached the minimum target weight for the breed
 - Avoiding overfeeding or underfeeding pregnant cows and heifers
 - Avoiding mating heifers to bulls known to sire large birthweight calves
 - Supervising cows and heifers close to calving, where possible, and early intervention if required

- Selecting bulls rated for calving ease.

- G.7 Cows that receive severe injuries during calving or that are affected by a severe adverse outcome (prolapsed uterus, unable to remove calf) should receive urgent treatment, or be humanely killed without delay.
- G.8 Weak or orphaned calves with very little chance of survival should be humanely killed.
- G.9 A cow's body condition should be considered when deciding when to wean the calf.

Where there is a requirement for the procedure to be done by a veterinarian, or under veterinary supervision including the use of drugs, veterinary supervision can be direct or indirect. For more information see the glossary.

METHODS OF CALVING INDUCTION

Induction involves triggering premature calving in a cow using pharmaceutical agents over a period of days that mimic the natural signals for the onset of labour. The common protocols for induction of calving involve the injection of long-acting corticosteroids and/or prostaglandin (Allen & Herring 1976; Lewing *et al.* 1985).

Whilst differences in outcomes do occur and are of direct interest to supervising veterinarians they are not significant to warrant detailed discussion in this paper.

ANIMAL HEALTH AND WELFARE CONSEQUENCES

Early induction of calving can compromise the health and welfare of the induced cow, as the procedure markedly increases the risk of retained foetal membranes (Bazer & First 1983; Peters & Poole 1992; Mansell *et al.* 2006), and is associated with increased occurrence of photosensitisation, uterine infections and cow mortality during the post-partum period (Browning *et al.* 1990; Morton & Butler 1995a; Morton & Butler 1995b).

In addition, stillbirths are common in cows induced early, and calves born as the result of early induction tend to have lower viability and in some cases require immediate humane destruction (Mansell *et al.* 2006). The requirement for humane destruction of non-viable calves is an issue. Several protocols have been developed for dairy producers, that describe suitable methods for humanely killing calves less than 24 hours old, but this remains a distressing operation for many producers (DPI&F Queensland 2004; Primary Industries Standing Committee 2004; DPI Victoria 2008).. Jaques *et al.* (2006) reported that milk yield reductions (1.1 to 11%) following induced premature parturition are substantially higher in absolute as well as proportional terms in herds with higher milk yields. Adequate policy and extension material is available to ensure farmers understand their responsibilities for the humane slaughter of non-viable induced calves.

ALTERNATIVES TO ARTIFICIAL INDUCTION OF CALVING

The Australian dairy industry has recognised that induction is an animal welfare issue in light of the high calf mortality rates, the stress it places on the cow and the associated cattle health problems, and has taken steps to reduce the requirement for this procedure through support for the implementation of on-farm management strategies to achieve a reduced requirement for calving induction (Dairy Australia 2012). Recent field studies have shown that artificial induction is only an aid in establishing a compact calving pattern and, given good management, such a calving pattern should be able to be maintained without the routine induction of calving in a large proportion of a dairy herd (Mansell *et al.* 2006).

Dairy farmers are switching from the routine use of calving induction to sustainable alternatives such as split or year round calving patterns, extended lactation, improved reproduction programs, using short gestation-length semen, cross breeding and better nutrition.

REVIEW OF NATIONAL POLICES

The current **Australian Model Code of Practice for Cattle** (Primary Industries Standing Committee 2004) states that “Induction of birth must only take place under veterinary advice and supervision in accordance with relevant State or Territory legislation. Calves from induced births require extra attention. Calves which are intended for sale as bobby calves, and are not strong enough to meet the standards required by that trade, should be humanely killed as soon as possible, or kept until they are strong enough to meet those standards. All calves being kept should receive a feed of colostrum milk within 6 hours of birth, be protected from adverse environmental impacts, and be kept separate from other calves. Induced calves are not as strong as full-term calves so extra care is needed to ensure that they receive 3-4 feeds of colostrum from normal term cows during the first 12 hours of life.

The **Australian Veterinary Association** policy (AVA) 2002 8.1 Induction of parturition policy states that:

“The Australian Veterinary Association (AVA) opposes calving induction in dairy herds other than for therapeutic reasons. The AVA strongly supports the adoption of management processes that improve dairy herd fertility and welfare without the use of calving induction.

The AVA also supports research and extension programs involving cattle reproductive physiology, with a view to improving the reproductive performance of Australian dairy herds.”

RSPCA Australia 2008 relevant policy is as follows

4.8 Induced calving

“4.8.1 RSPCA Australia is opposed to the use of induced calving techniques as a husbandry procedure to regularise milk production by a herd as it causes observable adverse welfare problems for both cow and calf, often resulting in the death of the calf.

4.8.2 RSPCA Australia supports herd management programs that allow cows to reach full term and calve unassisted”.

The **Australian Dairy Farmers** has a policy under the national dairy industry animal welfare strategy to support implementation of agreed management strategies to achieve a reduced requirement for calving induction. The Dairy Australia funded InCalf national extension program recommends that calving induction should only be done as part of a calving management plan and that it be done under the supervision of a veterinarian. Research has been commissioned to evaluate strategies to improve reproductive management in seasonal calving herds. Producers are advised that cows selected for induction should be:

- Aged 3-8 years (not replacement heifers)
- Calving in body condition score 4.5 -5.5
- In good health
- Between 6 and 13 weeks before their expected calving date
- Dried off for at least 7 weeks (Zimmermann 2008).

REVIEW OF INTERNATIONAL POLICIES

These policies and position statements are included to provide a brief international context, while acknowledging that Australia’s cattle production systems may vary significantly from production systems, cattle breeds and climatic conditions in other countries.

In **New Zealand** the Code of Recommendations and Minimum standards for the Welfare of Dairy Cattle (NAWAC 1992) states that “ When calving is to be induced, farmers should discuss the procedure thoroughly with their veterinarian and then:

- Submit only mature healthy cows in good condition for injection
- Check them daily and attend to sick or depressed animals immediately
- Milk or strip those cows in which the injection causes premature stimulation of lactation
- Take extra care to keep premature calves warm and ensure they get adequate feed (calves less than 15 kg are best humanely killed as they are usually too immature to survive).”

Blackwell *et al* (2010) state that the New Zealand Dairy Industry supports a target of no more than 4% of cows being induced by mid-2012.

In the **United Kingdom**, the Code of Recommendations for the Welfare of Livestock (Cattle) recommends that calving should not be induced routinely, and only under veterinary advice (DEFRA 2003).

DEFINITIONS

calving induction	The process of initiating calving by hormonal treatment in a cow three weeks or more prior to the expected full term calving date.
inspect	The visual check of the health and welfare of cattle on an individual or herd basis.

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