



# Cattle breeding guide

A guide to the management for breeding cattle  
in South-East Asia

## About this guide

Regular calving and calf rearing are critical for profitable beef production. No calf means no income. This guide identifies key management issues that can help beef producers and animal advisers to maximise the performance of Australian animals in South-East Asia. These issues include feeding cows appropriately to get into calf, recognising when the cow is ready to mate and recognising and treating problems that arise in the cow and calf at and after calving.

Note: This field guide complements the Manual for South-East Asian cattle feedlots. The images shown are guides only and advice should be obtained from trained animal production and veterinary officers. The responsibility for the welfare of the animals resides with the person in charge of the animal.

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# Cow reproduction facts

## Oestrus cycle (heat interval)

- A heifer may start cycling by 11 months of age.
- Do not allow mating until she weighs at least 280kg (Smaller local breeds will begin cycling at lower weights.)
- Lactating cows with calves need to be a minimum of 350kg liveweight before mating.
- The average interval between heat periods is 21 days (18–24)
  - often shorter in heifers than older cows
  - may be only 15 days between first and second cycle after calving
- The average gestation period is 280 days.
- First-calving heifers have the most problem with:
  - calving
  - mothering up
  - getting back into calf

## Cow reproduction facts

- Older cows in good condition are easier to get pregnant than younger cows and heifers.
- To produce a calf every year a cow must become pregnant again within 75 days of calving.
- Cows that calve in body condition score 3 and are well fed can go back into calf on the first or second oestrus cycle.
- The first oestrus cycle after calving comes after about 36 days
- The second oestrus cycle comes 15 to 21 days later.
- Thus there are only 40 days, or two oestrus cycles, in which to conceive.
- Cows in poor condition and lactating may stop cycling altogether. They will need extra good feed, or for the calf to be weaned, before they will show oestrus again.

# Preparing for breeding

## Body condition score (BCS) and breeding



*BSC 1-2 — too thin  
Feed more.*



*BSC 3 — just right*



*BSC 5 — too fat  
Feed less.*

# Preparing for breeding

## Body condition score

Check the body condition score of the cow is correct for breeding throughout pregnancy. It is too late to correct BSC in the last trimester of pregnancy. Heifers should be at least 280–300kg at first breeding to minimise risk of difficult calving.

*Effects of Body Score Condition (BSC) on reproduction*

Too thin	Too fat
1. Will not cycle	1. Expensive waste of feed
2. Will not conceive	2. May not cycle, may not conceive
3. Increased days to oestrus	3. More chance of dystocia
4. Longer intervals between calves	4. More chance of metritis
5. Poor milk production	5. Lower colostrum and milk production
6. Weaker calf	6. Less mobile, more heat stress

# Feeding for breeding

## Cow too fat

May not have had a calf in the last year

May not cycle, may not conceive at mating

Needed to lose weight before the third trimester

More chance of dystocia

More chance of metritis

## More chance of dystocia

Cows overfed in late pregnancy produce large calves, while fat deposits reduce the size of the pelvic canal.

Excess fat also absorbs key hormones involved in birth and results in weaker signals to the uterus.



*Reduce the amount of energy fed to a penned cow before she gets too fat or give her more exercise.*

# Feeding for breeding

## Cow too thin

Calf born weak

Little milk for calf

Will not cycle – lactation anoestrus

Long intervals between calves

## Diet for breeding cows

Breeding cows need a different diet to animals being fattened. Their ration needs:

- energy level appropriate to BCS
- higher minerals (Ca and P)
- higher roughage
- more protein in late pregnancy as the calf develops



*Thin cows produce less milk and will not get back in calf.*

## Early signs of heat



*Red and swollen vulva*



*Smelling urine  
of cow on heat*



*Restlessness*

# Early signs of heat

## Signs that a cow is coming into heat:

- restlessness
- bellowing
- nudging and resting chin on other cows
- sniffing genital area of other cows
- wrinkling its nose and curling its lip
- swollen red vulva
- frequent urination

**With co-operative breeding groups, now is the time to take the cow to the bull so she is not stressed by handling.**

Detecting oestrus can be difficult in *Bos indicus* cattle as many cycle during the night, while tethering cows means they cannot mount.

## The bull is the best detector of oestrus.

- Bring tethered cows together as a herd twice a day with the bull.
- ‘Night mating’ – bring all non-pregnant heifers and cows inside a yard every night with the bull.
- Taking the females to the bull increases his libido and stimulates the heifers and cows.

## Signs of standing heat – time to mate



*Allowing other cows to ride*



*Clear mucus discharge*

# Signs of standing heat – time to mate

## Signs during standing heat:

- early signs continue
- stands to be mounted by another cow
- thin, clear mucus discharge from vulva
- mucus smeared over the pin-bones and tail area
- reduced appetite

Standing heat may last for only 12 hours.

While the other signs may be seen during the start of her heat period, the only sure sign of when to mate her is **standing heat**.

## Signs of coming out of heat

- no longer stands to be ridden
- muddy flanks and ruffled tail head from being mounted
- dried mucus below vulva
- too late for mating

Record these dates or mark the date on a calendar.

**Standing heat is the most reliable sign of oestrus and is when she should be mated.**

# Mating

## Timing

- Take the cow to the bull as soon early signs of heat are detected.
- Keep the cow with the bull for up to 5-6 nights to make sure the 12 hours of standing heat are covered.
- Then bring her back 18–21 days later for the bull to detect a heat.
- If no heat, she conceived at the first mating.
- If she shows heat, she can be mated again.

## Artificial insemination

- AI offers better sires than the ‘local village bull’, and even different breeds.
- The AI technician inseminates the cow but she must be on standing heat.
- After insemination, keep her in the yard away from any bull for about 48 hours.
- If the cow returns to oestrus about 21 days later, she can be inseminated again or mated to a ‘local’ bull.

# Mating

## Repeat mating

- Re-mate all heifers and cows 18 days after last standing heat, and leave them with the bull for 5 days.

## Mating after calving

- To produce a calf every year, the cow must get pregnant again within 75 days after calving.
- The first heat after calving should come at about 36 days, but conception rates are likely to be low.
- It is better to re-mate the cow on the second heat after calving.
- A cow in poor condition may not have a second oestrus cycle until she has gained more weight or the calf weaned.
- After mating, record the date. Observe her for heat signs 18 to 24 days later and again 18 to 24 days after that.
- If she misses two heat periods, she should be pregnant.
- If she is not pregnant, she may have a reproductive disorder.

# Common causes of infertility

## Poor nutrition

Cow is too thin or too fat  
(see pages on body condition and feeding).

## Metritis

Metritis has been treated but uterus still damaged.

## Previous uterine or cervical prolapse

Uterus has not recovered.

## Physical defects

The cow cannot stand the weight of the bull because of leg or hoof injuries.

The hooves of cows permanently penned on soft ground grow too long and may need trimming.

## Bacterial and viral infections



*Physical defect – overgrown hooves*

# Common causes of infertility

## Bacterial and viral infections

### Leptospirosis

Bacterial infection spread by urine and direct contact. It can cause abortion and can infect humans, but can be prevented by vaccination.

### Brucellosis

Pregnant females with brucellosis will abort a foetus about 3–6 months after conception. It is spread by birth fluids and discharge and can infect humans. Vaccinate heifer calves at 6–8 months to control the spread of brucellosis.

### Vibriosis

‘Vibrio’ is a venereal disease that causes temporary infertility, particularly in heifers. However, they will keep returning to the bull for mating. Only about 5% of the herd will abort.

Bulls remain infected for life, but heifers and bulls can be vaccinated.

### Infectious Bovine Rhinotracheitis (IBR)

IBR or ‘Red nose’ can also be spread by venereal infection. If IBR occurs in last trimester of pregnancy, foetus may be aborted and could be mummified. Any live calf born will be weak.

Seek veterinary assistance if a female keeps returning to service or aborts.

# Calving management – preparation



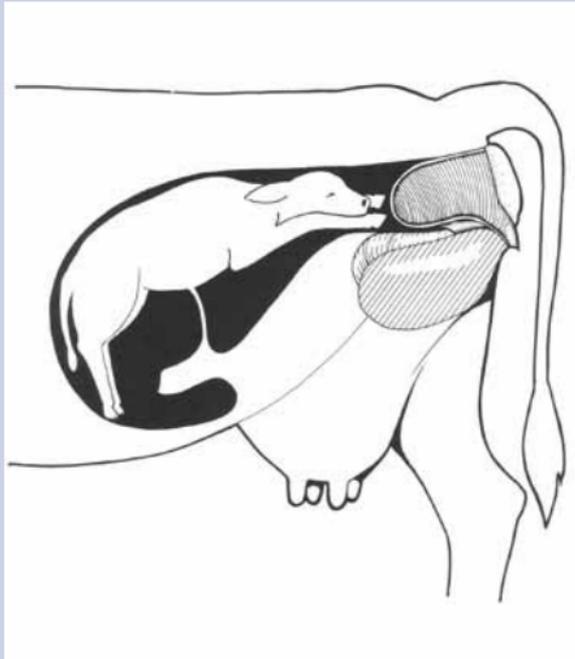
*Two hours before calving – mucus from the swollen vagina, and a swollen udder.*

Females calve 280 days (275–285) after conception.

## Signs before calving

- At 7–10 days before calving, the udder increases in size, the vulva becomes swollen, may change in colour and often discharges mucus.
- The cow should be bedded down on clean straw and disturbed as little as possible.
- Allow the cow to calve naturally but check every 30 minutes.
- *Bos indicus* cattle generally calve easily.

# Calving management – preparation



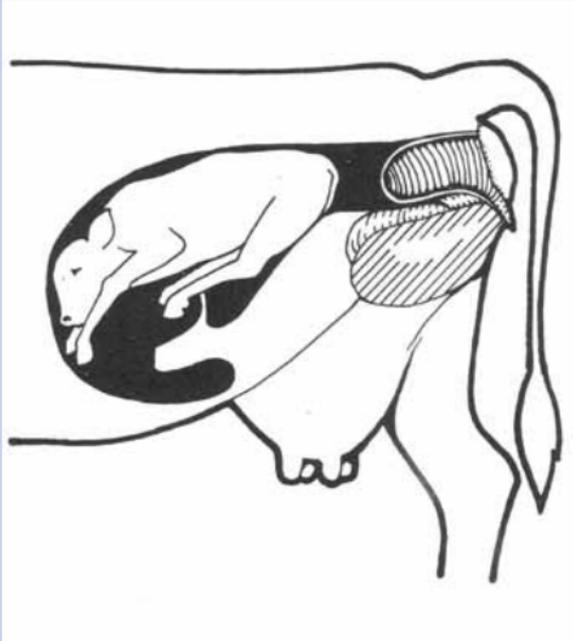
*Normal position of calf*

## Calving

- The cow arches her back and strains.
- She will lose two bags of water, with the second thicker than the first.
- Within two hours of the second water bag, the calf's two front legs should appear.
- Allow her to calve naturally but check every 30 minutes.
- Avoid handling the calf for the first 12–24 hours to allow early bonding between mother and calf. She will lick the calf clean and allow the calf to suckle her.
- The first milk (colostrum) is essential for the calf's immunity. Let it suck for a minimum of 24 hours, preferably 2–3 days.
- Treat umbilical cord with iodine to prevent infection.

# Cow problems – dystocia

## Dystocia



*Problems at calving – breached calf*



*Problems at calving – turned calf*

# Cow problems – dystocia

## Dystocia

- If the front legs do not protrude within 2–3 hours, the calf may be turned in the womb.
- If the calf is only turned, it can often be turned back so that its spine aligns with that of the mother, and then pulled out the normal way, front legs first.
- If only one front leg is protruding, push the head back, then bring both legs forward.
- If the head is turned sideways, push the calf back, then bring the head and forelegs into the normal delivery position.
- If the calf is facing backwards in the womb with its legs underneath, it may need a caesarean section. If the legs are protruding, pull the calf out quickly so that it does not suffocate.
- If the calf is born dead, clean the cow up immediately. If she is sick, give antibiotics for 3 days and an intrauterine bolus (Terramycin) or an intrauterine infusion.

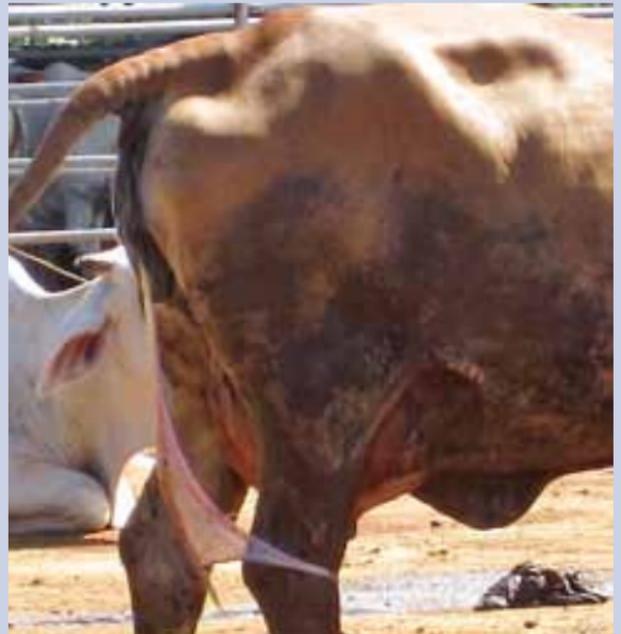
# Cow problems – retained placenta

## Retained placenta ('afterbirth')

The placenta is 'retained' if not expelled within 24 hours of calving.

### Treatment

- If the placenta does not come away naturally, do not try to pull it out as this can cause a haemorrhage and the cow could bleed to death.
- Check 12–24 hours later and, if necessary, leave for another day.
- Treat with antibiotics, and seek veterinary assistance.



*A retained placenta after giving birth*

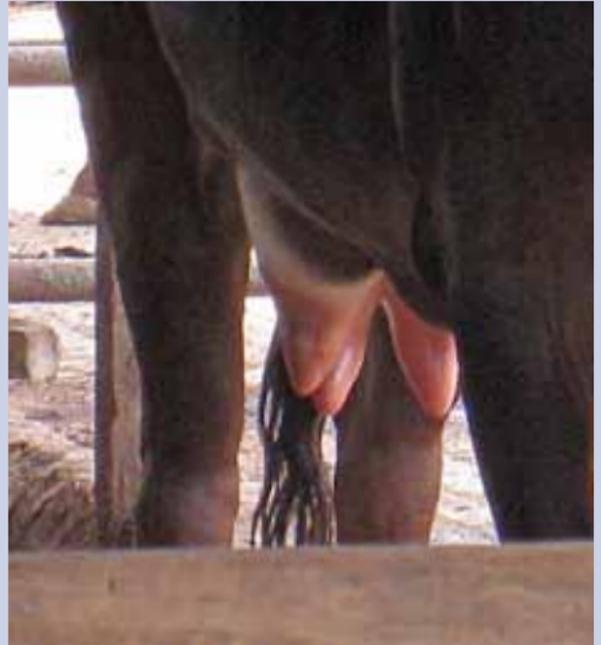
# Cow problems – mastitis

## Mastitis

- Mastitis is an infection of the udder.
- The teat swells, and the calf cannot suckle enough good milk and will grow poorly.

## Treatment

- Rope the cow's hind legs together to prevent her kicking.
- Milk the teat dry and inject the entire content of a tube of antibiotic directly into the teat canal.
- Seek veterinary assistance as to the best antibiotic to use.



*Udder with mastitis showing inflamed and swollen teats*

# Cow problems – metritis

## Metritis

### Cause

- Infection of uterus at the time of calving due to dirty calving area and contamination of environment.
- Cows with high BCS are more susceptible because of prolonged calving.

### Signs

- Off feed, lethargic and mild vaginal discharge within 7 days of calving, progressing through high temperature, straining, and dark coloured foul-smelling vaginal discharge. Untreated cows will die.



*Unhygienic conditions during birth increase the risk of metritis in the cow and infection in the calf.*

# Cow problems – metritis

## Treatment

- Treat immediately discharge or foul smell is noticed with high doses of antibiotics (eg long-acting intramuscular injection of oxytetracycline and uterine pessaries) and prostaglandin.
- Move cow from general breeding herd to treatment pen.

## Prevention

- Use clean calving area.
- Feed for correct BCS (3) at calving for ease of calving.



*Clean calving conditions reduces risk of unhealthy cows and calves.*

# Calf problems – pneumonia

## Causes

- Overstocked and contaminated calving areas and calf pens.
- Calves are not receiving natural immunity through suckling colostrum from the cow over the first 2–3 days of life, but especially first 24 hours.

## Signs

Mild nasal discharge progressing to difficult breathing. Calf becomes dehydrated. Once calf lies down, mortality is 100%.

## Prevention through management

- Maintain clean area for calving and calf rearing.
- Allow the calf to suckle colostrum from mother for at least the first 24 hours of life.



*Pneumonia – nasal discharge*

**“The first drink is the most important in the life of the calf.”**

# Calf problems – pneumonia

## Treatment

Remove the calf to the hospital pen as soon as respiratory signs are seen.

- Inject Ceftiofur (Excenel) intermuscular for 3 days.
- Inject non-steroid anti-inflammatory drugs for 3 days.
- Give 2 litres of electrolyte solution followed by 2 litres calf milk replacer, 4 hours apart, morning and night.
- If calf does not actively suck fluids or milk, give through stomach tube.
- Keep calf in hospital pen until symptoms finish and then return to general calf area.
- If calf does not respond, transfer it to a chronically infected pen.
- Vaccinate cows with Bovilis MH before they calve.
- Seek veterinary assistance.



*Rear calves in clean dry pens*

# Calf problems – scours

## Causes

- Overstocked and contaminated calving areas and calf pens.
- Calves are not receiving natural immunity through suckling colostrum from the cow over the first 2-3 days of life, but especially first 24 hours.

## Signs

Mild diarrhoea progressing to severe diarrhoea. Calf becomes dehydrated. Once calf lies down, mortality is 100%.

## Prevention through management

- Maintain clean area for calving and calf rearing.
- Allow the calf to suckle colostrum from mother for at least the first 24 hours of life.



*Calf scours*

**“The first drink is the most important in the life of the calf.”**

# Calf problems – scours

## Treatment

As soon as symptom of scouring is seen, remove calf to hospital pen to reduce spread of disease, and stop feeding milk.

Day 1. Give only electrolyte solution with added bicarbonate (2 litres every 4 hours).

Day 2. Move calf into clean pen and give 2 more doses of electrolyte in the morning. Clean and disinfect the previous pen.

Day 3. Give 2 litres of electrolyte solution followed by 2 litres calf milk replacer, 4 hours apart, morning and night.

- If calf does not actively suck, give fluids through stomach tube.
- Keep calf in hospital pen until scouring stops, then return to general calf area.
- If calf does not respond, transfer to a pen for the chronically infected.
- Vaccinate cows with Bovac and Bovilis S before calving.
- Seek veterinary assistance.



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