Operational Guidelines: Induction of Calving
01 June 2010

1 BACKGROUND/INTRODUCTION
Since 2005 routine calving inductions for management purposes have been carried out according to a Code of Practice under the ACVM Act which expires on 31 May 2010. After undertaking a review of the future of this practice, the key industry stakeholders of NZVA, DairyNZ, DCANZ and FFNZ have agreed that use of routine calving inductions for management purposes must be limited to not more than 4% of any individual herd’s total size.

To bring this resolution to effect, some farms that rely heavily on inductions to manipulate seasonal calving patterns will need to make significant changes to their management systems. Such changes take time, e.g., farmers may need to rear a greater number of young stock to cope with increased culling rates. To reduce the negative financial impact of sudden change, the stakeholders recommend that the overall goal should be reached through a series of annually-reducing targets as follows:

- From 01/06/10 to 31/05/11, within an individual herd, the level of inductions should not exceed 15% of the herd’s total size.
- From 01/06/11 to 31/05/12, within an individual herd, the level of inductions should not exceed 8% of the herd’s total size.
- From 01/06/12, within an individual herd, the level of inductions should not exceed 4% of the herd’s total size.

The key stakeholders have agreed that the guidelines for good practice when carrying out the procedure, as presented in the ACVM Code of Practice should form the basis of Operational Guidelines for induction procedures, with some additional requirements in order to further reduce the welfare impact of the procedure on cow and calf.

2 OBJECTIVES
2.1 Purpose of the Guidelines
The purpose of these guidelines is to guide and assist veterinarians and farmers to protect animal welfare when inducing cows and to prevent drug residue violations. These guidelines expand on several aspects of the procedure which it has been agreed are important to ensure that animal welfare is protected when the procedure is used.

These guidelines do not affect the existing therapeutic indications for induction (considered as “non-routine” e.g. treatment of hydrops conditions or management of heifers mated to bulls that throw large calves), or the other potential uses of corticosteroids in other species as well as cattle which include treatment of primary ketosis, orthopaedic conditions including arthritis, tenosynovitis and bursitis, shock and stress, allergic conditions, and acute laminitis.

Farmers and veterinarians should discuss which animals are to be induced as early as possible so that pregnancy testing can be carried out at the correct time to date pregnancies. Well in advance of the planned start of calving of the herd, the farmer and veterinarian should have discussed all components of the procedure and agreed the list of candidate cows according to the reduction targets. A record of this agreement should be retained by both veterinarian and farmer, and be available for audit if requested by any party to this agreement.

2.2 Timeframe
These guidelines will have effect from 01/06/2010 until such time as further review is required.
2.3 Consequences of non-compliance

Veterinarians should note their responsibilities under the Animal Welfare Act, Agricultural Compounds and Veterinary Medicines Act and the Code of Professional Conduct.

Civil liability may also be a consequence of losses incurred by a client through inadequate advice or service.

Farmers should note their legal obligations under their dairy supply contracts for notification of plans to carry out inductions and reporting of cows that are treated.

2.4 Dispute resolution

Where there is an unresolved dispute over numbers or suitability of the animals to be induced, or where there are exceptional circumstances such that a farmer believes they will be seriously disadvantaged by meeting the reduction targets, the matter will be referred to a Disputes Committee comprised of nominees of the Dairy Section of Federated Farmers NZ, DairyNZ and NZVA to find resolution. Any outcome of a dispute resolution process must be recorded in writing as a letter of agreement that gives the reason (exceptional circumstance) for the exception, and evidence of a plan to be implemented to ensure that the farmer can meet targets in the future e.g. engagement of appropriate advisory services.

In the case of disputes, veterinarians are bound to act according to the code of professional conduct of the Veterinary Council of New Zealand. This defines the requirements for veterinary consultation and immediate care, and for ethical and professional standards. In particular, the veterinarian must recommend that a second opinion be sought when judgment indicates this would be desirable and feasible. When a client requests a second opinion, veterinarians must accede graciously and make the necessary arrangements. If a veterinarian is called to make a second opinion, or to attend an animal that has been attended by another veterinarian for the same reason (supersession) the veterinarian being superseded must be notified.

3 RESPONSIBILITIES

3.1 The Owner, Manager or Person-in-charge

Leading up to the induction programme

- Supply for their veterinarian an accurate list of all cows in the herd using MINDA or MAESTRO group profile sheets, or InfoVet records. If no herd testing is carried out then an accurate list should be provided from the farm’s own records.
- By no later than 60 days before start of induction treatment, agree with their attending veterinarian to the list of potential cows to be induced (Induction List). In establishing this list, consideration needs to be given to the guidelines for cow selection (age, body condition score, and history of disease) and evidence that the cows are at an appropriate stage of gestation to be induced based on pregnancy testing information.
- Ensure that cows to be treated have ear tags or other means of accurate identification
- Provide evidence of the total number of cows in the herd at the coming planned start of calving to ensure that the total number of cows on the induction list does not exceed the allowable target.
- Ensure that there will be adequate feed supply for cows on the induction list to ensure that they will reach the required body condition score by the expected treatment date and to ensure that they will be well-fed during induction and early lactation.
- Consider the trace element status of the cows to be induced and ensure that supplementation is provided where required.
- Provide adequate magnesium supplementation leading up the and during the induction programme
- Develop a plan for post-treatment management of the induced cows
- Agree in writing with their veterinarian as to the Induction List and the additional requirements for the procedure

**Implementation of the induction programme**
- Presentation of cows on the agreed Induction List for the veterinarian
- Inspect induced cows as calving commences at least once every 8 hours until all cows have calved.
- Care and management of induced animals according to the previously developed plan for post-treatment management of the cows
- Strict observance of drug treatment recording protocols and with-holding periods of drugs
- Ensure that any induced calves born alive are euthanased humanely and immediately after birth, and their bodies disposed of daily in accordance with relevant local territorial authority regulations.

**Following the induction programme:**
- Operation in compliance with the requirements their relevant dairy company Risk Management Plan, including the maintenance and keeping of records as required.

### 3.2 The Veterinarian

- Agree in writing with the owner, manager or person-in-charge as to suitability of cows identified for the induction programme, the total number of cows to be induced and the management plan.
- Where there is dispute over the suitability or numbers of animals in the induction list, initiate the dispute resolution process.
- Have the final decision about the products to be used for the inductions, and take responsibility for the use of these products in accordance with these Operational Guidelines
- Ensure that the owner, manager of person in charge has a suitable plan for the humane euthanasia and disposal of any induced calves born alive.
- Satisfy himself/herself that the Owner, Manager or Person-in-charge of the animals is clear about and will act according to their responsibilities to comply with the ACVM Standard for Prescription of Animal Remedy Veterinary Medicines and the supply of information to enable the Owner, Manager or Person-in-charge to meet their requirements to dairy company Risk Management Plans.
- Maintain and keep records as required by these Operational Guidelines.

### 4 GUIDELINES

The objective of routine calving induction is to make the cow calve at a stage in her pregnancy than is earlier than she would naturally calve. Planning an induction programme must start well in advance of the day of first injection to ensure that cows are in proper condition and that sufficient feed is available. This means that:

1. Potential candidates must be pregnancy tested at a stage where date of conception can be confirmed accurately
2. The veterinarian and owner/manager/person-in-charge must meet to agree and sign off the induction list and management plan no later than 60 days before the start of inductions.
3. The management plan needs to include consideration of the availability and experience of farm staff to ensure that induced animals can be properly cared for.

### 4.1 Cow selection

Careful attention to detail in cow selection and in preparation and management of animals in a routine calving induction programme are essential for the welfare of the cows and the calves.
4.1.1 Stage of pregnancy

At the time of the first induction injection, cows
- Should be no more than 84 days (12 weeks) from their expected calving date.
- Must be no less than 56 days (8 weeks) from their expected calving date.

Treatments are generally effective during the final 84 days (12 weeks) of pregnancy, but should be done as early as is practically feasible within this window to maximise the chance that the calf is born dead or will die at birth due to being unable to breathe. Accurate pregnancy data is important to ensure that the stage of pregnancy falls within the required 4 week window for the first injection which is between the last 8-12 weeks of pregnancy.

4.1.2 Identification and scanning records

- Expected natural calving date must be determined by ultrasound examination or manual palpation performed at an appropriate time when the stage of pregnancy can be accurately estimated.
- Ultrasound examination must be by a competent and experienced operator
- Farmers purchasing pregnant cows to increase herd size and who wish to induce them after purchase must ensure that the relevant documentation (i.e., veterinary certificate with pregnancy information) is included in the purchase/sale agreement. This is important to assist their own veterinarian to determine their suitability for selection for calving induction.

4.1.3 Age of cow

- Cows must be between 3 and 8 years old (inclusive) at induction

Older cows have a higher probability of suffering metabolic problems when induced and first calving heifers are more prone to calving with no udder development.

4.1.4 Good state of health and absence of concurrent disease

Only cows that are in a good state of health should be induced. Diseased cows should not be induced in particular if they have had:
- Mastitis during the dry period
- Johne’s Disease or other persistent scouring condition
- Recent facial eczema or other liver disease
- Signs of lameness

Induced cows lack the constitution of naturally calving cows; dexamethasone suppresses the cow’s immune system and reduces her ability to combat infection for about 5 weeks after calving. Induced cows that show signs of illness should be inspected and treated as quickly as possible.

4.1.5 Body condition score

- Cows with body condition score lower than 4.5 are not eligible for inductions.
- Cows with body condition score higher than 6.5 should not be induced.

Attaining the appropriate body condition score can be managed by forward planning. Identifying the group to be induced early means that they can be dried off earlier to protect body condition, or given preferential feeding during the dry period if necessary to achieve the desired condition score. Cows with condition score higher than 6.5 are susceptible to metabolic problems. Body condition scores have been previously defined in “Condition Scoring Made Easy – condition scoring for dairy herds” (Kevin Macdonald and John Roche, Dexcel, 2004).
4.2 Pre-induction management

The pre-induction management plan should take into account:

- Dry cow mastitis therapy to reduce risk of mastitis before calving
- Mineral (magnesium) supplementation to prevent metabolic disease
- Trace element supplementation where required.

- Feeding management - treatments should only proceed when sufficient feed is on hand to meet the needs of the entire herd. Induced cows need to be fed as much as milking cows (minimum daily feeding level should be high quality feed with a dry matter intake equivalent to 4% of body weight) as they undergo udder development. Where there is uncertainty about the adequacy of feed supply, specialist nutritional advice should be sought.
- Udder health management - treated cows that are well bagged up will drip milk from their teats which increases susceptibility to mastitis. Udders should be inspected, teats sprayed at least every 2-3 days, and mastitis treated. Part-milk cows that are dripping to relieve udder tension.

4.3 Cow identification, product with-holding times and records

- Dairy Company Risk Management Plans require that details of induced cows, including date of all injections and the products administered, must be recorded as part of residue risks management.
- Induced cows must be marked clearly for the management of both welfare risks (ability to identify and respond rapidly to symptoms of ill health in treated animals) and residue risks (ability to identify treated cows easily during milking routines). This is particularly important where the induced cows are run with the colostrum mob. Farmers should implement a colour-coding system when they mark the cows, e.g., with tail paint, changing the colours as animals proceed through treatment and calving.
- The first milk from induced cows is not proper colostrum. It can have very high somatic cell counts and high levels of protein and fat. Do not feed it to calves unless it is well diluted with normal calf milk or they may get dietary scours.
- The milk from induced cows must be withheld from supply for human food (including colostrum supply) until at least 4 days after the cows have calved, regardless of what has occurred prior to calving.
- Refer to veterinary advice for specific milk and meat with-holding periods. Dexamethasone preparations used for the first induction injection have a 12-day withholding period for milk and a 35 day with-holding period for meat. It is particularly important to note those cows that receive more than one “first injection” and withhold accordingly.

4.4 Cow management during routine calving induction

- Calving induction requires a series of treatments with registered products, as well as the application of a number of measures to support the health of the animal during the procedure. The exact combination of drugs and frequency of injection is a matter for the professional judgment of the veterinarian responsible for the procedure.
- At any stage during the programme, if a cow is suspected to not be in calf, her pregnancy status must be re-checked as she may have suffered pregnancy loss since the pregnancy test at which the due calving date was established.
- Following the initiation of an induction programme, the farmer must inspect treated cows at least every 8 hours. The proportion of calving difficulties is higher in induced cows - membranes are often expelled before the calf and mal-presentations are very common. It is often difficult to determine whether an induced cow has expelled the calf. Any animal showing unusual behaviour, abnormal discharge, or any other circumstances in which there is concern about its welfare, should immediately be examined more closely and a veterinarian called if necessary.
- Check all induced cows 1-3 weeks after calving to ensure that uterine involution is proceeding normally - induced cows have a higher risk of retained membranes and uterine infection.
• Induced cows must be well fed and should be offered at least as lactating cows, i.e., daily dry matter intake equivalent to 4% of liveweight of high quality feed.
• Milk from treated cows may not be supplied to a dairy company until after 8 milkings after calving, and until the appropriate withholding periods for any treatments given have been met.
• Supportive treatments may be beneficial in some circumstances.
• It is recommended that farmers implement a systematic approach to monitoring and record keeping for the group of induced cows that allows them to record each cow’s progress through the induction procedure.

4.5 Calf management

While many induced calves will be stillborn, or unable to breathe and therefore die rapidly, there will be occasions when live calves are born. Premature calves have poor long term survival. Induced calves that are born alive must be euthanased immediately in a humane manner and disposed of according to relevant territorial authority requirements.
• Calves should be euthanased—with a firearm or captive bolt device by a willing and competent person,
• Plans for euthanasia, including methods and the competency of identified personnel that will undertake this task must be discussed at the time that the Induction List and the management plans are agreed.

5 RECORDS AND REPORTING

• The veterinarian and owner, manager or person-in-charge of the animals must each keep records as required to meet compliance with relevant dairy company Risk Management Plans and ACVM Standard for Prescription Animal Remedy Veterinary Medicines. These records are required for effective traceability of product use during audit procedures. Copies of the Induction List and agreement to management plans must be kept and may be required for audit by dairy companies or other regulatory authorities.
• Where numbers of cows induced exceed the relevant annual target, records of the exceptional circumstance that led to this must be kept as part of a letter of agreement stating the reason along with evidence of planning to ensure that exceptional circumstances do not recur.

6 MONITORING AND REVIEW

• Reduction targets and progress towards them will be reviewed on an annual basis by the stakeholders.