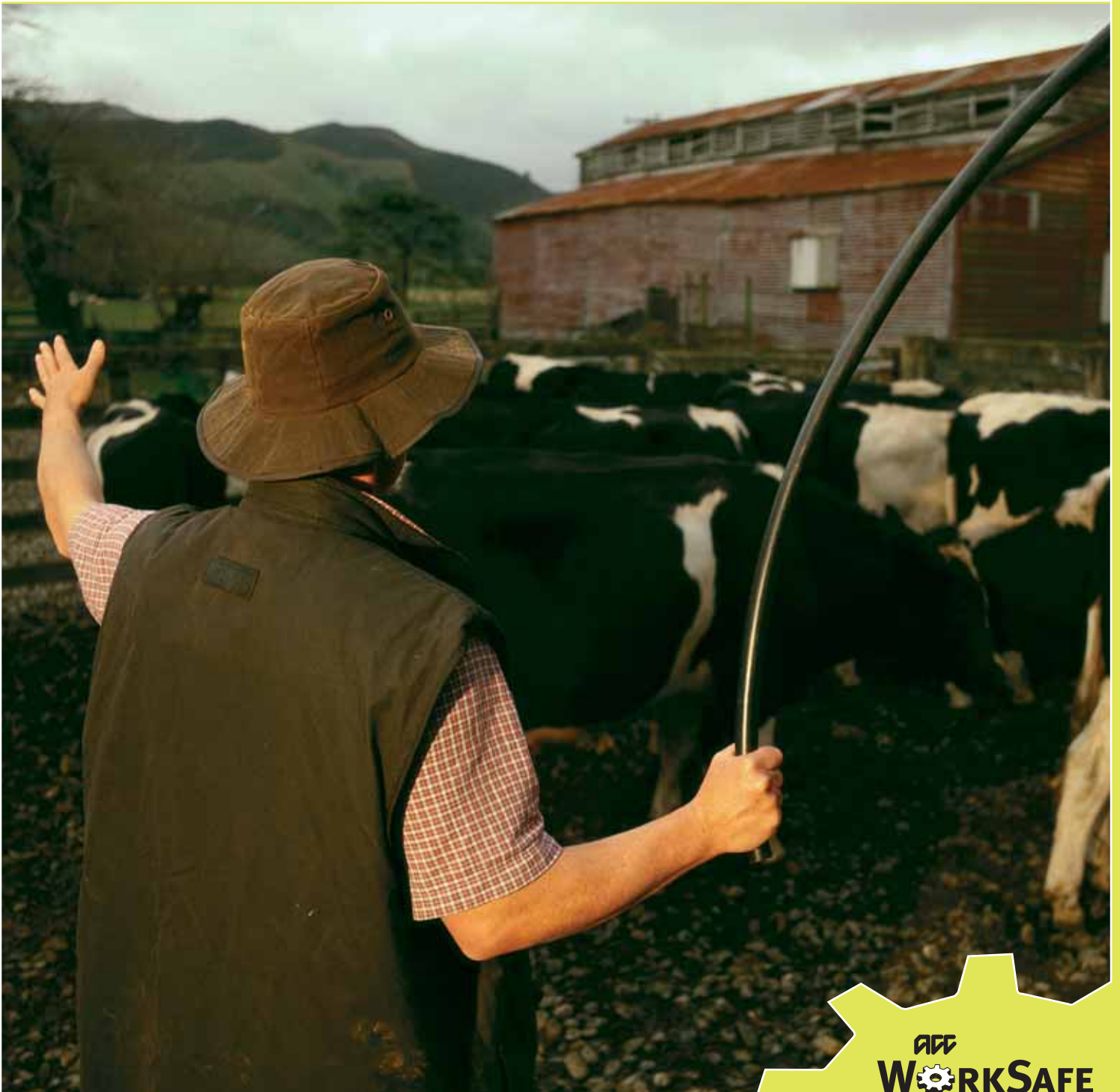




# Cattle Handling Skills

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# CONTENTS

Foreword	2
Introduction	3
Behaviour and temperament	4
Perception	7
Arousal: The secret to success	9
Working distance: Key to controlled movement	11
Balance points: Key to direction	13
Teaching cattle behaviour	15
Bull behaviour	16
Cows and calves	18
Heifer behaviour	19
Equipment and human behaviour	20
Mustering and drafting	24
Working cattle through yards	26
Cattle yards: Principles of design	29
Cattle yards: Why do cattle balk?	32
Cattle yards: Modifying for safety and efficiency	33
Head bail, crush, vet gate and loading ramp	37
Dairy sheds: Principles of design	39
Milking time: Are your cows comfortable?	41
Drenching, injecting and vaccinating	43
Pregnancy diagnosis	46
Dehorning, ear tagging and implanting growth hormones	47
Castration	48
Loading and unloading	49
Injuries caused by cattle	50

# → FOREWORD

This handbook is for people starting a career of animal handling, such as young farmers and agricultural and veterinary students – people who are developing lifelong habits. Having good animal handling skills will help to prevent injuries. It will also help make animal handling easier, because the safe way of doing this is also usually the most efficient.

# → INTRODUCTION

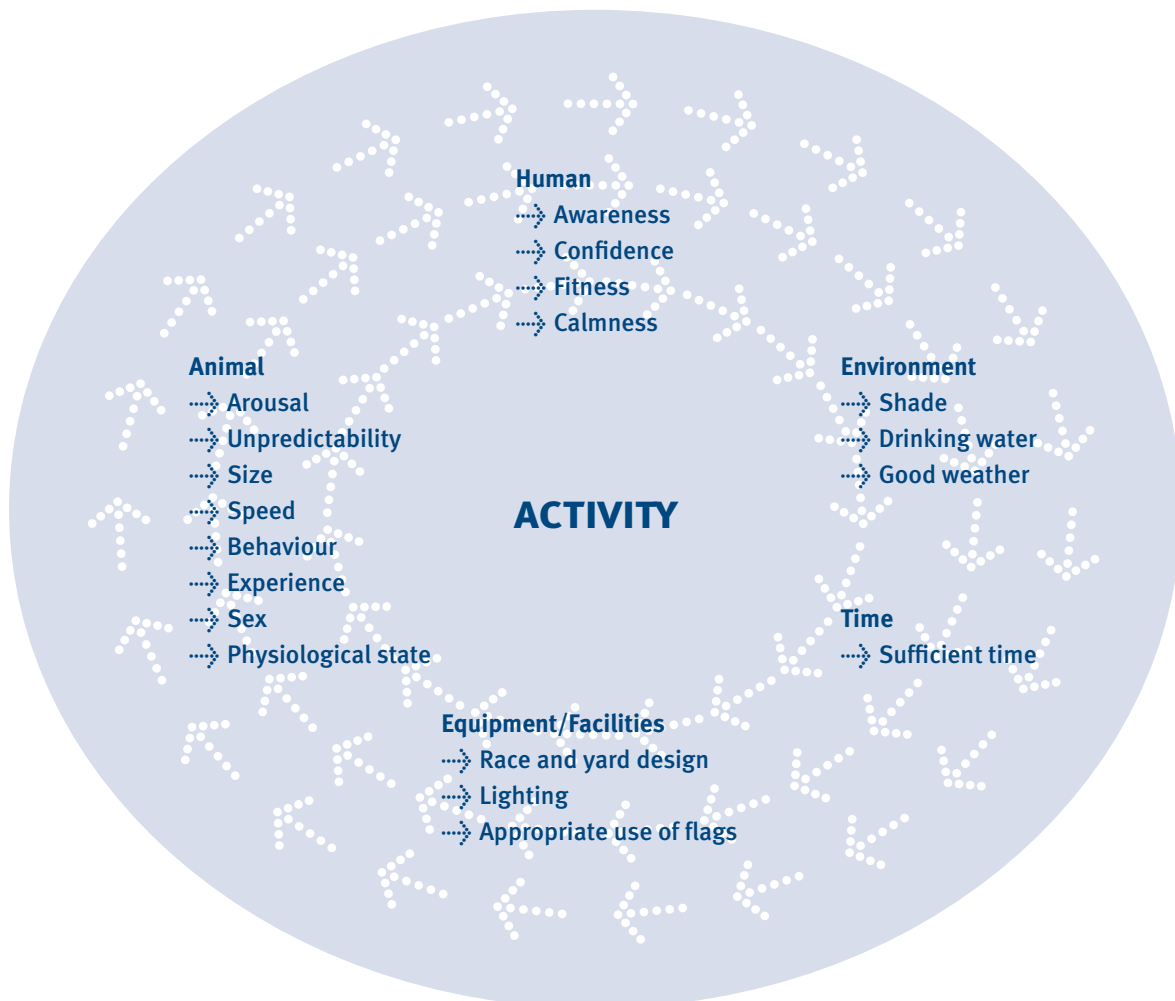
Cattle handling skills are essential for managing cattle. Good cattle handlers learn these skills through observation and trial and error. Good cattle handling saves time and effort, and reduces stress for people and animals. Inefficient and rough handling causes financial losses because of bruising, poorer meat quality and lower milk production.

Working with cattle may be dangerous, especially in yards, races and dairy sheds where people and cattle are close together. High risk activities include working with bulls and with cows and newborn calves.

Many farmers sustain minor injuries while working with cattle. Common injuries include cuts, bruises, fractures, sprains and strains. Serious injuries cost farmers in lost time, additional help and many other ways. Financial costs alone are large.

This handbook has been produced to help young farmers and veterinary and agricultural students understand the factors involved in safe cattle handling. It is not designed to replace practical experience and observation, but should reinforce lessons learned in paddocks and yards. The information in this handbook is not new. It has been gathered by cattle handlers over many years.

## THE COMPONENTS OF GOOD CATTLE HANDLING



# → BEHAVIOUR AND TEMPERAMENT

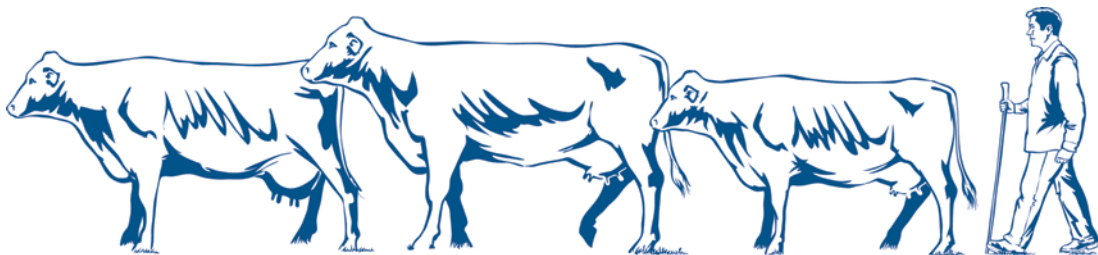
## The social structure

Cattle are social animals used to living in herds. They are easier to move in groups. They do not like to be isolated. Cattle may become stressed and dangerous when they are separated from the herd. Cattle should always be able to see another member of the herd. They will follow a leader through yards, even in single file, without being stressed, as long as they can see the beast in front. Individuals that break away will usually rejoin the herd, given time and space.

Cattle live in social hierarchy with dominant and subordinate animals. People usually behave as the most dominant animal by forcing cattle to move, restricting movement and controlling access to feed. Handlers need to be confident and to establish authority from the start so that the cattle know who is boss.

The leader cattle are not always the dominant animals. Cows coming in for milking are led by middle-ranking cows, who are followed by the dominant animals and then the lowest-ranking animals. Forcing the hindmost animals along will not necessarily speed up the movement of cattle, as the dominant animals will not be forced by their subordinates.

**FIGURE 1 – SOCIAL HIERARCHY – MIDDLE-RANKING DAIRY COWS LEAD THE HERD FOLLOWED BY HIGH-RANKING AND THEN LOW-RANKING ANIMALS**



Cattle behaviour in yards is influenced by rank. Low-ranking animals may try to avoid dominant animals. Dominant cattle may turn and attack subordinate animals and as the defeated animal escapes it may run over the handler. The dominant cattle in a mob may stay as far away from people as possible.

## Aggressive behaviour

Wild cattle were prey for wolves. They reacted to wolves by running away, kicking as they ran if the wolves were close, or by turning and fighting by butting and goring. Under some circumstances they responded by remaining immobile until the danger disappeared. Domesticated cattle retain these characteristics and are capable of defending themselves by using their head to bunt, their horns to gore and their legs to kick.

Cattle regard people either as predators, as cattle, or as irrelevant features of the environment. People chasing cattle imitate the behaviour of wolves and engender fear. Young cattle should not be chased but should be moved slowly, using their working distance (the distance at which cattle start to move away from people).

Stationary cattle can kick forward to their shoulder and outward with their hind legs. Moving cattle usually kick directly backwards. The safest place when handling cattle is either close up against the beast or at a

distance greater than the animal can kick. It is important to identify an escape route when closing in on cattle.

The size and speed of these animals mean that getting in close contact is always potentially dangerous. However, when you are close to a cattle beast the power of a kick is reduced and becomes more of a push. A gentle touch and soothing words may calm an animal down.

Good control requires that cattle regard people as dominant members of the herd.

**FIGURE 2 – ESCAPE ROUTE**



## Temperament

Cattle temperament varies widely. There are differences between breeds, but within any mob of cattle there will be flighty and docile animals.

A cattle beast's previous experiences will influence its temperament. Gentle handling in the first months of life makes calves more amenable to handling as adults. Whenever possible, calves should be reared close to the homestead and people should walk among them frequently so they become familiar with people and do not fear them. Dairy replacement heifers should be singled out for frequent gentle handling.

Cattle retain memories of painful or unpleasant experiences and will learn to discriminate between people who treat them badly or gently. Easily handled cows will probably rear easily handled calves. It is important to handle cattle gently during traumatic experiences such as birth, weaning or first milking.

There are differences in the temperament of the various classes of stock. Steers, heifers and dry cows are generally more relaxed and easier to handle than bulls or cows with calves.

Bulls reared in isolation are more dangerous than bulls reared and managed in mobs. Young bulls are aggressively playful, but as they mature, especially if they are set stocked, they become territorial and may attack anyone or anything entering their territory. Isolated set stocked dairy bulls used for breeding may become extremely territorial. This encourages them to attack their handler, and they may have to be moved using a tractor, dogs or after mixing with other cattle. They are dominant beasts and resent any interference.

Cows with calves are likely to become aggressive when protecting their young. This applies especially to beef cows, which are selected for good mothering ability. Dairy cows are selected for milk yield and letdown and this may select against mothering and calf protection. Nevertheless some dairy cows are very protective of their calves.

Within each mob of cattle there will be nervous or aggressive individuals that can easily upset the behaviour of the whole mob. Aggressive heifers in a dairy herd are usually culled during or after their first lactation. In beef herds, these heifers should be culled as soon as they are identified. Temperament is influenced by genes and aggressive cows may have aggressive calves.

## Does breed make a difference?

Dairy cows are much more docile than beef cows because of their breeding and regular handling. Jersey cows are sometimes considered more docile than Friesians. Bulls are quite the reverse – dairy bulls used for breeding are more aggressive than bulls of the beef breeds, and Jersey bulls are more dangerous than Friesian bulls.

Humped cattle like the Brahman breed can be very mobile if given space and a view of where to go. However, they are also more likely to lie down in a race if they are stressed (for example, by excessive use of an electric goad). Trying to make them get up will often be unsuccessful – they should be left alone and will eventually get up, often quite suddenly.

American research has shown that Brahman cattle are more difficult to draft out of a mob than British breeds, as they do not like to be isolated. Special circular drafting pens have been developed for these animals. If they are stressed or excited, Brahman cattle may swish their tail and may even charge fences and people. Brahman cattle have longer working (flight) distances than British breeds and require larger yards to avoid them becoming overexcited by people entering their working distance. The large European beef breeds are generally more excitable than British breeds.

Breed is only one factor influencing temperament. The way in which animals are reared and handled has a great influence on temperament. Even Brahman-type cattle can be very docile if handled correctly.

- Cattle are social animals.
- Cattle are easier to work in groups.
- Aggressive cows should be culled.
- Gentle handling of calves will improve their temperament as adults.
- Breed is only one factor influencing temperament.
- Cattle remember bad experiences.
- Bulls, and cows with newborn calves, may be dangerous.
- Make sure the cattle know you are the boss.

# → PERCEPTION

Cattle do not see, hear or smell the world as people do.

## Sight

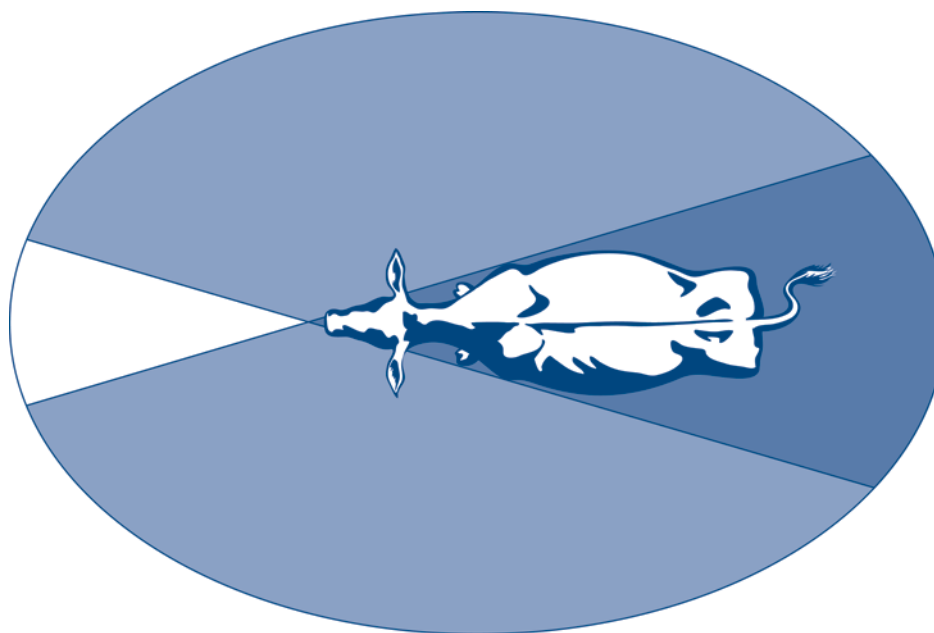
The eyes of cattle are located on the side of their head. This allows them to see through almost 360 degrees. Wild cattle were prey for wolves, so they needed to see in a wide arc to locate predators.

Cattle have binocular vision for a small angle (25 to 50 degrees) in front of them, where both eyes focus and perceive depth, distance and speed. However, they have monocular vision to the side, which only allows them to see movement. Any sudden movement in this zone may frighten the animal. If it is confident, it will turn to identify the movement and move towards it for closer investigation, using its eyes, nose and ears.

Cattle have a blind zone to their rear. Its size depends on whether the head is up or down.

Cattle see some colour but not nearly as much as people. They tend to move from dimly lit to more brightly lit areas, but will avoid very bright lights. Indoors, diffused lighting is best and dull colours are usually recommended.

**FIGURE 3 – VISUAL FIELD (SIGHT)**



When grazing, cattle have virtually 360 degrees vision. When they are alarmed they raise their heads to look around and can no longer see the ground binocularly. Things like a shadow or a piece of piping on the ground may frighten them, causing them to baulk (stop moving).

When their head is down in a race, cattle cannot see anything clearly around the tip of their nose and may baulk because of a shadow. Given time, they will identify whatever it is and move on. When they are moving along a race they may baulk at shadows, drains or changes in flooring texture because they cannot identify these as harmless.

Cattle look through the rails of yards, forcing pens and races and what they see will influence their behaviour. Good yards have boarding at a height so that cattle are blinkered. However cattle may settle more quickly if they can see relaxed animals in adjacent pens.

Cattle follow the leader and will baulk if they lose sight of them. For this reason, right angle turns are inappropriate in a race, which should curve gradually if animals are to keep the preceding animal in sight. Alternatively in parallel races cattle are drawn into a race when they see cattle moving out of the adjacent race.

## Hearing

Cattle are sensitive to high-frequency noises that people cannot hear. Sometimes cattle may be aroused by noises we cannot hear.

Steel yards are noisier than wooden yards and may be more irritating to cattle, causing their arousal level (a measure of cattle activity) to increase. As noise may cause cattle to baulk, it is important to pad where steel hits steel.

Music is used in dairy sheds and is believed to improve cattle (and human) behaviour. By maintaining a background noise, music may reduce the startling effect of sudden loud noises.

## Smell

Cattle have a better sense of smell than people. Some types of blood and bone meal have been identified as causing wild behaviour in cattle. Blood on the ground after dehorning or castration may cause cattle to become aroused and baulk at entering a crush or head bail.

## Touch

Cows groom their calves, an important activity in establishing and maintaining the relationship. Initial contact with a beast using a light rod to scratch its chest area and withers is a technique used to train show animals.

When first making contact it is a good idea to touch an animal with a stick or an outstretched hand from a safe distance. Its reaction will give an idea of how it is likely to react to closer contact. Talking to the beast will instil confidence in both human and animal.

Rubbing dairy replacement heifers in the udder area, as calves and when they are being trained in the dairy shed, is a comfortable contact that should reduce their fear when milked for the first few times. However it has been suggested that less fearful heifers may kick more during the first few milkings.

It is important that cattle know where handlers are: they are less likely to be startled and to kick out in fear or self defence. Cattle handlers should stay in the animal's vision area, avoid the blind spot and make some sort of noise. Talking helps cattle to locate the handler more effectively.

→ Cattle don't see like we do.

→ Music may reduce the likelihood of sudden noises startling cattle.

→ Use your voice to let cattle know where you are.

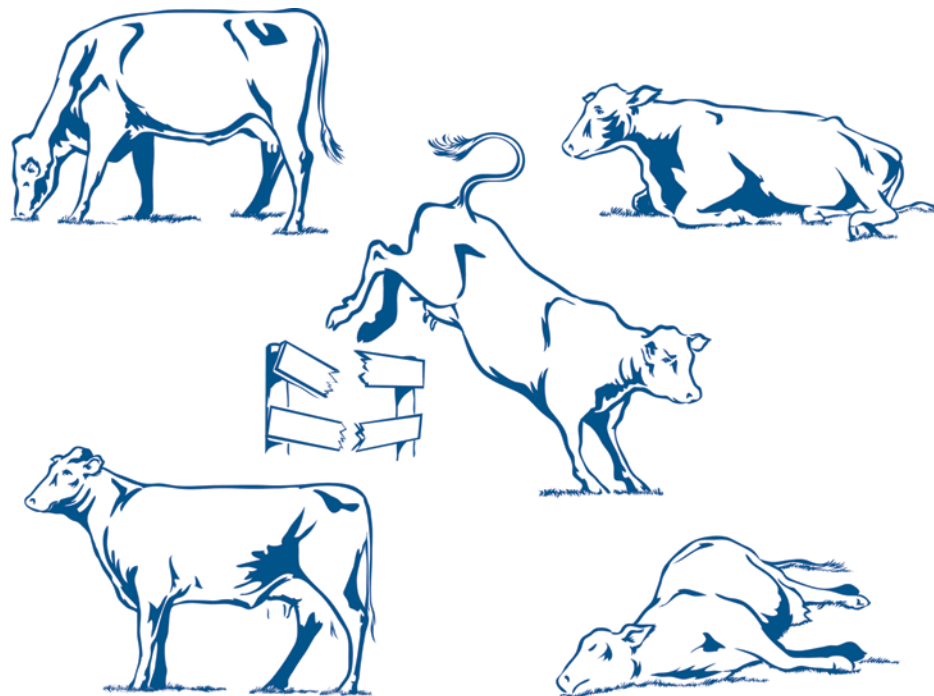
# → AROUSAL: THE SECRET TO SUCCESS

## Arousal

“Arousal” is a measure of cattle activity. It ranges from sleep (very low arousal) to maddened flight or fight (very high arousal). The arousal level must be raised to start cattle moving, but once they are mobile and collected together it should be allowed to decrease, especially when cattle are in yards.

Cattle move away from people because they have been aroused by fear. The higher the arousal level, the faster they move away. The arousal level is influenced by how severe and how close the threat is. Highly aroused cattle are indifferent to everything in their way and will do anything to escape. They become dangerous and will attack people or dogs.

**FIGURE 4 – STATES OF AROUSAL**



Arousal is increased by:

- hunger
- sexual activity
- noise, shouting
- dogs barking or biting
- beating
- stockwhip noises
- electric prods
- painful, novel or strange things.

Arousal is reduced by:

- familiarity
- dim light
- low-frequency sounds
- stroking
- rhythmical sounds
- music
- silence
- familiar people.

Any noise used to increase arousal will become useless if it is used too much. Cattle become used to it (habituate) and then ignore it. It is important that handlers change their voices when moving stock to keep them aroused. Changing voice levels and depth can be used to increase or decrease arousal levels.

## Managing arousal levels

Cattle driven into yards are often highly aroused. Arousal levels increase rapidly (within seconds or minutes) but take much longer to decrease. However, if cattle are left alone for 20 to 30 minutes, they settle down and the arousal levels decline. They become easier and safer to handle. The cattle then become sensitive to quite mild stimulation and will work through yards with limited noise and fuss. It is good practice to move cattle through yards by making very little noise except at appropriate times.

Get to know the things that excite cattle. Do not overexcite them by beating or inappropriate shouting.

## Muster timing

It is best to muster in the morning after cattle have fed as hunger increases arousal. Full contented cattle lie down and chew cud; if moved into yards in this state and handled quietly they will do the same. Relaxed conditions allow for relaxed animals.

Horses are useful during mustering; they increase the perceived size and therefore the level of threat and are a good tool for increasing arousal. The sudden crack of a stockwhip is also useful to wake up and move cattle.

- Keep cattle calm. Overexcited cattle are difficult to handle.
- Use your voice to soothe and calm cattle.
- Keep your distance while moving cattle.
- Beating cattle will overexcite them.
- Give cattle time to settle when they come into yards.

# → WORKING DISTANCE: KEY TO CONTROLLED MOVEMENT

## Working (flight) distance

The working distance or zone is an important concept in cattle handling. It is the distance at which cattle start to move away from people.

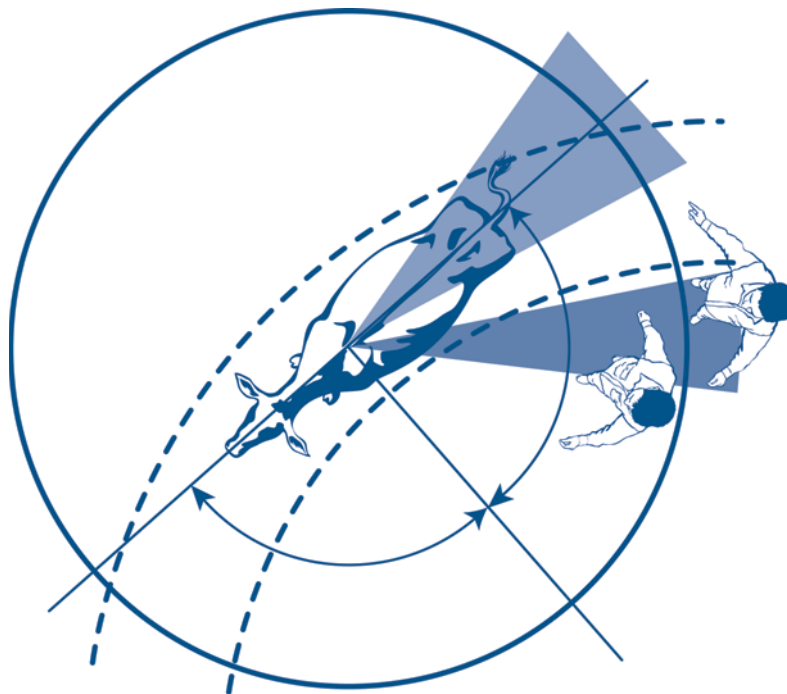
Dairy cows have a short working distance, usually less than five metres. They may have a zero working distance and allow people to touch them without moving away. Tame animals may confidently approach people. Beef cows, which are handled less frequently, have longer working distances; and wild beef cattle may have working distances of more than 100 metres.

The working distance is reduced by frequent gentle handling. This allows the animal to get used to people and recognise that they are not especially unpleasant.

Cattle handlers move in and out of the working distance when mustering and driving cattle. Moving inside the working distance will move cattle away; the further in, the higher the arousal and the faster the movement. Going too far inside the working distance will cause cattle to scatter: the mob may break up or individuals break away.

Moving out of the working distance will slow cattle down and they will become less aroused. Use the working distance like an accelerator pedal.

**FIGURE 5 – WORKING (FLIGHT) DISTANCE**



## Individual distance

Each beast has an individual distance, which may be imagined as a bubble around their head. Cattle like to keep other cattle and people outside their individual distance. Dairy beef bulls going through a gate will try to maintain their individual distance (about six metres); when another animal enters it they turn to fight.

The individual distance is invaded during any human activity around the animal's head, such as drenching and dehorning. This significantly increases the animal's arousal level.

A person looking down on an animal's head in a race may stimulate the animal to lift its head quickly and cause facial injuries. Cattle handlers should not bend down under a cross-tie to treat or examine an animal – if it jerks its head upwards they may be caught between the beast and the cross-tie.

## Social distance

The social distance is the maximum distance an animal will move from its herdmates before it turns and moves to rejoin them. It is best to stand back and allow it to do so.

When drafting cattle it is recommended to separate the two mobs by a good fence, through which they can see and remain close to one another. The two mobs will eventually drift away and start grazing. Moving cattle some distance away from each other immediately after drafting may stimulate them to rejoin their herdmates through fences and gates.

- Use the working distance like an accelerator pedal.
- Keep your distance – getting too close to cattle may cause them to scatter.
- Work at the edge of the working distance.

# → BALANCE POINTS: KEY TO DIRECTION

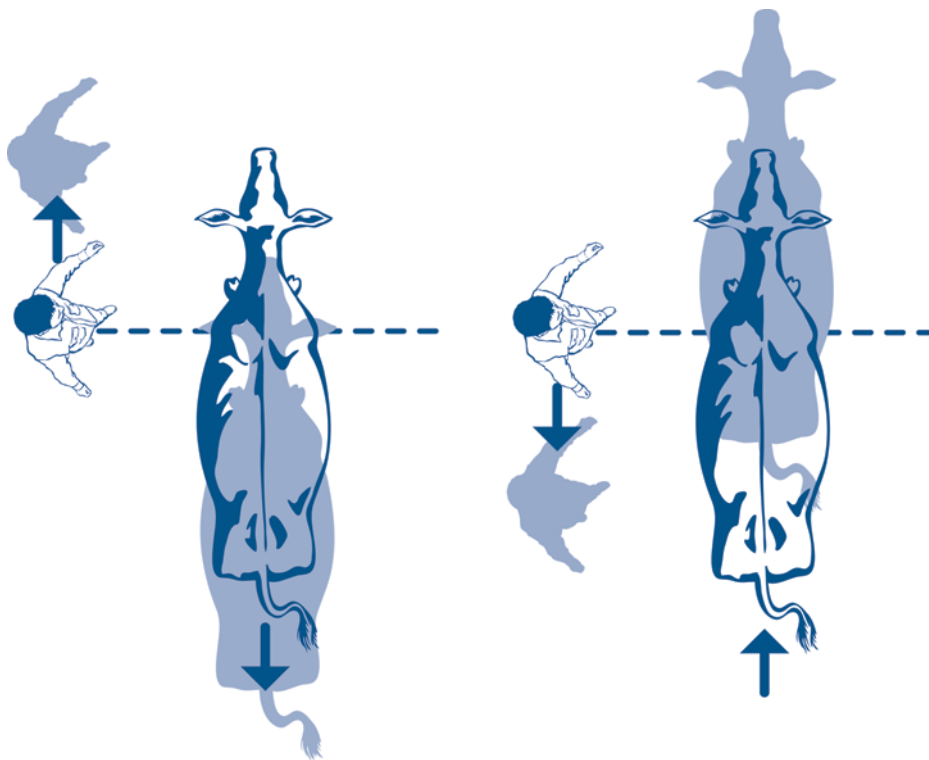
## Movement

Position and movement are keys to moving cattle effectively. The location of a person or dog will determine where cattle will not go, and movement into and out of working distance will determine speed of movement. Using body position and movement will help determine where cattle can move.

Cattle have two lines of balance that control the direction in which they move when responding to a handler. One line is across the shoulders and the other is along the length of the backbone.

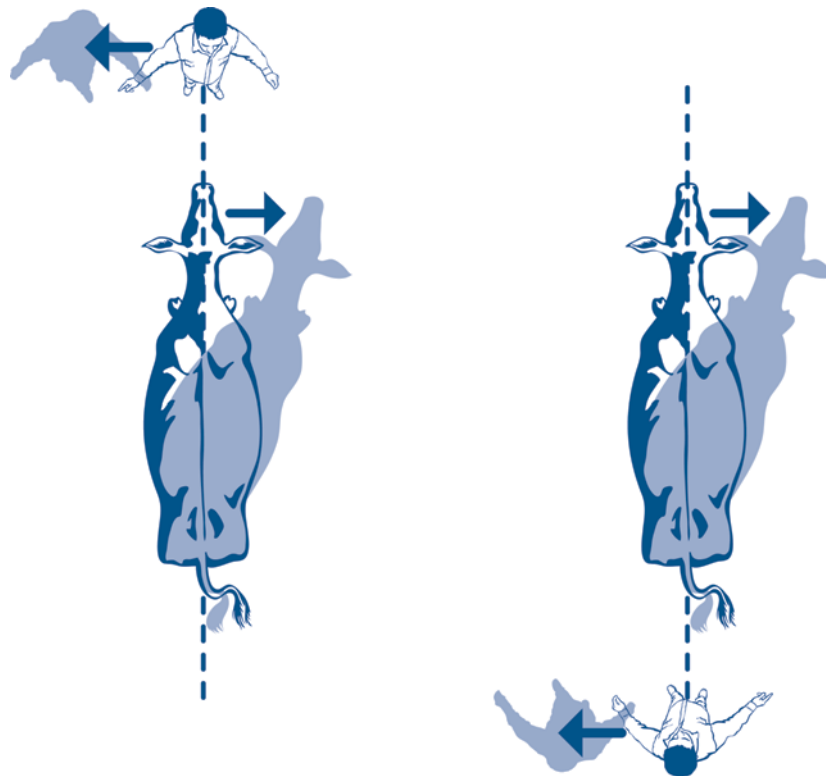
Whichever way people move through these lines, the beast will go the other way. Moving backwards through the shoulder balance line stimulates the animal to move forward. Moving forward through the shoulder balance line towards the head stimulates it to move backwards or to turn and move away.

**FIGURE 6 – BALANCE POINT – SHOULDER BALANCE LINE**



Moving to the left of the backbone balance line stimulates the cattle beast to move to the right and vice versa. This happens regardless of whether the handler is to the animal's front or rear.

FIGURE 7 – BALANCE POINT – BACKBONE BALANCE LINE



It is easier to get cattle to move if the handler moves through the balance points. Handlers on a catwalk, walking from the front to the rear of a race of cattle, go through each animal's shoulder balance line and stimulate them to move forward.

Balance points are most effective if a handler moves through them.

The balance lines of the animals closest to the handler are important when mustering.

Knowing the factors influencing arousal and movement will increase the handler's ability to predict what cattle will do.

- Learn to balance yourself on stock.
- Use balance points by moving through them.
- Keep an eye on what is going on around you.

# → TEACHING CATTLE BEHAVIOUR

## Learning

Cattle learn from experience and can be trained to move smoothly into and through yards and dairy sheds.

Calves learn from their mothers, so if cows can be yarded easily it is likely their calves will also. However, cattle learn to regard yarding as unpleasant because of its association with events such as castration, weaning, drenching, pregnancy testing and vaccination. It is important to make the yarding experience as pleasant as possible. For example, feeding some hay after treatment may make working with cattle in yards easier.

It is especially important to handle calves gently during the more traumatic experiences such as weaning and castration. Chasing young cattle will encourage them to think of people as predators rather than dominant members of the cow herd. This will make future mustering and yarding more difficult. However, calves must learn who is boss.

Cattle handlers should rear replacement dairy heifer calves close to the homestead and walk among them frequently so they learn to tolerate people. Dairy heifers should be moved into the dairy shed with some older, gentle cows several times before they calve. During this time they should have their udders massaged, as this may reduce stress during initial milking. Calving heifers before the cows allows some training time.

The first milking experience will influence the heifer's attitude, so it is important to be gentle and careful. Many injuries occur because heifers misbehave in the dairy shed. If milking is unpleasant because of the shed design, machine problems or bullying by other cows, heifers will take longer to settle into a pleasant routine. They may produce less milk.

Walking among beef cows and their calves will teach them that people are not animals to be avoided and feared. This will become obvious when they are mustered and yarded. It is a good idea to move young beefstock through the yards a few times to get them used to it.

Cattle learn to avoid painful equipment. They will identify headbails as something that causes pain on closure and will resist putting their head into them. They will avoid entering a race where they have been recently dehorned. Repeated painful experiences in a yard will teach them to resist being yarded. However, as beef cattle are yarded infrequently they may not learn this habit.

- Cattle learn from experience.
- Gentle handling of calves should result in easy-to-handle cows.
- Make yarding as pleasant as possible.
- Cattle learn to avoid places where they have been hurt.

## → BULL BEHAVIOUR

All bulls are potential killers and most fatalities attributed to cattle are caused by bulls.

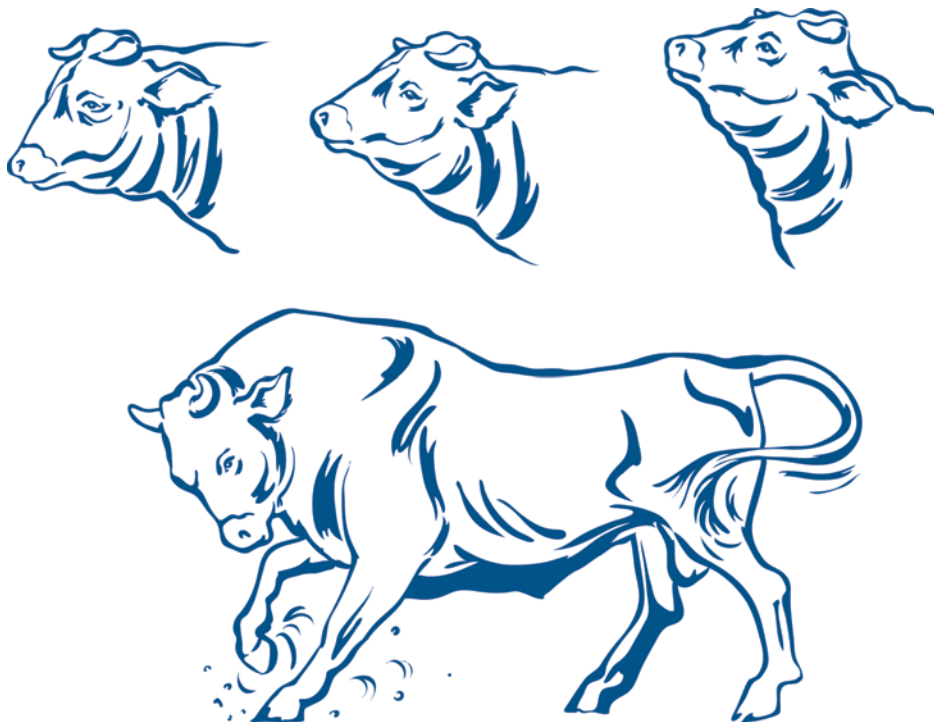
Dairy bulls, particularly Jersey bulls, are more dangerous than bulls of the British beef breeds. Bulls of European beef breeds may be as dangerous as dairy bulls. All bulls become more dangerous as they age.

A bull's temperament changes as it matures, from playful aggression as a yearling to territorial, defensive aggression as a five-year-old. These changes are influenced by management. Bulls reared and held in isolation are more likely to be dangerously territorial than those reared and managed in a team.

Beef bulls are usually managed in teams and develop their own hierarchy. They ignore people to a great extent and move away from them when being shifted to another paddock or into yards. However, beef bulls may resent being moved from their cow herd and will attempt to return. Cows should be moved away from the bull, rather than vice versa.

Dairy bulls are often reared and managed in isolation. They are often set stocked for long periods of time and develop a territorial possessiveness of their paddock. This means they may attack intruders – bulls, people or even dogs. They signal this territorial behaviour by digging and behaving aggressively (by pawing, bellowing, throwing dirt in the air, rubbing dirt and standing broadside to their handler).

**FIGURE 8 – BULL COMMUNICATION**



Dairy bulls reared for beef will fight among themselves and sometimes ride one another. However, they are usually slaughtered before they become aggressive towards humans. In addition they are usually rotationally grazed and so do not become territorial. Their fighting is playful, but they may inflict severe injuries on one another and to any people who get in the way. Mobs of bulls should not be mixed, nor bulls added to established mobs, as this will cause fighting. During fighting a defeated bull may run over a handler when it is escaping.

All bulls should be dehorned. Dairy bulls should be shifted regularly to prevent strong territorial behaviour developing, and have a companion steer or dry cow. People should not interfere when a bull is guarding a cow coming into heat (oestrous) or mating. High libido bulls are the more dangerous.

Aroused, aggressive bulls may attack handlers who lack confidence and do not demonstrate enough dominance. Aroused, aggressive bulls may attack horses, motorbikes and even tractors. Individual bulls showing signs of aggression should never be moved on foot. They should be moved by either bringing in a group of steers or cows, or using a tractor or a dog. A dangerous bull should not be handled alone.

When moving bulls, a long, strong stick should be used for defence, and an escape route always identified. If mature bulls become aroused and dangerous, get out of the way quickly. If cornered by a bull, it is best to shout at it and beat it with a stick on the nose, retreating slowly and eyeing it until escape is possible.

Moving bulls should be kept at a trot until they are well inside the new paddock. They will then spread out and start grazing. If driven just inside the gate they may start to fight.

Bulls have large individual distances (about six metres) and will fight when forced together as they move through gates or are held in yards. If they do fight, people should keep out of the way.

When moving dangerous bulls it is important to have someone to assist or at least observe.

⚠️ Never trust a bull – never turn your back on a bull.

⚠️ Dairy bulls are particularly dangerous.

⚠️ Bulls can kill people.

## → COWS AND CALVES

It is natural for a cow to protect its calf. Dairy cows have been bred for milk production and their determination to protect their calf from interference is much weaker than in beef cows who are selected for good mothering ability. Nevertheless, all cows with calves should be respected.

Cattle handlers who have caught a calf should keep it between them and the cow. This is not 100% safe but may reduce the likelihood of the cow attacking. Fences may be used as protection against cows. Some beef cows will go through anything to get to a bawling calf. It is important to keep the calf's mouth shut to stop it bawling.

A strong stick should be kept for self protection when dealing with cows with young calves. Identify possible escape routes. Horned cows are especially dangerous.

Dogs may divert the cow's attention but will also raise the cow's arousal levels and may provoke an attack. It may be best to handle cows and calves without a dog, but there are numerous reports of dogs saving injured people by drawing the cow away.

When cows with calves are being mustered they should be moved gently and given time to mob up and move away. Cows hide their very young calves and graze away from them, coming back to feed them about every four hours. They should be given time to pick up their calves before moving. Some individual cows are particularly dangerous, but this usually lasts for only a few days after calving.

→ Keep the calf between you and the cow.

→ Keep the calf's mouth shut to stop it bawling.

# HEIFER BEHAVIOUR

Replacement dairy heifer calves should be handled gently during the first few months of life to make them used to human contact. If possible disbudding should be carried out by a stranger who will not work with the calves again.

Dairy calves should be trained to follow people, the ATV and calfeteria, and respond to calling when being moved to fresh pastures. In future they will move without having to be driven. Feeding is a powerful reward.

Before calving, heifers should be moved through the dairy shed a few times with some old cows. Old cows are usually dropping down the hierarchy and are not as threatening to heifers.

Heifers being kept on a runoff or being grown out by someone else should be brought home a few days early for training. However, heifer calves can be run through the shed even before they are moved off the home farm, to teach them that it is a pleasant environment.

Dairy heifer calves should never be chased.

When heifers are calving they are very sensitive to good and bad handling. When they are milked for the first time, they should be moved into the shed quietly: a holding bar may be useful to keep them in position. It is recommended to handle the udder (now full of milk and tender) gently and slowly. The tail should be held, the udder and teats massaged and the teat cups eased on carefully. If the heifer objects, another person can do a tail jack, which can be relaxed as the heifer settles down. An anti-kick device or a rope tie may be useful during the first few milkings. It is important to remain calm and collected: a milker's violent behaviour will not make the heifer any more confident. Providing food may be a useful way of making the milking process more pleasant for heifers.

Chronic bad behaviour is a good reason for culling a heifer. A surly heifer will sour the milker's humour, affecting the rest of the cows and reducing their contentment and milk yield. However, remember heifers are more sensitive to stray voltage because they have thinner and softer feet.

→ Calving heifers are very sensitive to handling.

→ Remain calm and collected when milking heifers.

→ Cull nervous or aggressive heifers.

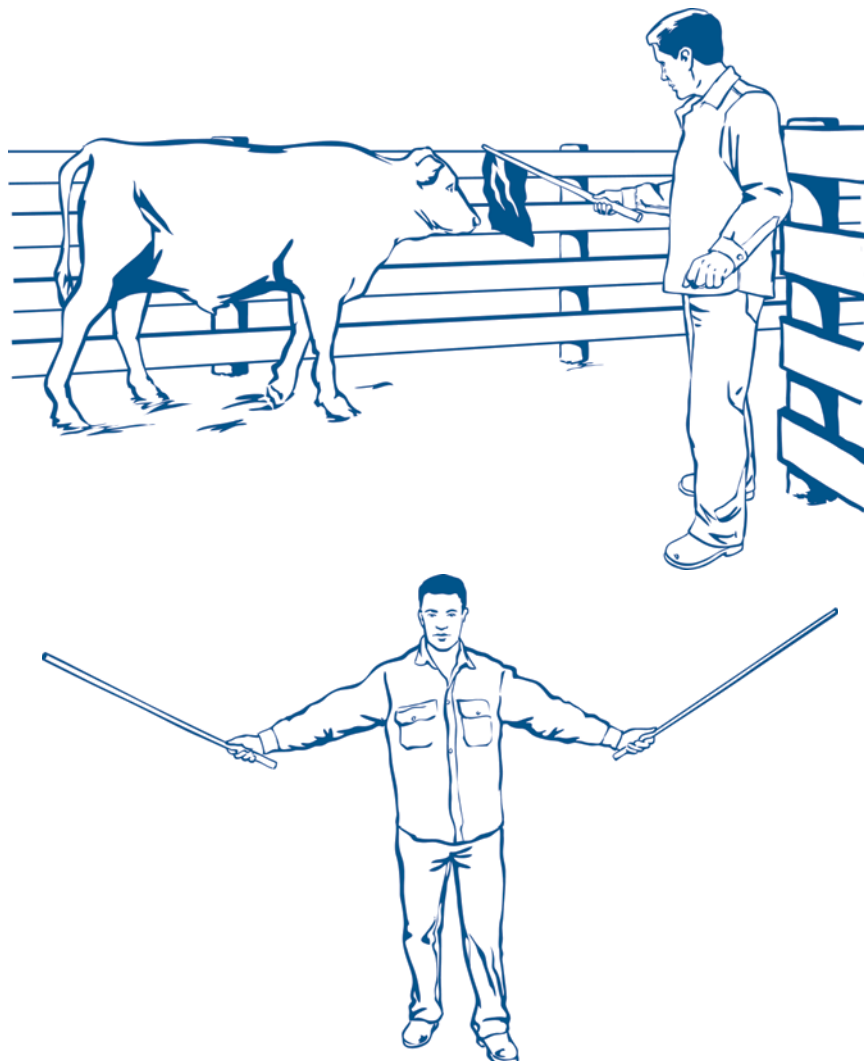
## Equipment

Cattle handlers use a range of equipment, including:

- alkathene piping, sticks, flags, canvas flappers and electric goads to direct cattle and encourage movement
- nose grips, ropes, anti-kicking devices, halters, head bails and crushes to restrain animals
- motorbikes, ATVs, tractors, utes, dogs and horses to muster and feed out.

Piping and sticks increase the handler's profile and allow them to control a greater area. A long stick or length of alkathene piping allows contact with cattle from a distance, and a flag tied to the end of the stick increases its size and effectiveness. Piping and sticks are not to be used for beating cattle; they are arm extensions.

**FIGURE 9 – USE OF FLAGS AND PIPING FOR CONTROL**



Cattle move with the middle-ranking animals first, the dominant ones in the middle and the lower-ranking cattle to the rear. Beating cattle at the back of a large mob will do little to speed up movement, as those at the front are not affected. Forcing the cattle at the rear causes foot injury because they have their heads in the air and cannot see where they are placing their feet. The feet may land on stones causing bruising and lameness.

Sticks are used as extensions of the arm to direct cattle. They should not be used to inflict pain. Beating cattle is stupid and has little effect except to arouse cattle to a point where they become dangerously overactive. It also causes bruising. Sticks should be used in the forcing pen to move into and out of the working distance and through the balance points. This will point cattle in the right direction and get them to move into the race. A slap on the nose may be necessary to move a beast backwards at the race entrance or in a race itself. However covering the animal's eyes with a flag may also move it backwards. Electric prodders should be used sparingly.

## Footwear and clothing

Foot injuries make up a large percentage of the injuries sustained during cattle handling, so it is important to keep feet out of the way. Being trodden on is particularly common while drenching in a race or when forcing cattle into or up a race.

Jandals have no place in cattle yards.

Stout leather boots with steel caps are recommended, but many injuries affect the foot behind the toe guard. Rubber gumboots offer limited protection unless they have steel toe caps. Heavy boots reduce mobility because of their weight.

A good pair of pants and leggings may reduce the severity of injury sustained when kicked on the legs.

Wristwatches and bracelets should be removed before starting to work cattle in yards.

## Dogs

Only well trained dogs should be used for cattle work. They may be used in mustering but should be tied up away from the cattle yards once cattle are in the yards, as they increase cattle arousal and make the situation more dangerous and less efficient. If a dog is to be used in yards it should be under control and not too noisy.

Dogs are useful when moving an aggressive bull as they act as a decoy if the bull becomes dangerous. There have been a number of incidents where dogs have drawn or driven a bull or a cow away after they have attacked a handler.

When moving cows with calves the dog should work just outside the working distance. If it gets too close the cows will turn and fight it. Dry cattle generally move well in response to a dog.

Tractors are useful for moving dangerous bulls. Horses also act as good stimulants to get cattle moving. Some cattle dislike motorbikes and will attack them. Nowadays however, motorbikes and ATVs are commonly used to muster cattle without danger as cattle have become used to them.

The stance of the human body can be used to influence cattle; a full frontal aspect is domineering and positive, the side profile is less threatening but protects sensitive body parts. Stock may ignore or actively follow a person who has their back turned.

## Human behaviour

A good cattle handler knows about stock management (nutrition, health, husbandry) and has an attitude that allows them to understand stock. Attitude and knowledge are key components to being a successful cattle handler.

Good cattle handlers:

- are alert
- are aware of what is happening among stock
- make decisions and act on them quickly and firmly
- predict what cattle are likely to do
- think like an animal
- stop problems developing
- move quickly when required
- allow time for things to settle down.

Psychologists have identified the best people to work in a dairy shed as introverted and confident. These people get cows to produce more milk. Cows will approach them and are relaxed in the dairy shed.

Good cattle handlers have confidence in their animals. They are relaxed and allow enough time to carry out their work. They slow down to speed things up. They do not get angry, frustrated or violent with stock.

People's attitudes are influenced by financial and personal pressures, their confidence and the circumstances under which they are working. Attitudes deteriorate when working conditions are poor, when the weather is bad and there is too little time and too much to do. The ever-increasing number of stock units an individual farmer has to manage to survive means greater pressure, which may result in frustration, poor stock handling practice and injury.

## Preparation

Identifying hazards is an important part of injury prevention. Once serious hazards have been identified, it is easy to plan activity to reduce injuries.

- Identify problems previously experienced when mustering particular paddocks or mobs.
- Identify areas in the yards or races where cattle balk. Identify dangerous areas or activities in yards or dairy shed.
- Identify areas needing maintenance. A gate may not swing or close smoothly, or the head bail may need an overhaul or lubrication. Because yards for beef cattle may be used infrequently they often deteriorate between use. Check for rotten timbers. Check and remove projections (nails, bolts) which may cause hide damage.
- Correct obvious problem areas – modify yards as appropriate.
- Plan to reduce problems during mustering or yarding.
- Plan ahead – this will help to increase confidence.
- Allow enough time for the proposed activity.
- Check the equipment (drenching guns, balling gun or syringes).
- Work in pairs when mustering and working beef cattle or bulls. Having company promotes confidence.
- Rear cattle that are easy to handle – a long-term target that will make life easier.
- The best piece of equipment is your voice – use it to soothe and to calm, to assert authority, and to let cattle know where you are.
- Train staff to become better cattle handlers.
- Good cattle work well in bad yards – bad cattle are bad in good yards.
- Beating cattle stirs them up and makes them dangerous and more difficult to handle.
- Beating tail-enders in a mob is futile.
- Sticks are not for beating cattle.

# ➤ MUSTERING AND DRAFTING

## Mustering

Preparation is the key to successful mustering. The route should be prepared before moving cattle by opening gates along the way and identifying locations where cattle may break away.

Beef cattle may be mustered from horseback. Cattle are intimidated by the large size of horses and move away from them.

The arousal level of cattle must be raised when starting to move and group them up. Stockwhips and dogs are useful but cows with calves should be handled gently, preferably without dogs. Silent, biting dogs are better than barking dogs in this situation. It is best not to muster beef cows with very young calves, as they may be moved without their calves and become very aggressive when they try to return to look for them. Cows and calves should be moved slowly.

Cattle feed in the early morning and are best moved after they finish feeding. Windy weather seems to agitate cattle and make controlled mustering more difficult. Hot days may cause some heat stress.

The animals' working distance should be used to get cattle moving at an easy pace. Cattle handlers should keep at the fringe for the working distance.

When moving, a few individual beasts will take up a leadership role. If these leaders are quiet and easygoing, mustering and droving are straightforward. However, nervous or aggressive leaders may make droving difficult. During cattle drives in the American West, these nervous leader cows were shot until easygoing cattle took over as leaders. In New Zealand it may be useful to cull poor leader cows with the hope that their replacements will be more even-tempered. There may be only one poor leader involved.

Gates should be located at the top of a rise rather than the bottom, and entry to yards should be wide, along a fence line and either on the level or uphill. When entering yards cattle should not have to move into the sun. If possible the view through the entrance gate should be of a paddock at the other side of the yards.

It is important not to force the hindmost dairy cows along the race to milking. Pressure on the hindmost animals will not accelerate the leaders, which are buffered by the more dominant cows. The cows to the rear will lose their footing and injure their feet, possibly resulting in lameness.

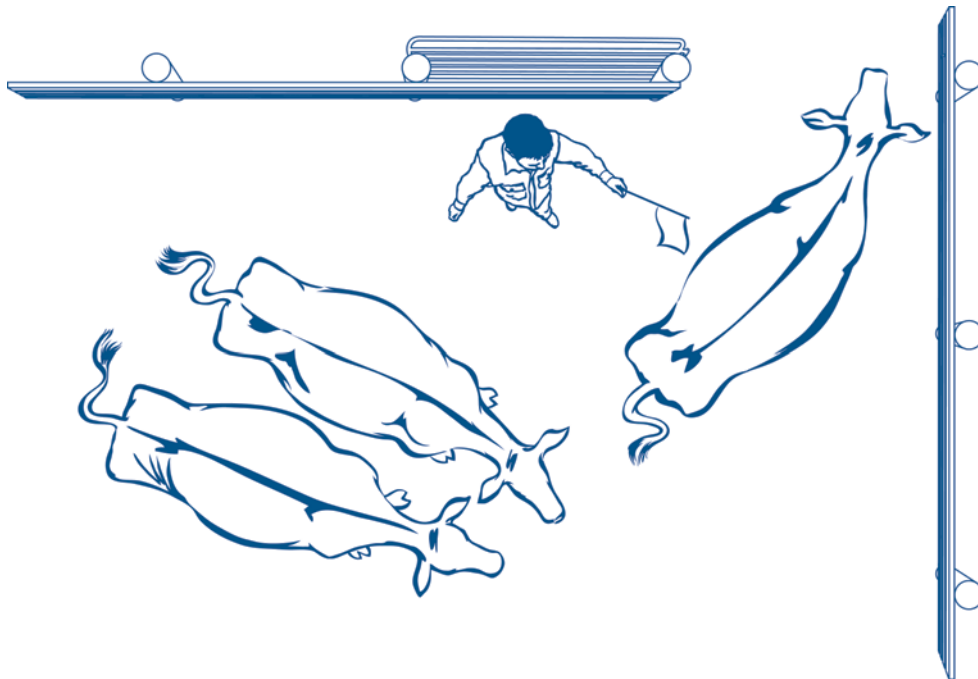
## Drafting

Drafting requires slow, deliberate movement, the astute and restrained use of alkathene piping, and quite definite action when the animal to be drafted is headed towards the gate. The arousal level should be kept low.

Quiet animals should be drafted from more active or nervous animals (cows from bulls). The excitable cattle tend to stay as far from the drafter as possible, which helps when drafting the quiet stock. It is usually easier to draft beef cows from their calves because the cows have learned to respond to the handler and will go through a gate quite easily. However, sometimes it may be easier to draft calves from cows.

Drafting through gates is a two-person job. Experience is valuable as too much noise or activity will lift the arousal levels and animals may charge through the drafter, kicking back or pushing the gate.

**FIGURE 10 – DRAFTING**



Cattle should be drafted from small mobs. The pen should be about half full to allow room for cattle to be moved away and directed towards the drafting gate.

Cattle may be incorrectly drafted. The pen should be finished before drafting out the mistakes. Alkathene pipe with flags may be useful in drafting stock, as they increase the visible barrier.

Humped cattle such as Brahmans like to remain in the mob and may be difficult to draft using the conventional gate system.

- Draft quiet cattle from excitable cattle.
- Draft from small mobs – the pen should be about half full.
- If you make a mistake wait until the draft is finished to correct it.
- After drafting let the two mobs see each other for some time. They may gradually drift away to feed.

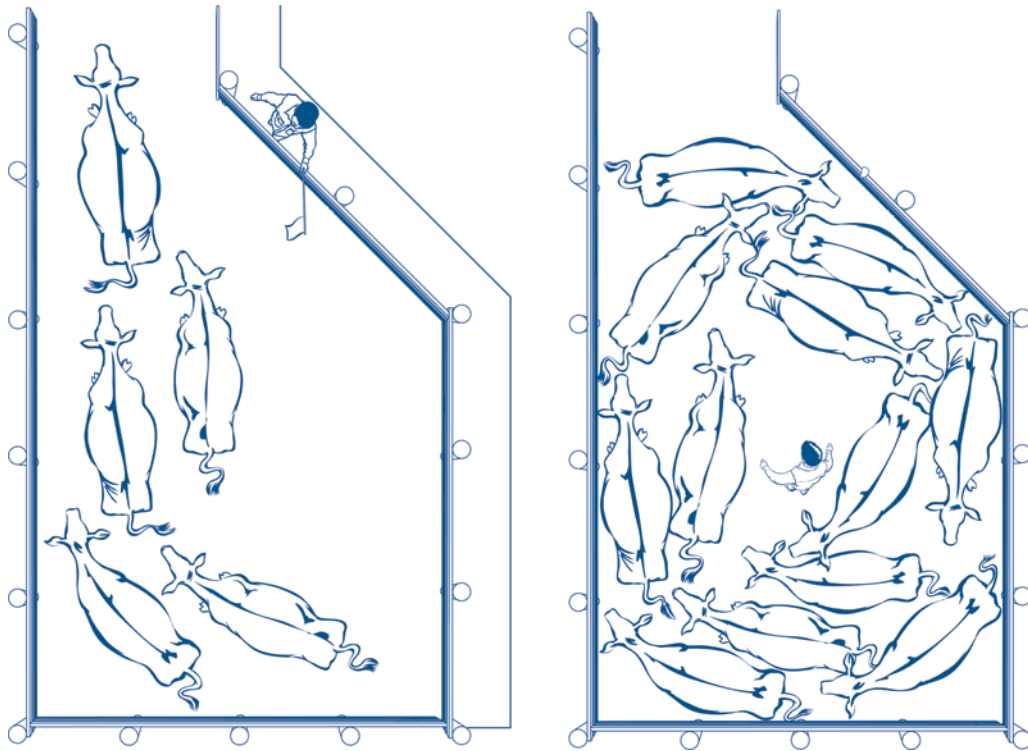
# WORKING CATTLE THROUGH YARDS

## Yarding

Cattle moved into yards will be moderately aroused and should be allowed 20 to 30 minutes to settle down. Cattle should move quietly through yards with minimum noise and no beating with sticks or alkathene piping. Electric prods should not be used.

The forcing pen should be half to three-quarters full, allowing cattle plenty of room to orient themselves towards the race entrance. A full forcing pen makes it difficult to move cattle in the correct direction and they may be packed facing away from the race. This usually results in pointless beating and both cattle and people becoming unnecessarily agitated.

**FIGURE 11 – FORCING PEN – HALF FULL AND PACKED**



Beating causes pain, so cattle become highly aroused and unpredictable. Beating also causes bruising and carcasses may have to be trimmed after slaughter, which results in a financial loss to the farmer. Beating brutalises the whole procedure and makes yarding unpleasant for cattle. It does not make yard work easier in the short or long-term.

A catwalk alongside the forcing pen makes life considerably safer. Cattle handlers working in the forcing pen should use a long stick to direct and move cattle from a safe distance. An occasional poke with the stick will encourage them to move.

## Race

Cattle should be packed as tight as possible in the race. A self-closing latch on the backing gate or a self-closing gate makes it safer and easier. Packed-tight cattle will usually hold their heads up – an advantage when drenching, as lowering the head under the preceding animal means the head has to be lifted again. The cattle can be loosened up by letting one animal back through the backing gate then getting the head up before tightening the cattle up again.

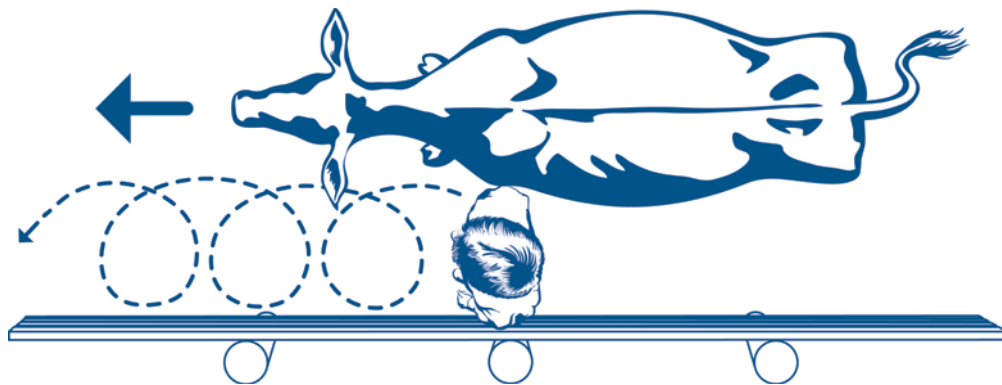
When cattle are packed tight they cannot move back and forth and the frustrations of drenching or injecting moving cattle are avoided. As moving cattle can cause injuries cattle handlers should not poke heads or limbs through the boarding into the race. Reversing cattle will not see properly or may not be able to stop because of pressure from cattle in front.

If an animal attempts to escape over the race wall it is usually better to give it space and let it get out. Trying to force it back will excite it further and it may get a leg stuck or fall over backwards and get jammed in the race.

The fewer people in yards the better. Children should not be allowed in yards and around races. Cattle handlers should only work in the race with small cattle (less than a year old). Large cattle can roll people along the race wall or crush them against it. When packing a race people should work from front to back – this helps to tighten cattle up. Gates are useful in a long race to maintain packing.

Do not work in a race with large cattle. They may crush you against the sides.

**FIGURE 12 – MOVEMENT IN A RACE**



Do not work through the sides of the race. Moving cattle may easily break an arm or injure your fingers.

It is best to work from a catwalk, with due care – leaning over the head of a beast to eartag or inject it may cause it to swing up suddenly and injure the face. Cattle handlers should not lean over cattle beneath a cross tie.

The tail of a stubborn beast can be bent or twisted to encourage it to move forward, an effective method that does not arouse the rest of the cattle. Care must be taken not to damage the tail. Do not beat a beast, it is counterproductive and will disturb all the other animals in a race or pen.

Cattle may be encouraged to move backwards by moving a flag over their head or waving a stick in front of them.

In a dangerous situation it is best to turn side-on to the animal. This presents a smaller profile, protects vulnerable parts of the body and, by reducing eye contact, is less threatening than a full frontal approach.

- Do not fill the forcing pen.
- Pack cattle tight in the race.
- Tie the dogs up away from the yards.
- Do not get into the race with large cattle.
- Do not work through the race walls.
- Use a catwalk whenever possible.
- To get cattle to move up a race, walk along the catwalk from front to back.
- Keep cattle moving. Cutting the flow reduces speed and causes baulking.

# → CATTLE YARDS: PRINCIPLES OF DESIGN

A large percentage of injuries occur when handling cattle in yards. Good, well designed and constructed yards make handling cattle more efficient, easier and safer.

## Location

Cattle move best through yards if they are going back towards the paddock. Yard design should have them moving away from the yard entrance in the holding pens and then turn back towards the entrance in the forcing pen and race. The race and loading ramp should be designed so that cattle do not move into direct sunlight.

Cattle move best on the level or uphill. Any yard slopes should be gentle to prevent the cattle piling up at one end of a pen. Good drainage is important; yards should be located so as to prevent paddock run-off flowing into them.

## Size

Cattle yard design should consider the numbers of cattle to be handled. An area of about 1.5 square metres per adult is recommended. A wooden or piped yard does not need to hold all the cattle at once – some can be held in holding paddocks as smaller mobs are taken out and moved through the yards proper.

Yard pens should be long and narrow to prevent stock milling around and to make it easier for one person to move stock along. Bugle-shaped races in a circular yard allow cattle to gradually thin down to one at the race entrance.

## Forcing pen

In rectangular yards, the forcing pen should be able to hold enough cattle to fill the race twice. The handler should be able to work cattle in the forcing pen from a catwalk. The forcing pen's maximum width should be three metres.

The angle leading from the forcing pen into the race should be at least 30 to 35 degrees off a straight wall. This makes directing the cattle into the race easier.

Blanking out the walls of the forcing pen focuses an animal's attention on the only escape route – into the race – and prevents them being distracted by cattle or people outside the pen.

Using forcing gates that travel through 360 degrees is a safe way to move cattle into the race. The gates should have ratchet systems to prevent them being pushed back onto the handler.

## Race

The race length should reflect the number of cattle being handled. A race length of about 1.6 metres per adult beast is recommended.

The width and height of the race depend on the breed and class of cattle. For example, large European breeds may need wider and higher races than British breeds. Brahman cattle need larger yards. A standard race is about 660mm wide and 1500mm high. Races that are too wide allow cattle to bring their heads beside the preceding animal or drop their heads, making drenching difficult. Wide races also allow small cattle to turn around.

## Race gates

The gate at the entrance of the race should be self-closing or have an automatic self-closing latch. Closing a latch by hand is dangerous as the last cattle beast may suddenly reverse and push the gate back onto the handler. A push gate is better than a slide version, as it puts pressure on the last animal. Slide gates have to be operated from outside the forcing pen and may be appropriate if all work is done from a catwalk.

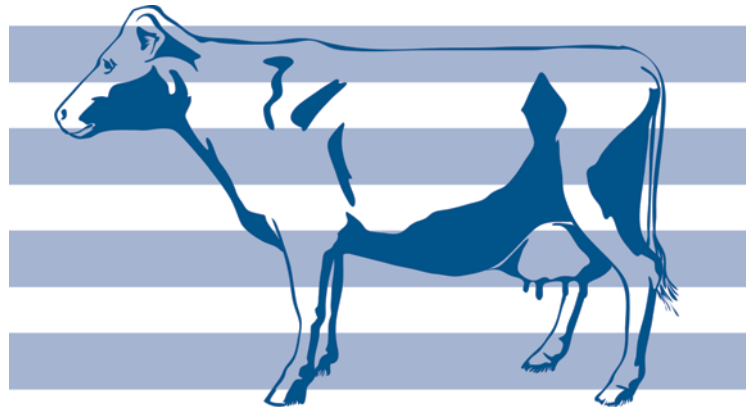
Gates in a long race allow more control, and should be designed so that animals can see through them to avoid isolation. Gates should divide off eight to 10 animals in a long race.

## Boarding

Wooden boarding is used to focus cattle attention in specific direction by acting like blinkers. At the correct height it will also speed movement. Attaching plywood sheeting to the walls of the forcing pen beside the race entrance will ensure cattle cannot see what is happening at the head of the race and encourage them to enter the race.

The bottom half of steel pens should be boarded up to prevent legs getting caught.

**FIGURE 13 – BLINKER EFFECT**



A special narrow race or an adjustable wall on a conventional race may be useful if weaners and yearlings are to be drenched or injected from outside the race.

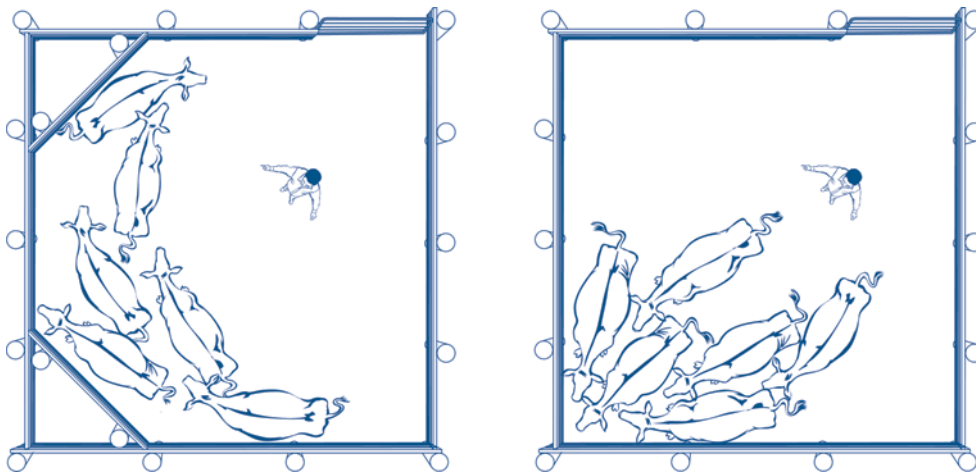
On some races the top boards on the left side drop down allowing access to the flank for intraruminal injections.

Races leading to a slaughter point can have solid walls that act as blinkers to channel the cattle. Single width races will speed up the movement of cattle. However, two solid walls may not be appropriate in working yards, but boarding up the side away from the working area may speed up cattle movement considerably. Having boarding at eye level may act as efficient blinkers to stop cattle from seeing what is happening in nearby pens or at the head of the race.

There should be no right angle turns in a race as the leader animal will disappear from view. Generally there should be no corners with an angle greater than 30 degrees (15 degrees is ideal).

In rectangular yards, cattle bunch up in corners with their heads away from the handler. This dangerous activity should be eliminated by boarding up the corners. In circular yards the cattle will circle the handler. The catwalk should be on the inside of circular races.

**FIGURE 14 – BOARDED-UP AND NON-BOARDED CORNER**



There is no evidence that cattle move more quickly through curved races than straight ones. However, many curved races have both walls boarded up and this may speed up movement. Moreover, cattle cannot easily reverse in curved races.

## Escape slots

Escape slots allow handlers to escape but also help movement between pens, especially from the forcing pen into the working area without the bother of opening gates.

## Catwalks

Catwalks allow cattle to be drenched and vaccinated safely over the race wall. They should be high enough to allow safe access to cattle in the race without any danger of toppling in on top of them. The top of the race should be at belt buckle height, and strong tree protection mesh should be stapled along the catwalk to prevent slipping.

## Direction

Cattle should move through yards in a fixed direction. This allows them to get used to the yards, reduces arousal and speeds up their movement through the yards.

Dead ends cause cattle to baulk six to eight metres before them, so a head bail should appear open so the first animal going through sees a possible escape route. This will mean they do not have to be pushed up to the head bail.

Curved races can be used to reduce the effect of a dead end. Cattle moving through a curved race with both sides boarded up do not see the head bail until they are right up against it. A race with a 45 degree bend at the end may also have this effect.

→ Good yards are safe yards.

→ Well hung gates make life a lot easier.

# → CATTLE YARDS: WHY DO CATTLE BAULK?

Baulking can be caused by:

- cattle seeing what is happening at the head of the race
- noise, especially shouting and cattle bawling from the front of the race
- dead ends – a dead end may be a head bail with a loading ramp in front of it
- people in the way
- flapping clothes or sacking
- cattle in adjacent pens that are moving in the opposite direction
- smells, for example blood on the ground after dehorning or castrating
- unfamiliar yards
- shadows or drains
- sunlight.

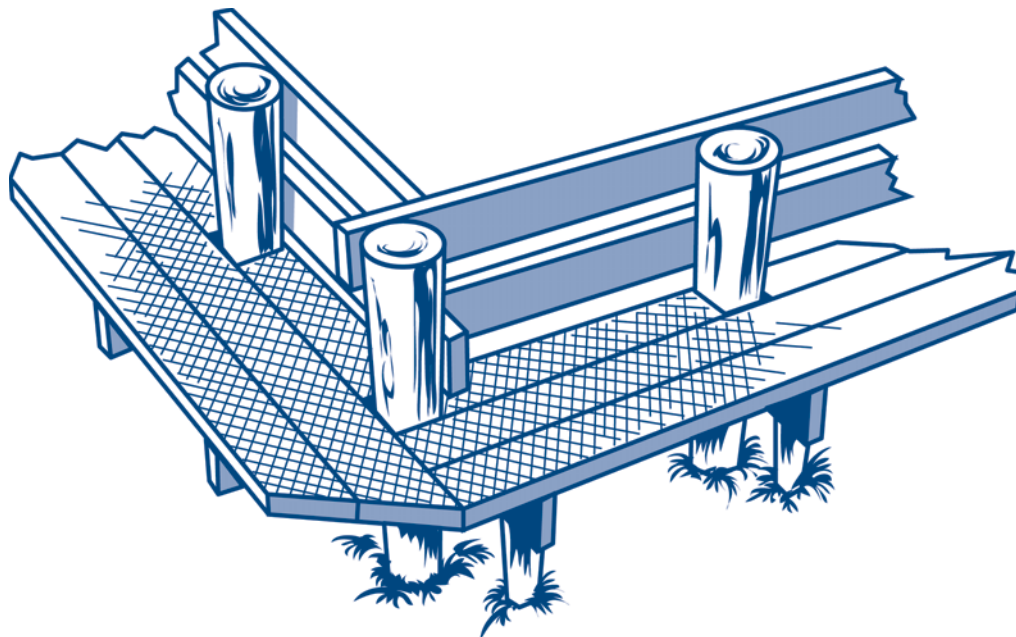
Baulking can be prevented by:

- making sure the head bail looks out into a pen containing cattle, or a paddock
- using smaller pens to break large mobs into smaller, easier-to-handle groups
- making sure the footing is similar through the forcing pen and race; if the animal's head goes down to check its footing, the beast may baulk at shadows, grating, drains, piping and gate fittings
- making sure the ground is level or gently rising – entry to the yards should not be down a slope
- ensuring cattle in a race do not move into sunshine
- avoiding sharp bends; cattle should be able to see for two body lengths in front of them, so a gradual curve is required, however, a 45 degree bend just before the head bail may encourage cattle to move into the head bail
- using rubber tubing in steel yards to reduce the noise of gates closing
- building curved races with boarded-up walls.

## → CATTLE YARDS: MODIFYING FOR SAFETY AND EFFICIENCY

A few simple modifications may reduce cattle baulking and make working in yards safer.

**FIGURE 15 – CATWALK**



→ Build a catwalk along the forcing pen and race. Put strong tree protection mesh on the catwalk to prevent slipping. Cattle handlers walk along the catwalk from front to rear to move cattle forward.

FIGURE 16 – FORCING PENS

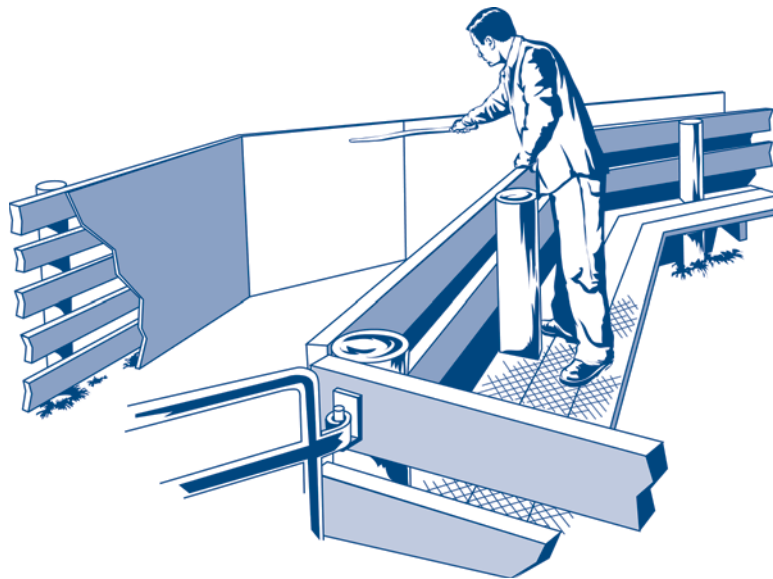
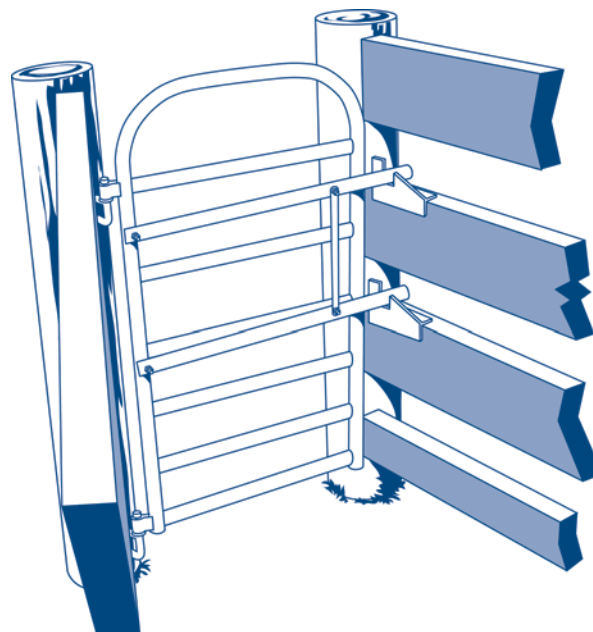


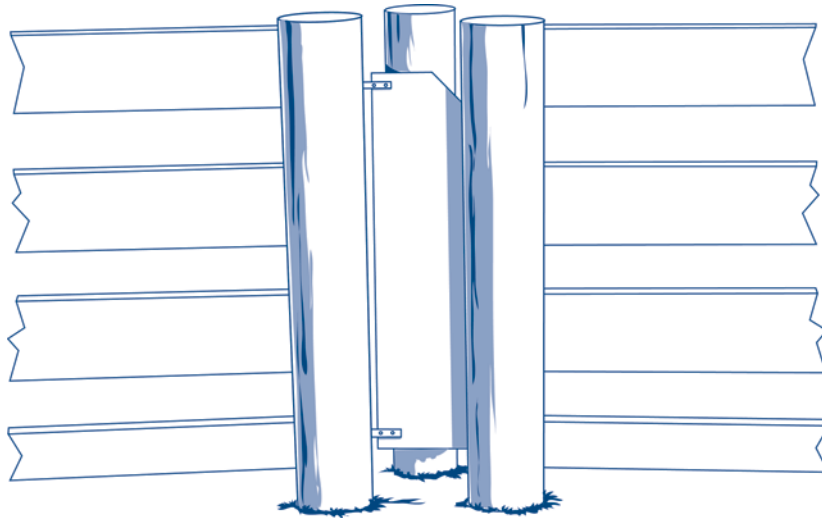
FIGURE 17 – AUTOMATIC LATCH



- Reduce the width of the forcing pen.
- Board up the forcing pen at both sides of the race entrance.
- Install a safe backing gate, which is either a drop gate or a slam gate with an automatic latch. A slide gate may be appropriate if catwalks are used and no-one works in the forcing pen. When cattle handlers have to push the backing gate shut it must have an automatic (self-closing) latch.
- Install a revolving gate in the forcing pen. A ratchet mechanism would prevent the gate swinging back.
- Replace or rehang gates. The top gudgeon should be reversed to ensure they are not lifted off by cattle.

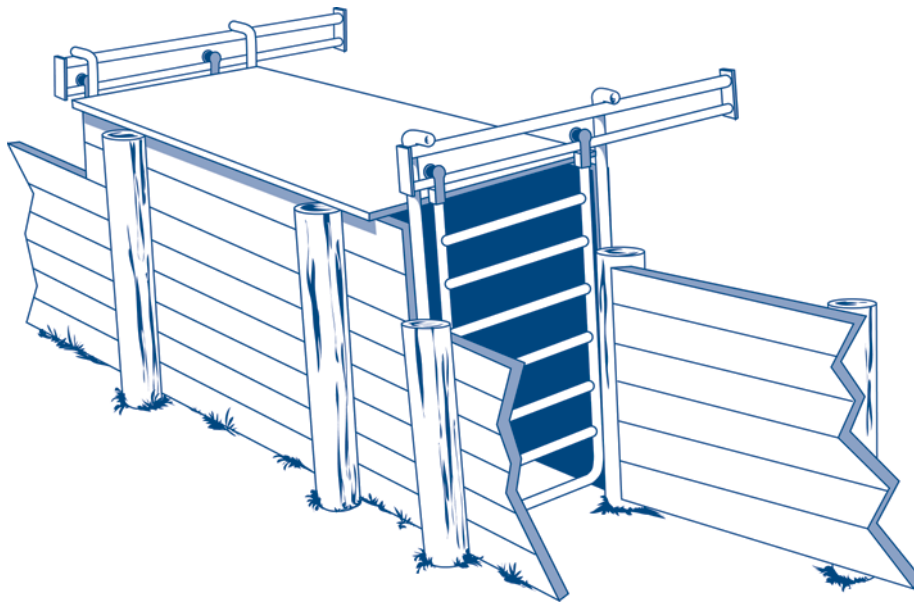
Put escape slots between pens, especially into the forcing pen from the working zone. Using escape slots means cattle handlers do not have to go through gates or over walls, a safer and less tiring option. A dive gap under the rails may be more appropriate in some circumstances as cattle may be caught in the escape slot.

**FIGURE 18 – ESCAPE SLOT**



- For pregnancy diagnosis the crush should be long enough to hold the cow without her head in the head bail (about 2.5 metres). The vet gate should open behind this to allow veterinary access and stop the next cow coming through. An automatic latch is essential on a slam gate. The vet gate should be high enough and blanked out to reduce cow arousal. A hoop over the race 600mm back from the vet gate will stop the cow trying to climb over the gate.
- Install a head bail and maintain it.
- Board up corners where cattle congregate.
- Divide large holding pens into long narrow pens. This will mean less milling around.
- Remove apparent dead ends.
- Install a tail bar on the backing gate at the race entrance.
- Maintain the yards by driving home nails, cutting off bolts, replacing rotten timber and lubricating the head bail and gate hinges.
- Concrete the race and forcing pens. Mud underfoot means reduced mobility and efficiency.
- Maintain the drainage system.
- Check the race length. It is difficult and dangerous to control cattle that can move back and forth in a race. It may pay to put gates into the race to control cattle movement. Two short parallel races will work more efficiently than one long race.
- Spring-loaded backing rails will hold the first animal up the race for others to follow.
- Remove cross ties to reduce the danger of being caught between a beast and a cross tie.
- Change the entrance to the yards so that it is uphill or on level ground and cattle are not moving into the sun.

FIGURE 19 – WEIGHING PLATFORM WITH CEILING



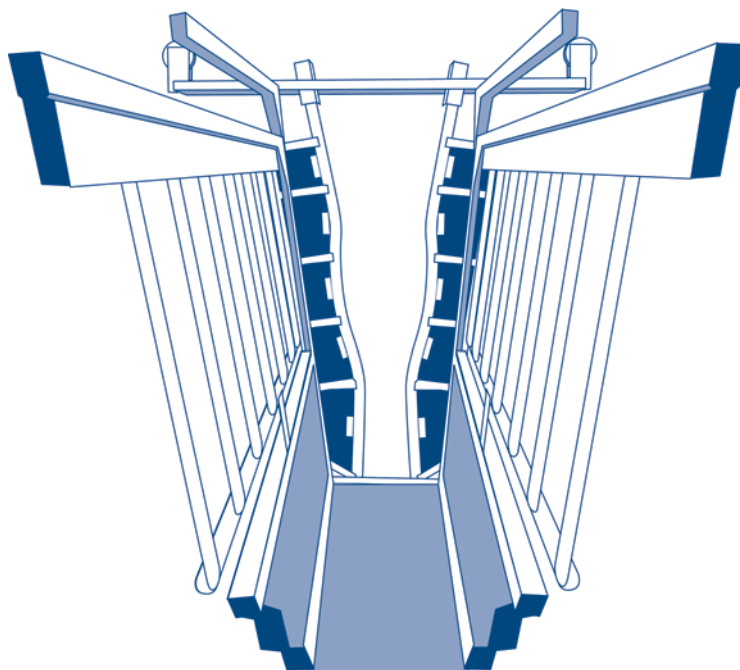
- Add a weighing platform and a crush area to the front of the race. Cattle in these act as a draw pulling cattle into the pregnancy diagnosis area.
- The weighing platform should have solid sides and ceiling.

# → HEAD BAIL, CRUSH, VET GATE AND LOADING RAMP

## Head bail

The slot into which cattle place their heads should be large and inviting. The rest of the bail should be blanked out so the animal's attention is focused on the head slot and there is less likelihood of it getting a foot caught. The view beyond the head bail should not be obscured by the loading ramp. It should be an attractive view – either of other cattle or a paddock.

**FIGURE 20 – VIEW THROUGH A HEAD BAIL**



The head bail must be bolted into place and be large and strong enough to hold the stock. Cattle must not be able to lift it off its hinges. It should close smoothly, noiselessly, quickly and easily without hurting the beast. It must be simple to operate and maintain.

A walk-through head bail allows the released animal to move forward and out of the bail quickly and freely. A head bail that requires the animal to reverse out before release is slower and more tiring to work.

A head bail should be easily opened to release cattle that have gone down in it.

It is important to capture the animal first time – second attempts are always more difficult. When the cattle are released they must be able to get away from the treatment area to reduce the likelihood of their turning and attacking. It may be a good idea to place a drafting gate across the front of the head bail. The gate should be hung well and not interfere with the working of the head bail.

The nape bar should be a webbing strap so that the nose is not injured.

A hock bar will stop the animal pulling on the head bail.

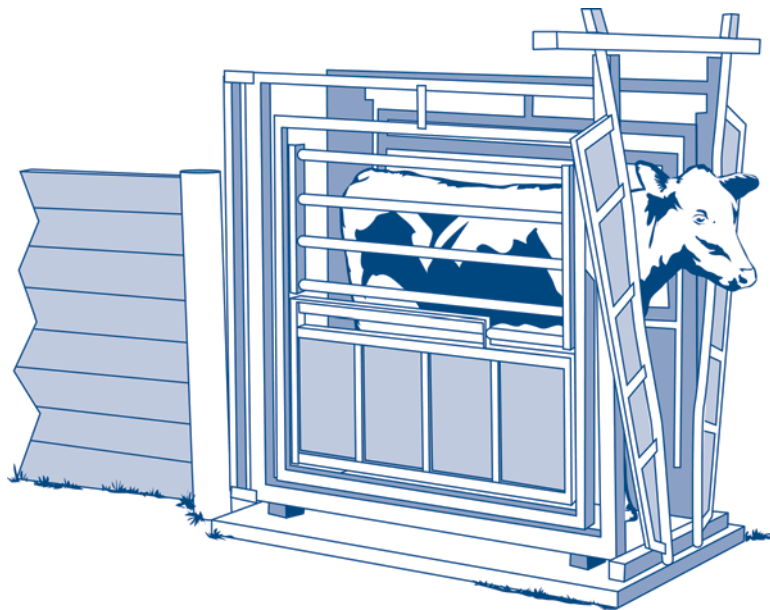
## Crush

The crush should be a minimum of two metres long – enough to hold a cow comfortably for pregnancy diagnosis. A crush that includes a weighing platform may need to be longer.

The crush should have split side gates that allow drafting and also access for liver sampling, caesarian section, intraruminal injection, bloat surgery, lameness diagnosis and treatment, examining the pizzle and electroejaculation.

The uprights for a shelter must be far enough from the crush so as to not interfere with crush gates when they are completely open.

**FIGURE 21 – CRUSH**



## Vet gate

The vet gate must be hung well, have an automatic latch and allow easy access to the rear of the cow. It must be strong and high enough to protect the vet from cattle coming up the race.

There are advantages to both slide and slam types. A boarded-up vet gate will reduce the likelihood of a cow coming through on top of the vet.

The hock bar should be placed about 70cm off the ground and work on a ratchet to tighten up smaller cows. A crowbar makes a good hock bar, as it is unlikely to break.

## Loading ramp

The loading ramp should be as wide as one beast and lead up to a level entrance so that cattle can balance before entering and after leaving the truck.

The ramp should have a slope not exceeding 20 degrees. The loading race should be 800mm wide. It should have solid walls to focus attention. Steps are better than cleats. Cattle should not go up a ramp into direct sunlight.

A flat top is good for loading a tight last pen on the truck but gives the animal time to change its mind and reverse.

There should be no space between the ramp and the back of the truck. Cattle may get their feet stuck if there is a gap there.

# → DAIRY SHEDS: PRINCIPLES OF DESIGN

The close contact between people and cows in the dairy shed can result in injury.

Milking cows misbehave because they are uncomfortable in the bail, in pain, or frightened by people or more dominant cows. Cows trapped behind piping are likely to be distressed and releasing them is often dangerous.

The person doing the milking may become angry at the cows' misbehaviour. Shouting or beating the cows will raise the animals' arousal level even further, resulting in more misbehaviour. This may become a dangerous situation.

Dairy sheds and yards should be designed to ensure cows are milked safely and rapidly. The cows should enter the shed without force, allow cluster placement and then let down milk without becoming distressed. Relaxed cows give more milk.

The shed should allow the milker to place the cluster without having to bend over or reach too far under the kick rail. The drenching space should be wide enough to allow for the drencher and the cow's head.

## Yards

A wide entrance into the yards allows rapid movement. The yard concrete should be roughened to allow for a firm foothold.

The backing gate should have a hock bar to stop cows leaning on it. Cows sometimes become trapped in backing gates, so the design should minimise this risk.

The entrance into the dairy shed should allow cows to queue. It should be safe, with the breast rail rounded off and no piping sticking out to injure cows as they are being pushed into the shed. There should be no spaces behind piping where cows might get their head or limbs trapped. Cows may be banged against vertical pipes as they are pushed into the shed.

## Dairy shed

The milking pit should be deep enough for the milker to place clusters on the cows with a straight back. The cows should be positioned close to the edge of the pit to allow the milker to reach under the kick bar to the udder. The rump rail should be in line with the pit edge, which should have a lip to stop cows slipping into the pit.

The first bail should be large enough to allow a cow to stand comfortably on all four feet. The breast rail must not be too high – it should be below the point of the shoulder so that large cows can lean over it and small cows will be pushed back in the bail to ease cluster placement. A zigzag breast rail will show cows where to stand.

The dairy shed should be designed so the first cow into a herringbone can move into and stand square in the first bail, and then exit without being caught in piping.

## Milk machine maintenance

The milk machine should be serviced before calving starts. Teat liners must be the appropriate size so that they do not slip or cause teats to swell. The piping should be adjusted so that the cluster hangs perpendicularly from the udder. The vacuum level should be set to the appropriate level.

## Pain and disease

Cows with mastitis, cracked teats or lame feet should be treated immediately.

Milking should not be a painful experience.

Discomfort in the dairy shed discourages cows from entering freely, meaning they have to be driven into the shed. This should be avoided: it is time consuming and frustrating.

→ Dairy sheds should be designed for cow and human comfort.

# →→ MILKING TIME: ARE YOUR COWS COMFORTABLE?

Cow comfort is the key to stress-free and safe milking and drenching.

Cow comfort may be measured in several ways:

- Row time – if cows enter and exit the shed freely and are relaxed during cluster placement and milking, the row time will be around seven minutes.
- Relaxed cows do not defecate or urinate in the dairy shed. Fewer than three cows per 100 should defecate in a herringbone shed and less than one per 100 in a rotary shed.
- Milk letdown should occur within half a minute of cluster attachment.
- Cows should stand in position without shifting feet or shoving around.

Cows need:

- a yard with an non-slip surface
- room to stand comfortably in the shed
- secure footing – a lip to prevent them slipping into the pit
- gentle handling
- appropriate teat liners and milking machine vacuum
- no stray voltage
- room for safe and smooth entry and exit
- no piping that would hit the cow's back or limbs
- no piping areas in which limbs may be trapped
- healthy teats, udder and feet
- room to hold their head up and away from their neighbour
- gentle drenching without getting sore teeth.

Milkers need:

- a pit of the correct depth
- rump rail correctly placed at pit edge
- no piping that knocks head or arms
- shelter from rain and cold winds
- co-operative cows
- good drenching facilities.

Cows and people need music.

- A separate facility for artificial breeding and pregnancy diagnosis may be better than using the dairy shed. The shed should be associated with the comfort of milking, rather than the discomfort of pregnancy diagnosis, breeding or veterinary work.
- A herringbone-type race for a maximum of 10 cows, parallel to the parlour and using the same forcing gate, is recommended.
- The uprights in dairy sheds are in the way of inseminators and veterinarians. Dairy sheds are often uncomfortable places for vets or inseminators, although very efficient time-wise. A special platform makes access to the cow's rear end more comfortable.
- A separate single crush for the foot treatment and calving is recommended.

# → DRENCHING, INJECTING AND VACCINATING

## Drenching

It is safe to drench small cattle in the race. Large cattle should be caught in the head bail or given a pour-on anthelmintic. Do not get into the race with large cattle.

It is possible to drench large cattle tightly packed into a race over the top rail, by catching the head and using a standard drench gun. However, this is strenuous work. A hook drench gun makes catching the head unnecessary but may be wasteful. Pour-on anthelmintics are especially easy and safe to apply and are recommended for large cattle. Intraruminal, injectable anthelmintics may require a removable board on the left side of the cattle to allow easy access to the flank.

Catching each animal in the head bail makes drenching large cattle slow but safe. When drenching at a head bail, approach from the side of the head, not from the front.

Cattle handlers drenching small cattle in a race should:

- pack them tight as this reduces their movement and makes it a safe if tighter job; if packed tight they can be drenched from front to back or back to front, whichever is easiest (most people recommend drenching from front to back)
- wear boots with protective toe caps but try to keep feet out of the way
- keep close to the animal to be drenched.

Being stood on is a common injury when drenching small cattle; toecaps will not protect the rest of the foot from the sharp toes of a lively weaner.

The head should be grasped under the jaw and held while drenching. Fingers should not be put into the animal's mouth.

**FIGURE 22 – DRENCHING**

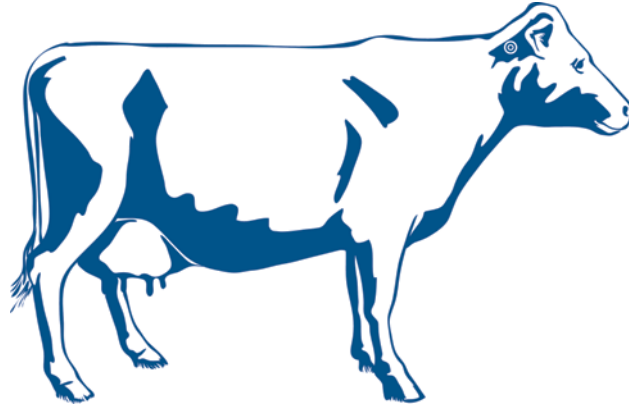


When checking a cattle beast for “woody tongue” grasp the front of the tongue. Do not put your fingers into the back of the animal's mouth as the molar teeth can inflict severe damage.

## Injecting and vaccinating

Cattle should be injected or vaccinated in the anterior neck area. This will reduce the cost if abscesses occur as meat of the neck is less valuable than that from the hindquarters.

**FIGURE 23 – SITE FOR INJECTION**



The syringe should not be pushed from a distance towards the animal as it will flinch. The hand with the syringe should be laid against the neck, then the hand twisted and the injection completed. The animal sees no movement and may not even react to the needle. Sometimes it is difficult to get cattle to remain still during the process, so it may be useful to catch the nose and hold it in a nose grip during injection.

Clean syringes and needles must be used.

**FIGURE 24 – NOSE GRIP TECHNIQUE**



**FIGURE 25 – INJECTING TECHNIQUE**



If the race is packed tight, cattle can be caught by a helper and held by the nose. If working alone it may be necessary to use the head bail and then tie them using a nose holder for injection.

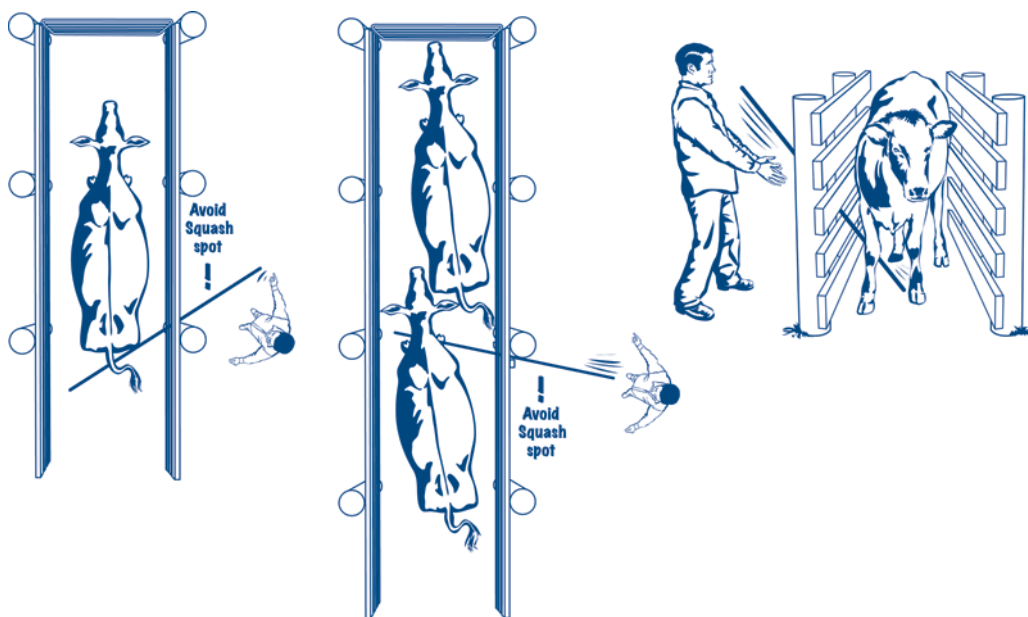
## ➔ PREGNANCY DIAGNOSIS

Moving cattle rapidly into the crush area, closing the vet gate and safely placing a retaining (hock) bar are essential features of safe and efficient pregnancy diagnosis.

The crush should be long enough to hold a cow without its head being held in the head bail (about 2.5 metres). In New Zealand, single races are usual, with a crush at the head of the race. In Australia and North and South America, twin parallel races are becoming more common. A herringbone-type pregnancy diagnosis and artificial breeding race, with a darkened box area over the head to calm animals down, is recommended by some Americans for lively cattle.

The hock bar should be steel (a crow bar is excellent) rather than wood. Placing the bar is dangerous and the person placing it should position themselves at its end so they cannot be caught behind it if a cow rapidly reverses or a second cow charges forward. Similarly, a bar pushed upwards may severely damage the face.

**FIGURE 26 – HOCK BAR PLACEMENT**



The hock bar should be on a ratchet so that a smaller cow can be tightened up. The hock bar should be 70cm off the ground.

The veterinary gate should have an automatic latch and be strong and tall enough to stop an adventurous cow coming over the top or through it. It may be a slide gate or a slam gate – both types have their advantages and disadvantages.

# → DEHORNING, EARTAGGING AND IMPLANTING GROWTH HORMONES

Cattle should be dehorned to reduce hide damage and bruising during yarding and transport and to make life safer for cattle handlers and their horses and dogs.

Young dairy calves should have their horns removed by disbudding. Holding them in a custom-built dehorning box is safe and allows the iron placing to be controlled. Calves may also be sedated by a vet before disbudding. Larger calves can be dehorned using a scoop. This can be done in a race if the calves are packed tight and a second person is available to hold their heads up.

Large cattle should be dehorned in a head bail. When dehorning is carried out on large animals an effective local anaesthetic must be used. However, this should be a rare occurrence – all cattle should be dehorned as calves or at the latest as weaners. In the interests of animal welfare, a local anaesthetic should be used when dehorning younger cattle.

A strong, firmly attached head bail is needed. Cattle with long horns may not fit through a head bail and may have to be restrained by rope. The latter is more dangerous than using a head bail.

Eartagging can be carried out in a race or head bail, depending on the size of the cattle.

Implanting growth hormones in the ear can only be done effectively and safely if cattle are held in a head bail and restrained using a nose grip.

Animals given growth hormones must be identified by use of a special eartag.

A webbed strap will reduce head movement and make these procedures easier.

→ Where possible cattle should be dehorned as calves by cautery.

# CASTRATION

Castration should be done as early as possible. It is easy to place a ring on young calves.

Testes are usually cut out of weaners. Weaners should be held in a race by a helper who pushes their left knee into the animal's flank while holding the tail in a tail jack directly above the animal's back. Similar restraint is required if a clamp (Burdizzo) is used.

Older cattle should be castrated by a vet or under veterinary supervision using an effective anaesthetic. Larger cattle can be sedated and a local anaesthetic administered to reduce the likelihood of a violent struggle.

**FIGURE 27 – CASTRATION TECHNIQUE**



**FIGURE 28 – TAIL JACK**



→ Castration should be carried out as early as possible.

## → LOADING AND UNLOADING

Loading and unloading stock is a stressful experience and may influence meat quality. Cattle do not like to enter a dark area and may be reluctant to enter the lower deck of a double decker truck.

A good loading ramp should have a horizontal area before the truck entry to help cattle enter and exit. Steep loading ramps (more than 20 degrees) cause cattle to balk.

Unloading should be done slowly, keeping the cattle arousal levels low. At meat plants where cattle are usually only unloaded, the unloading races should be wider than standard loading ramps.

Truck drivers should be warned about dangerous animals.

## → INJURIES CAUSED BY CATTLE

### Here are some examples of injuries caused by cattle.

- A cow drafted through a gate kicked back with both hind legs and hit the man in the back. He was thrown three metres and dislocated his shoulder.
- A farmer tried to remove a bull from a mob of heifers. The bull lifted a gate off its hinges, the gate hit the farmer and the bull then butted him on the ground. The farmer had injured ribs and cuts to his head.
- A calving cow sat on a farmer while he was pulling the calf out and tore the farmer's leg tendons.
- When putting cows into a race for vaccination, one cow reversed, turned and kicked the handler while running away. He had torn medial ligaments in his knee.
- A calf refused to drink from a bucket and it kicked and knocked the farmer over, injuring his back.
- A cow with a calf charged and stomped on the farmer, crushing vertebrae in his back.
- A cow in a herringbone turned suddenly and the man's arm was broken while fending her off.
- The cow kicked when having hobbles put on and crushed a man's hand against the rail.









Further resources

visit → [www.acc.co.nz/injury-prevention](http://www.acc.co.nz/injury-prevention)

or call → 0800 THINKSAFE (0800 844 657)

