

Operating Procedure

STANDARD OPERATING PROCEDURE FOR MANAGING CALVING COWS

Introduction

Calving difficulty (dystocia) is a major cause of cow and calf deaths. Prevention through good cow and heifer management and proper bull selection is the best approach for dealing with calving difficulties.

Even with the best management, though, a certain percentage of young heifers will experience difficulty calving and even older cows occasionally have difficulty. It is important to know what is normal and then to have knowledge, guidance or access to experience when making decisions on when and how to assist and whether or not professional veterinary attention is needed.

Some cattle producers attempt to correct problems that they have neither the equipment nor the skills to handle, while others refuse to intervene in even the simplest dystocia problems. Neither approach is ideal.

All cattle producers and staff should be able to recognise early signs of dystocia and determine when and how to assist and/or if professional veterinary help is needed. Time lost waiting for help may jeopardise the lives of the cow and the calf.

The following guidelines aim to help reduce losses when dystocia problems occur and ensure animal welfare standards are maintained. For more information about nationally consistent standards and guidelines for livestock being developed under the Australian Animal Welfare Strategy, visit <http://www.animalwelfarestandards.net.au/>

The methods recommended in these guidelines provide the same or higher levels of animal welfare as the relevant Model Code of Practice for the Welfare of Animals.

Scope

These Procedures and Guidelines apply to both beef and dairy cattle.

Objective

To ensure safe and humane calving of all cows and heifers.

OPERATING PROCEDURES

Calving Practices

1. Care should be taken to minimise calving difficulties by the adoption of proper management practices, such as:
 - selection of heifers for mating only when they have reached the minimum target weight and conformation for the breed;
 - avoidance of over or under feeding of pregnant cows and heifers;
 - avoidance of mating heifers to bulls known to sire large birth weight calves;
 - selection of suitable calving paddocks that are close to facilities; and
 - supervision of cows and heifers close to calving and early intervention if required.
2. The diet of pregnant females should be maintained at a level that will minimise calving difficulties and favour calf survival (Condition score 2.5-3.0). Over fat females may have calving difficulties. Cows should not be underfed in an attempt to reduce the size of the calf.

3. Staff should be appropriately trained for calving supervision and assistance and have access to appropriate equipment and materials. Records of calving events for individual cows should be maintained ensuring an operator has access to information on a cow's past calving events.
4. Cows and heifers in late pregnancy should be monitored at least daily, but with minimal disturbance. Individual animals that have started to calve should be monitored frequently. Those animals having difficulty calving should be detected early and assisted by a competent operator or veterinary surgeon as soon as possible. Check with your veterinarian for advice on when to assist the cow alone and when to call for professional help. Since cervical dilation is completed in Stage 2, assistance can be given too early. However, since final dilation is quite rapid, assistance is often given too late, which is much more serious. Judgement is required when making an intervention decision and this is developed with experience.
5. Assisted deliveries should not be attempted without proper preparation of facilities and equipment. A clean, well-lit pen and clean pulling chains and equipment are essential to reduce bacterial contamination. Cleanliness cannot be overemphasized. Introduction of bacteria by equipment or arms of the person assisting with the calving may reduce fertility of the cow by delaying return to oestrus and lowering conception.
6. Only a trained operator or veterinarian should use mechanical calf pullers. If used incorrectly, permanent damage can occur to both calf and cow. Under no circumstances should a vehicle be used to pull a calf. The manual removal of retained foetal membranes is not recommended and should only be undertaken in exceptional circumstances by a competent operator or veterinary surgeon.
7. Induction of birth must only take place under veterinary supervision.

GUIDELINES

Assessment of time to calving

It is important to be able to assess how close a cow is to calving in order to minimise the risk of calving problems. There are 5 signs to look for that will indicate how close the cow is to calving. These signs are listed below from 1 to 5 in order of proximity to calving. Signs 1 and 2 are general indicators of closeness to calving but when signs 3, 4 and 5 are present calving is imminent.

1. Relaxation of the vulva can occur a few weeks prior to calving and it becomes progressively more relaxed towards calving. A thick clear to brown mucous discharge may appear from the vulva several days before calving as the cervical mucous plug is released.
2. The udder gradually increases in size ("bags up") in the last month of gestation and becomes very enlarged in the last few days prior to calving. This is a very useful general indicator when selecting cows closest to calving from a group in the paddock.
3. During the last few weeks of gestation the udder contains a fairly transparent honey coloured oily secretion. This changes to a more transparent fluid then within about 48 hours to 72 hours of calving to colostrum and in the process the udder usually becomes very enlarged. Initially colostrum usually appears in the 2 hind teats and a day or so later in all 4 teats. Colostrum is a yellowish fluid with a creamy consistency.
4. General relaxation of the pelvic girdle ligaments occurs prior to calving to allow passage of the calf through the pelvis. Of these ligaments, the sacro-sciatic ligaments which originate at the tail head and insert on the pin bones are readily accessed for palpation (unless the cow is obese) and are a good indicator of imminent birth. These ligaments are normally firm and very hard. About

48 hours prior to calving they begin to relax and are completely relaxed around 12-24 hours prior to calving and thumb pressure will cause a 1-2 cm depression of the ligaments.

5. The cervix (tight band of tissue between the uterus and vagina) dilates during the first stage of labour over a 6 hour period. Initially it is only 2 to 3 fingers dilated but at full dilation it obliterates and cannot be felt.

Cows will often isolate themselves from the rest of the herd close to onset of calving.

Points 1 to 3 will be noted through general observation of the cow as the pregnancy progresses towards calving. There is no need to intervene and check point 4 or 5 unless a cow is deemed to have begun the birth process and is not progressing.

Confirming onset of calving by vaginal examination

If it is thought that a cow has started to calve, i.e. **signs 3 and 4 outlined above are present**, the cow appears to be straining and the tail is raised (and this is not due to defecation or urination) the **final** check to confirm the onset of calving is to do a vaginal examination to check the cow for cervical dilation.

This should only be done by an experienced operator and should not be done routinely on every cow as it may cause the cow to start straining due to vaginal irritation. It is the last check done to help you decide if the cow is in the first stage of labour.

To do this, the following procedure should be observed:

1. Clean the vulva thoroughly with dilute disinfectant (e.g. betadine) and warm water.
2. Insert a **well lubricated** (using methyl cellulose obstetrical lubricant) gloved arm into the vagina to palpate the cervix. Note that the normal closed cervix is centrally placed at the anterior end of the vagina and in very late pregnant cows the calf's feet can readily be palpated through the thin anterior vaginal wall. Inexperienced examiners sometimes feel the calf's feet protruding into the vaginal space **above** the cervix and incorrectly assume that calving has begun. The normal closed cervix will allow entry of one to two fingers to a depth of 1-2 cms only. Dilation has occurred when the finger tips pass into the uterus. To avoid these mistakes, it is important to know what is normal in the late pregnant cow and to carefully palpate for the presence or absence of cervical dilation.

The Normal Calving Process

Normal calving can be divided into three general stages – preparatory, foetal expulsion and expulsion of the placenta or afterbirth. The time interval of each stage varies among types and breeds of cattle and among individuals of the same breed. Although the exact stimulus that initiates parturition is unknown, it does involve hormonal changes in both the cow and foetus as well as mechanical and neural stimulation in the uterus.

A general understanding of the birth process is important to proper calving assistance and, therefore, is presented here and summarised in Table 1.

Table 1: Stages of calving

Stage and time	Event
Preparatory (2 to 6 hours)	1. Calf rotates to upright position
	2. Uterine contractions begin
	3. Water sac expelled
Delivery (2 hours or less)	1. Cow usually lying down
	2. Foetus enters birth canal
	3. Front feet and head protrude first
	4. Calf delivery completed
Cleaning (2 to 12 hours)	1. Cotyledon-caruncle (button) attachments relax
	2. Uterine contractions expel membranes

Stage 1

- The cow usually seeks a quiet place and will show signs of discomfort (lift tail, kick at belly).
- Vaginal discharge is present.
- Uterine contractions begin.
- The foetus starts to move into the birth canal.
- This stage should not last longer than 8 hours.

Stage 2

- Cervix should be fully dilated.
- The water sac (amniotic sac) is pushed through the birth canal.
- The calf is delivered.
- This stage usually lasts 30 minutes to 2 hours.

Stage 3

- The placenta (foetal membrane) is expelled 8-12 hours after delivery of the calf.

Normal delivery in cattle should be completed within 2 hours after the water sac appears. If prolonged, the calf may be born dead or in a weakened condition. Since timing is vital to providing proper assistance, frequent observations are critical.

When to intervene:

- If stage 1 lasts more than 8 hours.
- The water sac is visible for 2 hours but the cow has stopped trying.
- The cow has been straining for 30 minutes but making no progress.
- The cow is showing signs of fatigue (takes long breaks between straining).
- The calf is showing signs of stress (swollen tongue).
- The calf appears to be mal-positioned (e.g. tail coming first, feet upside down).

Assessment of when to call a veterinarian

This will depend to a certain extent upon the availability and skill level of an experienced operator. As a general guide a veterinarian should be called in the following situations:

1. Stage 2 labour does not progress ie. the calf can be felt in the birth canal (by vaginal exam) but is not born within 3 hours. The cervix may or may not be fully dilated.
2. Part of the calf (eg. head, 1 leg, tail) is presented at the vulval opening but there is no progression of labour (the calf is not born) within 1 hour. This is often either because the calf is too large or is mal-presented (leg back, head back etc). Occasionally, this may be as a result of a twin pregnancy.
3. The cow is straining unproductively for more than 1 hour and there is no evidence of a calf at the entrance to vulva.
4. The cow is down and unable to get up, either before or after the calf is born.
5. The birthing process occurs normally but the uterus (looks like a large bag with lumps on it) is also pushed through the vulval lips (prolapsed uterus). This is an emergency situation and a veterinarian should be consulted ASAP.
6. The foetal membranes have not been passed after 7 days (or the cow looks unwell, off feed etc).

Post Calving Care

Cows should be observed frequently for the first five to seven days, post calving, paying particular attention to feed intake and behaviour.

Care of the newborn calf

Calves should stand and nurse within two hours of calving. If calves do not suckle within this time frame –the cow should be restrained and the calf assisted to nurse.

If the calf is unable or unwilling to suckle, the cow should be milked out by hand and the calf fed colostrum using a bottle or tube feeder. It is vital that the calf receives colostrum within 12 hours of birth to enable the transfer of immunity from the mother to calf.

(Prepared with assistance from Dr Anna Erickson DAFWA and Drs Liz Bramley and Helen Chapman Murdoch University Veterinary Hospital, Production Animal Health & Management.)