



# Telford

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## Unit Standard 19116

### Farming Skills

Demonstrate knowledge of livestock behaviour  
and animal welfare

Version 3    Level 2    Credit 2





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## The Importance of Animal Welfare

Livestock convert pasture and other feeds into meat, milk or fibre. The efficient conversion of pasture into saleable commodities requires all types and classes of livestock to be well looked after and cared for. Contented, well-fed stock produce to their potential, and their meat, milk and fibre will be of a high quality. In other words, health, welfare and productivity go hand-in-hand.

There are moral and practical reasons for ensuring that the welfare of animals in our care is as good as possible. As animal owners and managers, we have an obligation to ensure that the animals in our care have a good quality life with a minimum of distress. As commercial farmers, we know that good animal welfare is important for high production and maximum profit. Consumers are increasingly looking for farm animal produce that is not just clean and green, but humanely produced too.

This unit aims to teach students the principles of good stockmanship and to give them an understanding of the legal requirements and good farm practices relating to animal welfare.

### Research for Students

Read through the module then reinforce the information by checking out the websites below. Remember that you may need to search through a site to find what you are looking for. Use **search** in the websites to help direct you. Search for items of interest or publications.

<http://www.biosecurity.govt.nz/animal-welfare/codes/dairy-cattle>

<http://www.acc.co.nz/publications/index.htm>

## The Importance of Good Stockmanship

Stockmanship covers a wide range of skills and personal qualities. It includes knowledge of the animals and their needs, an understanding of the husbandry system, and having the skills to operate it. It also includes having knowledge of and rapport with animals, an ability to observe them, and skill in the practical aspects of handling, care and manipulation of animals.

In other words, good stockmanship and good animal welfare go hand in hand, because good stockmanship is based on a genuine concern for animals and an understanding of the particular husbandry system involved.

The personal qualities of a good stockman include:

- The ability to anticipate and/or recognize problems early.
- A calm, efficient and competent approach.
- Good attention to hygiene.
- Consistency in behaviour and methods.
- Knowing when to intervene and when to seek assistance.
- Working to optimise management systems for the benefit of animal welfare.
- Respect for animals and a willingness to learn.
- Knowledge of and ability to identify suitable animals for the particular husbandry system.

It is important for those working with stock to have spent time with them so that they know their needs, the local climate and weather patterns, topography, shelter and management practices. This is the best way of making sure the welfare of stock is maintained and enhanced.

Those responsible for the care of animals should be competent and well trained in the care of animals and they should know how the actions of the stockman could affect animal health and welfare. Knowledge of the normal appearance and behaviour of stock is crucial, and it is essential to be able to recognize early signs of distress or ill health so that treatment can be given right away.

Stock handlers should keep up to date with developments in animal husbandry designed to maintain or improve animal welfare. They should review existing systems and practices regularly with a view to improving them where possible.

# Senses in Livestock

## Sight

- Cattle and sheep have very good eyesight and they see some colour, but not as much as humans do.
- They generally avoid areas that are brightly lit if given preference.
- The position of each eye allows very wide peripheral vision along each side. This alerts the animal to movement, which is then investigated by the animal turning its head face on so that it can use both eyes (binocular vision) to judge distances more effectively.
- We exploit their wide peripheral vision when moving stock by standing behind their "point of balance" just behind the shoulder when moving them forward.
- A good side view is useful for keeping an eye on the environment while grazing with the head down, and the field of vision then is almost 360°.
- There is a wedge-shaped area directly behind them where they cannot see. This is their blind spot. Stock are often nervous of activity in this zone where they cannot see what's going on and they will attempt to turn to face it.
- When facing an object, cattle and sheep have a much narrower range of binocular vision (about 25-50°) than we do with our forward facing eyes.
- The sight of sheep with woolly heads can be very much restricted.
- An aggressive bull uses one eye to watch you, but he may be getting his head ready to swipe you sideways.
- Handling deer in darkened yards helps keep them calm.

## Hearing

- Livestock are sensitive to high frequency sounds, which we cannot hear.
- Every animal has a call that is unique to itself. It might be bellowing, lowing, bleating or roaring. Other animals of the same species can recognise the sound and even the individual from its call. Mothers and their young quickly learn to recognise and respond to each other's call.
- Music is regularly used in milking parlours to provide dairy cows with a familiar and soothing background noise that helps to cut out distracting background sounds.
- Some deer farmers play music in the sheds when handling deer, for the same reason.

## Smell

- Livestock have a better sense of smell than people.
- The smell of blood can cause great panic, as has been observed when cattle smell blood and bone fertiliser, but does not always do this. For example, cattle may be quite unfazed by a patch of blood where another was killed.

## Touch

- Sheep, cattle and deer have sensitive skin, and in particular, sensitive ears and muzzle.



- Cows respond to touch and use touch as an important form of communication between each other. Mutual grooming is important in cattle, especially in mature animals. Cows lick and groom their calves right up to weaning.

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## Stock Handling

When handling animals it is important to understand their 'flight zone'. This is the area around the animal, which it tries to keep clear of any perceived threat. The tamer the animal is, the smaller its flight zone. In nervous animals and in animals that are not accustomed to humans, the zone is bigger.

There is a zone directly behind the animal called the blind spot. It is a much narrower zone than our 'blind spot' because their eyes are on the side of their head not directed forwards like ours.

They have a 'point of balance' just behind the shoulder. As a stockman approaches their flight zone from behind the point of balance, the animal tends to want to move forward and towards the other side. If the stockman approaches from the front, it will want to move sideways and back away from the handler.

If the stockman approaches from within the blind spot this will take the animal by surprise and make it nervous. It will try to turn to see what is going on.

There are several things the handler can do to make stock handling as stress-free as possible:

- Be quiet and gentle and move slowly.
- Do not approach from directly behind.
- Try to prevent shadows and bright spots in the animals' environment.
- Provide level ground with no dips, puddles or bumps.
- Have no moving or flapping objects.
- Provide handling facilities that have solid sides to prevent the animal from seeing distractions outside the fence.
- Have sliding one-way gates with bars or heavy mesh rather than slats or wire.
- Use curved races, pens and loading ramps to take advantage of the animals' natural tendency to circle.
- Always have company for stock. They may panic if alone.

## Test Yourself #1

1. Name two good reasons for ensuring that the welfare of animals in our care is met.
2. How would you define stockmanship?
3. State four personal qualities of good stockman.
4. Stock have their eyes on the side of their head. What does this allow them to do?
5. The wedge shaped area directly behind stock is where they cannot see. What is this area called?
6. Do livestock hear the same frequency of sounds that we do? Yes or no?
7. Do livestock have a better sense of smell than humans? Yes or no?
8. Why is it not a good idea to approach cattle from directly behind them?

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# Livestock Behaviour

## Reproduction

Livestock behaviour is an extremely complex science, but since reproduction is of fundamental importance in all farming systems, we will focus in this unit on the behaviour of reproduction.

Daylight length has a big effect on the reproductive behaviour of most breeds of sheep and on deer and goats, but cattle breed all year round and are not as affected by the day/night pattern. Decreasing day length triggers breeding activity in seasonal breeders so that they mate in autumn and give birth in spring.

### Cattle

- Cattle reach puberty at about 4 to 8 months.
- They cycle all year round.
- Their average cycle length is 21 days.
- They are best mated from mid-heat until 6 hours before the end.
- The gestation period (duration of pregnancy) is 280 to 285 days.
- They usually begin cycling again 60 to 80 days after giving birth.

Signs of heat in the cow:

- She vocalises a lot.
- Vaginal discharge – clear viscous fluid.
- She walks around a lot to find other cows.
- Cows form sexually active groups of 3 to 5 cows.
- Cows on heat mount other cows.
- Cows on heat stand to be mounted. This is the only time the cow will permit this.
- Milk may not be let down fully.

#### Oestrous cycles

In female livestock the length of oestrous, i.e. the time between when a female animal will first stand to be mated and when she next exhibits breeding activity, is called the oestrous cycle. This is about 17 days for ewes and 21 days for cows.

Oestrus (note the slightly different spelling) is when a female animal will stand to be mated and it is often referred to the time when the animal is in or on 'heat'. This is typically about 24 – 36 hours for many species. If females are mated during oestrus they are likely to become pregnant.

Once they start cycling, female livestock display oestrus about every 17 – 22 days (depending on species) until they become pregnant or, if they don't get pregnant, until increasing day length triggers the end of cycling in spring.

The most common method of heat detection in dairy herds is tail paint. The top of the cow's tail is painted and the scuffed-off paint indicates that the cow has been mounted by another cow.

Bulls are able to mate all year round, and do not have a set season for breeding.

Bulls running with non-pregnant cows are more territorial and aggressive than when run with pregnant or male cattle. They actively seek cows in heat, sniffing cows' urine and using the lip curling "flehmen response" to detect female hormones. Bulls may fight over cows or push each other around during mating.

Mounting and ejaculation are over very quickly in the bull. He grasps the cow with his front legs and his whole weight is propelled on the cow. This means that small heifers can be injured by being mated by large bulls.

- A bull will tend to seek a cow that is in heat. Cows may also seek out the bull
- A bull may serve a cow several times before she stops accepting him.
- The bull can be very aggressive when near cows in heat. Taking him away from a cow in heat can be very dangerous for the stockman.



*Figure 1 Flehmen response*

Image retrieved from  
[http://www.juliezickefoose.com/blog/uploaded\\_images/Buckflehmen-735301.jpg](http://www.juliezickefoose.com/blog/uploaded_images/Buckflehmen-735301.jpg)

## Sheep

- Sheep typically reach puberty at about 7 to 8 months but there is wide variation depending on breed and live weight.
- Seasonal breeds cycle in autumn and early winter. Some sheep breeds have much longer breeding seasons or may breed year round – e.g., Merino, Dorset Horn and Poll Dorset.
- Their cycle length is 14-19 days.
- The gestation period (duration of pregnancy) is 145 to 150 days.
- There are fewer obvious signs of heat in the ewe, but she may seek out the ram and will stand to be mated by him. Some breeds have more obvious behaviour. The ewe may circle in front of the ram to wag her tail under his nose, lick his face, inspect under the ram or even mount the ram. Aggressive on-heat ewes may keep other ewes (especially younger ones) away from the ram.
- Rams from non-seasonal breeds are good choices as sires for early or out-of-season breeding.
- As the days shorten and the breeding season begins, seasonal breed rams fight more and become increasingly territorial. They begin seeking cycling ewes, detected by smell (especially of urine).
- When the ram finds a ewe on heat, he approaches her and moves alongside, flicking his tongue or licking the side of her face and tapping with a straight front leg. If the ewe is receptive then he mounts and mates quickly.
- Sheep may form sexually active groups of several interested ewes clustered around a ram. A ewe may be served repeatedly by one ram or by several rams if they are available so twins or triplets can have different sires. Rams can be injured fighting over ewes or if one is pushed off by another while serving a ewe.

## Deer

- Deer are highly seasonal, mating in a short, intense season from about late March (the “roar” or “rut”) to give birth in the following summer.
- Red deer cycle approximately every 18 days while Wapiti have a 21 day cycle and fallow 22 days.
- Gestation lengths also vary between and within types of deer: red deer 226–242 days, Wapiti 245–265 days, red x Wapiti 234–250 days and fallow 226–242 days.

- Hinds usually reach puberty in time for mating in their second autumn (i.e., about 16 months old).
- Hinds do not generally show obvious signs of heat other than being receptive to mating.
- Stags grow antlers, hardening from velvet to hard antler in time for fighting over hinds in the wild, and begin roaring (red deer) or bugling (Wapiti) at the beginning of the breeding season.

Hinds show few visible signs of heat. Unlike dairy cows, there is little or no mounting of other hinds. Hinds give off a distinctive odour during the time they are in heat that some people may be able to detect. The interaction of a hind with the stag is the best indicator of whether she is in heat or not. Hinds can spend an increasing amount of time paying attention to the stag, but often there seems to be little or no interaction between them until the moment of mating.

For about a 12-hour period before coming into heat, the hind and stag may be seen resting close to each other, usually within 10 or 15 metres, and the stag appears to be guarding her. He will occasionally approach her while stretching his head and elevating his tail. The hind may move away, and then the stag chases her for a short distance and appears to lose interest. The chases increase in length as the hind eventually stands to be mated.

In some cases when they are in heat, the hinds invite attention from the stags. They may stop, arch their backs and lift their tails. Their gait may change to a prancing walk. They may also spend time rubbing themselves over the rump or under the neck of the stag.

Stags are highly territorial and fight viciously as mating approaches. They prefer to have their own harem of hinds and are single-sire mated to prevent injuries from fighting. The stag herds his hinds together aggressively, and will place himself between them and any perceived danger.

Stags that are normally quiet to handle can become dangerous at mating time and all stags should be treated with caution. Mature stags eat little over the mating period and often lose a lot of body condition.

### Managing males

Bulls, rams and stags commonly run in bachelor groups between mating seasons. Homosexual behaviour and fighting are common but not usually important. When a new male is introduced to the group the others inspect him, then typically fight and/or mount him until the social order is settled. The new male will fight those males he thinks he can beat and back off or turn away from those that are dominant.

Once males have organised their social structure there is usually little fighting until the breeding season approaches. Sires also fight severely when they are reunited after mating, especially if it is still breeding season. Smaller and younger sires should be kept away from heavier, stronger, dominant animals until well after mating. Fighting males can cause serious injuries or even kill each other and sexual behaviour can spread diseases that lead to infertility.

Typical adult male behaviours – aggression, fighting, protecting their territory and sexual behaviour – all increase as young males reach puberty, then cycle with the female breeding season. This means bulls show such behaviours year round, especially if there are cycling cows available, while most rams and stags are easier to handle in the non-breeding season.

Most farm sires mellow with age and handling but continue to show male behaviours throughout their lives. Male livestock should always be treated with care, especially at peak mating time.

## Maternal instinct

Maternal instinct is the term used to describe a mother's inborn pattern of behaviour towards her offspring. Instinct is determined by genetic makeup rather than socially learnt during an animal's lifetime. These behaviours have several purposes but all help to ensure the survival of offspring. They include:

- To build a bond between mothers and offspring so they are less likely to lose them ("mismothering").
- To clean and dry the newborn.
- To encourage it to feed.
- To protect it from danger.



*Figure 2 Ewe licking new-born lamb to dry lamb and start establishing bond*

Image retrieved from <http://quillcards.com/blog/newborn-lambs-in-spring/>

Some behaviours are common across most farmed animals. Typical behaviour around birth includes the following:

- The female seeks a birth site, preferring to be away from other animals if there is enough space. Some stock go to their sites up to 24 hours before birth and may scrape a "nest" or bare site as birth approaches.
- Once the water bag breaks, the female identifies that spot as her birth site and may return to it even if she gives birth further away.
- Once the lamb, calf or fawn is born, the female licks and cleans it. She may also "talk" to it.



*Figure 3 Ewe cleaning and smelling lamb as it seeks out her udder*

Image retrieved from <http://quillcards.com/blog/newborn-lambs-in-spring/>

- Licking cleans the birth membranes and fluids from the young and helps to dry it, reducing the risk of hypothermia. It also begins establishing the bond between mother and baby and encourages the young animal to start moving.
- The young animal quickly begins trying to stand and walk, essential so that it can get its first feed of colostrum. Once it can move under its own power, it seeks the udder and feeds.
- Licking, bonding and feeding are common to all species. Immediate mothering behaviour is important because young animals that are not licked or attended may give up, getting colder and hungrier the longer they wait.
- A degree of protectiveness by the mother is common but is expressed differently depending on species.

*Table 1 Typical behaviours for the three main farmed grazing species in New Zealand.*

<b><i>Class of stock</i></b>	<b><i>Important mothering behaviours</i></b>	<b><i>Implications for management</i></b>
Sheep	<ul style="list-style-type: none"> <li>• Ewes can be particularly attached to their lambing site. Some ewes remain there for up to 24 hours after birth.</li> <li>• Good multiple-bearing ewes continuously check they have all their lambs.</li> <li>• Some ewes will run away and abandon the lamb(s) if frightened.</li> <li>• Some ewes will actively charge and fight off another ewe (or person) that approaches. She may stomp a foot or make a short mock charge and lower her head as a warning.</li> <li>• Protective ewes are likely to charge a dog that comes too close.</li> </ul>	<ul style="list-style-type: none"> <li>• Return the ewe to her lambing site if she is disturbed during birth or shortly after.</li> <li>• Ewes may reject a lamb that has been handled and smells “wrong”. This is more likely in sheep that are handled rarely.</li> <li>• Beware of disturbance and mismothering lambs.</li> <li>• Ewes are not usually dangerous but may stomp a foot or charge; be wary until you know what she is likely to do.</li> <li>• Retreat immediately if a ewe looks likely to abandon her lambs.</li> <li>• Because lambs follow instinctively, they may follow the wrong ewe or even a motorbike. Be aware of this if you must enter the paddock.</li> </ul>
Cattle	<ul style="list-style-type: none"> <li>• Beef cows tend to be more attentive and protective mothers than most dairy cows.</li> <li>• Some cows protect the calf aggressively – especially first-calvers and cows that are rarely handled.</li> </ul>	<ul style="list-style-type: none"> <li>• Dairy cows = risk at calf removal (usually in first 24 hours); may attack handler, try to climb into trailer; behaviour can be used to find dam (comes when calf handled) and encourage cow to yards (following trailer)</li> </ul>



	<ul style="list-style-type: none"> <li>• Cows may charge or bunt; warnings include pricked ears, highly raised head, possibly a rumbling sound, bawling, or pawing the ground.</li> <li>• Cows (especially beef) may hide their calves if cover is available, returning to feed at intervals.</li> <li>• Some dairy cows are poor mothers and do not clean or encourage their calf. Calves may die if they are not encouraged to get up and feed quickly in bad weather.</li> </ul>	<ul style="list-style-type: none"> <li>• Some dairy cows have little interest in calf – they are not selected for good mothering so poor mothers are common. It can be hard to identify the dams of calves if no cows are interested and none show obvious membranes or blood.</li> <li>• Protective cows can be very dangerous – keep a close watch and never turn your back.</li> <li>• Dangerous cows should be culled.</li> </ul>
Deer	<ul style="list-style-type: none"> <li>• Deer show quite “feral” behaviour. Hinds usually give birth unseen and hide the fawn in long grass, scrub or other cover if they can.</li> <li>• Hinds can be badly stressed if no cover is provided – this is important because stressed hinds may attack other fawns or fail to rear their own.</li> <li>• A hind getting upset will click her teeth, grind the lower jaw and/or stick her tongue out. They attack by striking with their front feet.</li> </ul>	<ul style="list-style-type: none"> <li>• Be careful to find all fawns if the herd must be moved (much better if the herd is simply left alone when fawns are young).</li> <li>• Some hinds attack other hinds’ fawns – cull them if possible.</li> <li>• Keep away from fawns unless absolutely necessary. Hinds may attack if they think their fawn is threatened.</li> <li>• Hinds may abandon a fawn that has been handled and smells “wrong”.</li> </ul>

## Behaviour of the young

The newborn animal responds to its mother’s licking and cleaning by trying to stand. Within minutes it is upright and learning to walk, then seeking the udder for its first feed. The young animal usually nuzzles along the belly line, seeking the junction of belly and hind leg to locate the udder. The dam often helps by pointing it in the right direction but females with their first offspring may not do this. Some will back away, clean their offspring obsessively or, occasionally, attack it. The stockman may have to make sure the newborn gets colostrum. Young animals are reassured by the touch of their dam and frequently bump her shoulder as they walk or run.

Once the newborn has fed, behaviour varies depending on the species and also changes over the first few days of life. Typical behaviours are described below.

## Lambs:

- Young lambs usually stay close to the ewe and away from other stock for the first day or more, feeding often.
- The ewe gradually grazes further away and the lambs begin to move about, too.
- The ewe knows where lambs are and calls if she suspects danger.
- Lambs feed whenever it suits them and the ewe (and immediately when they rejoin the ewe if she calls them).
- It is important to leave apparently unattended lambs alone as attempts to find the ewe may, in fact, get them lost.
- As lambs gain independence they gather in groups (especially in late afternoon) to run and play, particularly enjoying raised bare areas as “racetracks”.
- Lambs locate their mothers by calling; ewes identify lambs by voice and smell.



**Figure 4 Lambs and their mother**

Image by Pam, 2008. Licenced under CC BY 2.0

## Calves:

- Most calves are “parked” for a sleep away from other stock once they have fed. Beef cows (especially hill cows with little human contact) often hide calves in gorse or scrub, returning to check and feed them every few hours. Cows calving behind an electric wire on rationed feed may push a calf out into the safety of long grass in front of the wire.
- The calf generally does not seek the cow but waits for her return, although she may call it out.
- A good indicator of the calf’s location is the cow’s response if a person or dog approaches the area. She may move toward the calf or call out resulting in a response from the calf.
- After a few days calves are no longer hidden but seen among the herd. They start forming groups to explore and play.
- A group of resting calves may be minded by one or two cows from the herd in turns, in a sort of crèche arrangement while their mothers graze.

### Colostrum

Technically, colostrum is the milk-like liquid produced by dams within the first 24 hours after giving birth. Colostrum produced after this time takes on more of the characteristics of milk. Colostrum has more fat, protein and minerals than milk and contains 22% solids (compared to about 14% for milk).

As well as providing excellent nutrition for offspring it also contains compounds (antibodies) passed on from the dam that help to develop the offspring’s immune system and protect it against disease

- Dairy calves are usually removed from their mothers in the first 24 hours of life. The cows go into a separate 'colostrum' herd and calves are artificially reared. Removing the calf is stressful for cows that are good mothers and they can be dangerous to the handler.
- Some dairy cows take no interest in their calf. The only sign that she has calved may be blood marks or membrane around the vulva or on the back of the udder, and an increasingly tight udder. These calves need to be collected as soon as possible and given colostrum to ensure they get antibodies that give early immunity to common diseases.
- Dairy calves quickly adapt to life in a pen (once they learn to feed from a teat), often sleeping in a heap and playing together as space allows.

Fawns:

- The fawn is usually hidden by the hind as soon as possible, i.e., once it is mobile and has fed for the first time.
- Many hinds do not get big in pregnancy so it can be hard to know which ones have given birth.
- The fawn remains hidden for several days, feeding every few hours when its mother returns.
- After about 5 to 7 days the fawn gradually ventures out to join the hind in the herd. Fawns tend to associate strongly with their dams rather than forming large groups, feeding when it suits them and the hind.
- When threatened each quickly finds its dam and runs with her, often touching as they move.



**Figure 5** *Licking her new-born calf, the cow helps to dry the calf and starts bonding and recognition process*

Image by Uberprutser, 2013. Licenced under CC BY-SA 3.0



**Figure 6** *Once the calf has had its first feed the cow may leave it and start grazing*

Image by Sondreaasan, 2014. Licenced under CC BY-SA 4.0



**Figure 7** *One cow has been left to look after a group of resting calves while their mothers go off to graze*

Image by Crocker, 2003. Licenced under CC BY-SA 2.0

## Social Order in Cattle

Cattle show a very clearly defined social order or peck order, and they bunt with their heads to sort it out.

Horned cattle typically have an advantage socially over polled cattle (cattle without horns). However horns can do a lot of damage during transport and in yards. By law (Animal Welfare (Transport within New Zealand) Code of Welfare 2011) cattle with horns of a length that may cause injury or be damaged must not be transported, except where special arrangements are made. In practice, as most cattle need to be transported at some stage of their life, calves should be disbudded within a few weeks of birth to prevent horn growth or farmers can choose to farm naturally (genetically) polled breeds of cattle.

Social order is important with communally fed calves. There is a need to regularly draft calves to keep groups of similar size to help reduce bullying.

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## General Animal Behaviour Which Can be a Threat to Stock Handlers

Before you go in among stock, check their behaviour and reaction from a distance. Check that things look normal before you enter the yard or paddock.

Isolation is one of the biggest stressors for herd and flock animals of all kinds, so be especially careful of any animal on its own. Before they became domesticated, all herd animals were potential prey to carnivores (meat eating animals). A common protection method against being eaten was 'safety in numbers'. Herd animals had a greater chance of survival if they stayed close together. Over time, the animals that stayed in herds (or flocks) were the ones more likely to survive and breed and so this type of behaviour became part of the species genetic makeup (an instinctive behaviour). Today, although herd animals on our farms do not face the day to day fear of being hunted, they still retain the instinctive behaviour to stay together for protection. Consequently any animal on its own feels vulnerable, especially if a dog or human is nearby, and may react aggressively to protect itself.

All bulls and stags should be considered potentially dangerous at all times. It is not necessarily true that some breeds are less aggressive than others. Regard them all as dangerous. The same is true of cows with calves and hinds with fawns.

Old males are slower on the ground than young males but they can still move remarkably fast. They are still able to knock you to the ground and gore or trample you.

Dairy cattle are usually easy to handle, as they have been accustomed to handling from birth. They recognise strangers and remember those who have treated them badly.

The most common signs of aggression in cattle are:

- Rushing towards you with head lowered and pawing the ground.
- Standing facing you with head raising and lowering.
- Roaring with saliva drooling from the mouth.
- Snorting.
- Large protruding eyes with the white parts very obvious.
- A side-on stance with one eye looking at you and head ready for a side-swipe (shown by bulls).
- Tail raised and swishing, and defecating a lot.

If you have a dog make sure it will respond to your instant commands and most of all that it responds when told to sit, stand or get outside the paddock or yard. There are times when it may be better to leave the dog at home (e.g. when beef cows have young calves) for its own safety.

## Test Yourself #2

1. Which of the following are seasonal breeders and which can breed all year round i.e. non seasonal?  
(write seasonal or non-seasonal next to each)  
Sheep  
Goats  
Deer  
Cattle
2. State three signs that indicate that a cow is in heat.
3. Will a bull become more or less aggressive when the bull is near a cow in heat?
4. During the mating season is it the ewes or rams who tend to become aggressive and fight?
5. 'Cows become protective of their new born calf.' True or False?

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## Feeding behaviour

Although sheep, cattle and deer all graze farmed pastures, their eating behaviour and preferences are quite different. These differences are outlined below.

Sheep:

- Harvest feed by biting it off, using incisor teeth in their lower jaw against the pad on the upper jaw, then chew by grinding the feed between upper and lower back teeth.
- It is NOT true that they “prefer” short feed but they will graze favoured areas hard, which can give this impression.
- Can graze long or short feed and “reel in” long feed (e.g., long, unchopped silage).
- Can graze very selectively – e.g., taking mouthfuls of clover among grass if there are patches of clover.
- Tend to prefer legumes and herbs.
- Intake reduces as the feed on offer gets shorter because the amount of feed in each bite is smaller (i.e. they are harvesting “teaspoonfuls”).
- Dominant animals will get best grazing if sheep are competing for favoured areas, pasture is short or they have a limited crop area; dominant sheep tend to get the most quantity AND best quality.
- Good at copying each other – farmers can use this to get young stock to try new feed by putting in some older sheep that already eat it.
- Some breeds (e.g., Merino) graze around the paddock together as a tight mob but most sheep graze as individuals.

Cattle:

- Prefer to gather longer pasture with the tongue and rip off a mouthful, then chew with their molars (back grinding teeth).
- This method is much less selective than the smaller mouthfuls that sheep take so cattle are less inclined to clean out legumes and herbs.
- Can nibble with teeth if necessary but intake will be low because only small amounts can be taken in by this method.
- Are more willing to try new or novel feeds and can often be encouraged by adding molasses.
- Dominant animals get best grazing if cattle must compete, pasture is short or they have a limited crop area; dominant cattle get the most quantity AND best quality.
- Smart cows may find ways of getting more feed – e.g. staying on a rotary milking platform to get another dose of grain in the shed.
- Tend to graze individually, rather than moving around together as a mob (but beef cows may do this on larger blocks).

Deer:

- Harvest feed by biting and prefer to browse – i.e. move around picking at feeds of interest, rather than settling down to graze intensively on one spot.

- Deer enjoy a wide range of feeds, including tree leaves, bark and shrubby plants if these are available.
- “Horizon grazers” when eating pasture or crop (i.e. they tend to start with the longest feed and graze down; this leads to variation in their diet over time in a single paddock (e.g., start with longer herbs, then grass, then shorter clover)).
- Will adapt to forage crops (e.g. brassicas, fodder beet) or grain and can be encouraged by feeding grain before weaning so they learn from the hinds.
- May graze in mobs rather than spread out over the paddock.

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## Sheep Handling Tips

- To keep sheep moving, make sure there is always a clear way ahead.
- Sheep do not like visual dead ends and they do not move freely towards them.
- Where there is a dead end in a woolshed, put a mirror on the wall so the sheep see other sheep to move to for security.
- If you have to put sheep along a handling race, it can help to pen a decoy sheep at the far end to help draw them along.
- Make races narrow enough to prevent sheep turning round and blocking the flow. Having tapered sides to the race (slightly wider at the top than at the bottom) can help.
- Make sure the sides of pens and races where you do most of the handling are closely boarded, so the sheep cannot see through and get distracted.
- Advancing sheep should not be able to see those following them, as they may stop and reverse, or try to turn round and block the flow.
- Sheep following each other should see sheep moving ahead, preferably around a bend. Moving sheep will generally "pull" the followers with them once they have started moving.
- Sheep move best from dark into light, and generally dislike changes in light contrast, e.g. reflections from windows.
- They do not like light coming up from under gratings. Gratings at woolshed doors should be laid so the floor looks solid to the sheep.
- Sheep tend to panic on slippery floors, so provide some grip.
- Sheep soon get adjusted to any noise used to move them, so keep changing the noise for effect.
- Sheep remember past experiences. Run them through new facilities a few times and let them think they can escape before you subject them to any unpleasant procedures like ear tagging or shearing.

## Restraint of Sheep

- Do not catch or hang on to sheep by their wool. It will cause pain and bruising.
- To catch a sheep, move up quietly in the blind zone immediately behind it and put an arm under its neck.
- A hand below the chin is good for restraint. When the sheep barges forward lift the chin up. This helps restrain the sheep with a minimum of effort.
- To sit it on its rear for procedures like feet trimming, put one hand under its chin and lift its head slightly to stop it lurching forward. If it gets its head down you will lose control.
- Then, with one hand under its chin, turn its head round to face its rear on the side away from you. Grab its rear end with your other hand, or down where the back leg joins the body.
- Hang on tight and move backwards pulling the sheep towards you.
- The sheep's legs will buckle and it will fall back towards you. Lay it on the ground on its side, and press down on it to keep it there.
- Then quickly grab its front legs and sit it up on its rear end at an angle of about 60 degrees from upright. If it is too far forward it will jump back on to its feet. If it is too far back it will struggle and kick with both back legs.
- Practice finding the right angle to sit the sheep at, and keep your legs close in behind its body.
- When you find the right angle, the sheep will relax and you can take your hands off and hold it only with your legs. This is the position a shearer uses before starting to shear.

- With a big heavy ram or ewe, you will struggle to turn its head around, as its neck will be strong. Make it easier by standing on one side of the sheep, bend over the sheep with your knees bent, put your arms underneath its body and grab the two legs furthest from your head (i.e. nearest your legs).
- Give the legs a firm pull towards you and the sheep should drop onto its side.
- Use that moment of surprise to hold it down, and then grab its front feet quickly and sit it on its rump.

## Mechanical Restraints

There are a range of crush devices used for restraining cattle, sheep and deer. The various crush facilities and their mechanical actions vary and the operator should become familiar with the device before trying to use it. Most mechanical restraints hold both the head and the body of the animal with a rear restraint as well.

Any mechanical crush must be well maintained and operated correctly so that the operator is never at risk and the animal is kept safe from injury.

The release of an animal from a crush device is as important as the capture, as an incorrect release procedure can injure the animal and put the operator in danger.

## Moving Stock in the Paddock

- Sheep and cattle tend to mob together when approached in the paddock, and this makes it relatively easy to move them away from you.
- A barking dog is often used to help move cattle and sheep away.
- Animals that are slow or reluctant to move will do so if you walk up to them. Quiet assertive movements are needed and the animals will move as soon as you approach their flight zone.
- Many stockmen have bikes or quads, and some approach stock far too quickly. This causes unnecessary alarm and increases the risk of accidents.
- An animal on its own will behave more erratically than a mob and it takes more skill to drive it in a particular direction. It will always try to get back to its mob or to familiar ground.
- Mobs of beef cows with young calves can be dangerous, as their instinct is to protect their calves from potential predators. They are very wary of dogs so keep dogs well out of the way and in full control.
- When tagging beef calves in the paddock, it is important to let the cow see its calf at all times. If possible keep one hand around the calf's jaw to stop it bellowing. It may bawl with the pain of the tag going through its ear so be prepared for that moment.
- Driving dairy cows or stock that have been regularly handled is relatively easy. Let them move along at their own pace. When they are hurried along stony tracks they are liable to injure their feet and lameness is a big health problem in dairy cows.
- To stop livestock coming towards you, make a noise or wave your arms about. Holding two sticks increases your apparent size and usually works well.

- Stock should not be hit with sticks and the use of electric prods is only justified on tough cattle and they should be used as little as possible.

## Handling Stock in the Yards

- Stock remember bad experiences and that can make it difficult to yard them.
- Before you yard stock, check that there are no hazards especially if other people have been using the yards.
- If cattle have not been through the yards before, it can be useful to let them wander through with all gates open the first time, then the next time, shut them in, let them stand quietly for a while and move around them slowly. Keep all dogs out of the way.
- Keep their stay in the yards as short as possible; release them into a holding yard with water.
- Keep stock flowing through the yards as steadily and quietly as possible.
- Some stockmen or dogs may have to be banned from the yards if they are too impatient and noisy.
- When in a yard with cattle, use their point of balance to get them to move forward or back or from side to side.
- Use a long stick when drafting to extend your arm, or tie a small flag on the end of the stick.
- Make sure you wear safety boots (leather or gumboots) and good strong overalls with no loose attachments.

## Moving a Mob through a Gate

It is important not to hurry stock through gateways. Cattle will barge and may bruise themselves on the gateposts. Sheep too can become jammed and distressed, even smothered. It is particularly important to take care when cows have calves and ewes have lambs. If they lose sight of their offspring they turn and cause confusion. With very young animals mismothering can result.

Give stock plenty of time and stand back when they are moving well.

With stock that are not accustomed to being handled, such as extensively farmed beef cows and calves, more time and patience are needed to make sure cows go through with their own calves if possible. At the end of the mob there is often a group of mis-mothered calves that are not accustomed to being driven and they will inevitably turn back. It is best to wait for some cows to come back through looking for them and try again.

Gates that do not fully open are a hazard as a few animals can end up behind the gate and they may try to jump the fence or wreck the gate and get injured.

With deer, it can be better just to open the gate and leave it to the deer to find their way through.

Deer behaviour at a particular gate can vary greatly between mobs or even on different days. A five minute job one day may take an hour or more next time (especially on a windy day) so be patient, watch the stock

and take your cue from them. Use the direction the mob chooses to wheel them through or get them to move so that they can see the gap. If the mob is too worked up or you lose your temper, come back later.

## Breed Differences in Behaviour

Although many people believe some breeds are more difficult or more flighty than others, it is likely that these differences are the result of differences in the amount of human contact the animal has had and the type of contact. Beef cattle handled infrequently for painful procedures will be harder to handle than dairy cows that are accustomed to coming in for milking twice a day. Cheviot sheep extensively farmed on hill country will be more flighty than Romneys on an intensively managed farm.

There is a belief that Jersey bulls are more aggressive than other breeds and some say Ayrshire bulls are particularly aggressive, but this has not been proven.

Similarly cashmere goats are considered harder to handle than Saanen dairy goats, but this is almost certainly because of the way they are managed. Feral goats that are raised on lifestyle farms can be just as tame as any other breed.

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## Dangers to Stockmen

- It goes without saying that handlers can be injured by livestock, and injuries happen even to the most experienced operators.
- Cattle can crush, kick and butt. The most aggressive animals are entire males, particularly bulls and stags in the rut. Rams and buck goats can butt and cause injury, especially if they charge from the rear.
- Cows, even those that are normally placid, can charge if stressed by pain or if they are protecting a calf.
- Sheep can butt, and injuries especially those caused by the sheep charging from behind, are surprisingly common. Charging sheep can cause serious knee or lower back injuries.
- Back injuries can be caused by faulty technique when tipping or lifting sheep or calves.
- Sheep and beef cattle vision is sensitive to rapid movement and high contrasts (e.g. shadows), and they have sensitive hearing. Nervous, agitated or excited animals are more aware of small changes in their environment and handling procedures should be carried out slowly and calmly, speaking softly with a low tone of voice.
- Even tame animals especially those reared in isolation or breeding males can be aggressive in situations where they feel threatened.
- The handling of deer is a separate subject that we can only skim over here. Deer require special fencing and yards. There are particular difficulties associated with their flightiness (compared with cattle and sheep) and the highly seasonal behaviour of stags.
- Signs of agitation in deer include teeth grinding, flaring of the gland in front of each eye and foot stamping.
- Stags are very aggressive in autumn during the rut and must be treated with great respect. Paddock entry should be limited to essential management such as feeding using a vehicle with a cab as a precaution.
- For particular procedures like velveting, deer are restrained in mechanical crushes. They must operate smoothly and efficiently, and deer must be handled quietly and slowly. Darkening the shed helps calm them.

## Test Yourself #3

Answer the following questions either True or False.

1. Sheep will tend to move toward dead ends.  
**True/False**
2. Sheep tend to move from dark to light.  
**True/False**
3. Sheep move freely on slippery floors.  
**True/False**
4. The best way to catch a sheep is by the wool.  
**True/False**
5. How do you tip a sheep onto its rump?  
**True/False**
6. What should you look for before moving cattle into yards?  
**True/False**
7. List 4 types of injury a stock person can suffer from stock.  
**True/False**

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## Animal Welfare Legislation in New Zealand

The legal requirements of owners and managers of animals are set out in the Animal Welfare Act 1999. In May 2013 the Animal Welfare Amendment Bill was introduced to parliament. As of time of writing (April 2015) this Bill was still in select committee and had not yet passed into law. The Bill aims to change the Act to make it more enforceable, clear and transparent. It allows for the creation of enforceable regulations that will complement the minimum standards contained within New Zealand's 16 codes of welfare. Once the Bill becomes law, regulations can be developed that will be backed by a range of enforcement tools such as instant fines. The Bill also directly increases protection for New Zealand's wild animals, animals being exported to other countries, and animals used in research, testing and teaching.

Until the Animal Welfare Amendment Bill passes into law, the Animal Welfare Act 1999 remains in place and owners and managers of animals must meet the legal requirements set out by this Act. Many of these requirements are based on international requirements to satisfy the increasing demands of the animal welfare movements in countries that we export to. Even if many of these requirements seem to some New Zealand farmers to be unreasonable, our farm management practices must comply with the international requirements while at the same time they must be cost-effective.

The legislation has to comply with international standards while ensuring that the Codes of Welfare can be applied to our own extensive farming systems.

In essence, the Animal Welfare Act 1999 states that animal owners or the persons in charge must ensure that the physical, health and behavioural needs of the animal are met in a manner that is in accordance with both good practice and scientific knowledge where practicable, and ensure that an animal that is ill or injured either receives treatment that will ease any unreasonable or unnecessary pain or distress or is killed humanely.

The owner or person in charge of an animal must not without reasonable excuse:

- Keep it alive when it is in such a condition that it is suffering unreasonable or unnecessary pain or distress.
- Sell, attempt to sell or offer it for sale, other than for the express purpose of being killed, when it is suffering unreasonable or unnecessary pain or distress.
- Desert an animal in circumstances in which no provision is made to meet its physical, health and behavioural needs.

No person may:

- Ill-treat an animal.
- Release an animal that has been kept in captivity, in circumstances in which it is likely to suffer unreasonable or unnecessary pain or distress.

- Perform any significant surgical procedure on an animal unless that person is a veterinarian, or a veterinary student under the direct supervision of a veterinarian or, in the case of a controlled surgical procedure, a person approved by a veterinarian.
- Perform on an animal any surgical procedure that is not a significant surgical procedure (as defined by the Act) in such a manner that the animal suffers unreasonable or unnecessary pain or distress.
- Kill an animal in such a manner that it suffers unreasonable or unnecessary pain or distress.

This Act imposes these obligations on owners and managers but it provides only the framework. Details of the standards that must be maintained are set out in a series of complementary Codes of Welfare. The welfare standards for most domesticated animals in New Zealand are outlined either in these Codes of Welfare or in the previous codes under an earlier Act known as the Codes of Recommendations and Minimum Standards or CORMS.

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## Codes of Welfare

Owners and managers of animals have a legal obligation to comply with the minimum standards set out in these Codes.

As well as defining the legally binding minimum standards, each Code describes standards of “best practice”. These are standards of practice that are usually higher than the minimum standard, and while they may not be legally binding, they encourage higher standards of welfare than the minimum standards do.

### The difference between Minimum Standards and Recommended Best Practice.

Minimum Standards are legally binding but Recommended Best Practice Standards are not. So if we take the example of disbudding and dehorning under the Painful husbandry Code:

A minimum standard is that dehorning must not be performed without pain relief in animals older than 9 months. So if you dehorned a 12 month steer without local anaesthetic or any regard for the animal’s pain, then you could be punished under the act (generally a fine). An example of Recommended Best Practice is that pain relief should always be used with dehorning, (i.e. regardless of age).

To date (April, 2015) Codes of Welfare have been developed for the following:

- Painful Husbandry Procedures
- Dairy Cattle
- Sheep and Beef Cattle
- Deer
- Goats
- Llamas and Alpaca
- Dogs
- Transport within New Zealand
- Pigs
- Commercial Slaughter
- Meat Chickens
- Layer Hens
- Circuses
- Companion cats
- Rodeos
- Zoos

There are also Welfare Codes being developed for the requirements of horses and donkeys.

More than one Code of Welfare may apply to an animal type. For example, the Codes of Welfare that apply to deer include Painful Husbandry Procedures, Deer, Transport within New Zealand and Commercial Slaughter.

All Animal Welfare Codes of Welfare can be accessed on the biosecurity website:  
[www.biosecurity.govt.nz/animal-welfare](http://www.biosecurity.govt.nz/animal-welfare)

Alternatively the Codes can be purchased from: Ministry for Primary Industries, PO Box 2526, Wellington 6140.

## The “Five Freedoms”

Underpinning the legislation is the philosophy that the good welfare of animals depends on their owners or managers providing them with a reasonable quality of life. This means ensuring they have:

- Freedom from thirst, hunger and malnutrition.
- Freedom from discomfort and pain.
- Freedom from injury and disease.
- Freedom from anxiety and fear.
- Freedom to express a wide range of normal behaviour.

These are sometimes expressed as “needs” or “requirements”. In other words, animals need or require:

- Proper and sufficient food and water.
- Adequate shelter.
- Physical handling in a manner that minimises the likelihood of unreasonable or unnecessary pain or distress.
- Protection from and rapid diagnosis of any significant injury or disease.
- Opportunity to display normal patterns of behaviour.

Responsibility for meeting the minimum standards in the welfare codes lies with the person carrying out the particular task. That person is in charge of the animals at that time. Generally a stock handler is the person in charge of the animals that are in that stock handler’s care. In practice, deciding on the person-in-charge is a common sense judgement based on the minimum standard in question. For example, a veterinarian may be the person in charge if the task is dehorning a 12 month old steer. On the other hand, the stock handler may be the person in charge if the task is meeting the water requirements of the steer while it is being held in the yards prior to being de-horned.

The Codes of Welfare can have legal effect in two ways:

- Evidence of failure to meet a minimum standard can be used to support a prosecution.
- Where someone has been charged with an offence against the Act, evidence that a minimum standard has been met can be used in his or her defence.

For example, one of the minimum standards in the Painful Husbandry Procedures Code of Welfare is that if tail shortening (docking) of cattle is undertaken it must be limited only to the removal of the last two to three vertebrae of the tail, using a rubber ring applied between the joints. If there is evidence that a farmer

has shortened a cow's tail higher than the last three vertebrae of the tail, the evidence can be used to prosecute the farmer (e.g. the tail stump has only 10 vertebrae instead of 15 – 17 assuming the tail was shortened by three vertebrae). If the farmer can present evidence that he or she only shortened the cow's tails above the last three vertebrae because the tail was infected and the procedure was recommended and carried out by a veterinarian, thus meeting Minimum Standard No. 7 (a) of the Act, it can be used in his or her defence. (Minimum Standard No. 7 (a) states 'Signs of ill-health or injury must result in timely preventative or remedial action, as appropriate.')

## Significant surgical procedures, restricted and controlled surgical procedures

It is important to know that the Animal Welfare Act 1999 makes it an offence for a layperson to perform a 'significant surgical procedure' on an animal. These must only be carried out by a veterinarian. They include castration of horses and dogs.

Yet there are some similar operations that for years have been routinely carried out by farmers usually with no anaesthesia, e.g. castration of lambs and calves, disbudding of calves and tail docking of sheep and cows. How can farmers know what is acceptable and what is not?

The details of what is acceptable are set out in the minimum standards described in the Painful Husbandry Procedures Code of Welfare (see below).

The Animal Welfare Act defines 'controlled surgical procedures' and 'restricted surgical procedures'. For example, removing velvet from deer is a controlled surgical procedure that can only be carried out by a vet or by an officially trained and accredited person on his or her deer. Restricted surgical procedures may only be carried out by a vet, who must first satisfy himself or herself that the procedure is in the interests of the animal e.g. de-barking a dog. Prohibited procedures are not allowed to be performed at all. These include cropping dogs' ears and firing or blistering horses.

### Horse blistering and firing

The idea behind blistering and firing was that by inflicting pain and inflammation at a site of injury (usually on a horse's legs) it would increase blood flow to the area and promote healing. These processes have been shown **not** to promote healing and they cause unnecessary pain.

Firing involves using a hot iron to the skin to cause a series of third-degree burns over an injury (which may already be inflamed). Blistering involves brushing a burning liquid onto a horse's leg.

## Minimum Standards from the Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005

This is a very important Code, because it deals with many husbandry practices that are commonplace on farms and which inevitably cause some animal suffering – practices like home killing, castration, disbudding and dehorning.

The animal welfare standards for these and other husbandry practices are improving all the time as animal welfare science develops more accurate ways of measuring animal suffering, and as new technology becomes available. One main driver of improvements in animal welfare is consumer demand. More and more consumers are looking for animal products from farms that focus on high animal welfare standards and care of the environment.

The Code of Welfare for Painful Husbandry Procedures prohibits the castration of lambs and calves over 6 months of age without pain relief, it prohibits dehorning of cattle over 9 months of age without pain relief, and it prohibits the docking of all but the tip of cows' tails.

Here in full are the minimum standards in the Code:

### Justification for Painful Procedures

- Painful husbandry procedures must only be performed where there are no other practical, economically viable, effective, less noxious alternatives to the procedure and they result in an overall enhancement of the animals' welfare through reduced susceptibility to ill health, injury or compromised welfare.
- Facilitate advantageous farm management systems.
- Result in an enhanced animal product.
- Result in reduced safety risk to humans.

### Minimising Harmful Consequences

- Painful husbandry procedures must not be performed on newborn animals less than 12 hours old where handling, pain and postoperative complications are likely to compromise survival through impairing maternal bonding and or colostrum intake.
- If painful husbandry procedures that have animal health and welfare benefits are not used, care must be taken to manage any consequential risks to animal health and welfare of not using them.

### Castration and Cryptorchiding

- The method of castration or of shortening of the scrotum must be chosen and applied so as to minimise the acute as well as chronic consequences for the health and welfare of the animal.
- While complying with the above, castration or shortening of the scrotum without pain relief must be performed when the animals are as young as possible but not greater than 6 months of age.
- When castrating or shortening the scrotum of any animal over the age of 6 months, pain relief must be used.

- When using rubber rings to castrate, they must be placed above the testes and below the teats and must be of a tension and size appropriate to the animal in order to ensure that blood supply to the testes and scrotum is stopped immediately.
- When shortening the scrotum with rubber rings, they must be placed below the testes taking care not to include the testes within the ring, and they must be of a tension and size appropriate to the animal in order to ensure that blood supply to the scrotum is stopped immediately.
- If high tension bands are used to castrate an animal, local anaesthetic must be used at any age to provide pain relief and the band must be positioned on the scrotal neck as close to the testes and as far from the abdomen as possible.

Note that castration of horses and dogs is classed as a “significant surgical procedure” and therefore vet only.

## Tail Docking (or tailing)

### Sheep

- Tail docking of sheep must only be undertaken where there is significant risk of faecal and urine contamination, and/or flystrike, that leads to poor hygiene, health and welfare and or failing to do so adds a significant cost to the farm system.
- While complying with the above, tail docking without pain relief must be performed when the sheep are as young as possible, and not greater than 6 months of age.
- When tail docking a sheep over the age of 6 months, pain relief must be used.

### Cattle

- If tail shortening is undertaken it must be limited only to removal of the last two or three vertebrae of the tail, using a rubber ring applied between the joints and either be left to drop off of its own accord or not less than 7 days after the application of the rubber ring, be severed by the use of a sharp instrument at a point below where the rubber ring has been applied and in such a manner as not to cause discomfort to the animal.

## Disbudding and Dehorning

Animals with intact or tipped horns must be managed to minimise the risk of injury to other animals.

Disbudding - when disbudding is performed, the following must apply:

- The method must be chosen and undertaken so as to minimise the pain and distress and other negative health consequences e.g. infection for the animal.
- If used, thermal cauterising equipment must be used in such a way as to minimise the risk of thermal injury to tissues other than the horn bud and adjacent skin.
- If used, caustic or chemical techniques of disbudding must only be used by personnel skilled with the procedure and only used when injury to the animal beyond the horn bud or to other animals is minimised.

- Dehorning - when dehorning is performed the following must apply:
- The method must be chosen and undertaken so as to minimise the pain and distress and other negative health consequences e.g. infection for the animal.
- Dehorning without pain relief must be performed when animals are as young as possible and not greater than 9 months of age.
- When dehorning any animal over the age of 9 months, pain relief must be used.

### Operator Training, Stockmanship and Facilities

Owners or persons in charge of animals upon which painful husbandry procedures are to be undertaken must ensure that they or their personnel have either the relevant knowledge and training or appropriate supervision and suitable equipment to ensure that the health and welfare needs of the animals in their care are met.

Persons undertaking painful husbandry procedures must:

- Be experienced, or have received training with the correct use of the particular technique and its variations.
- Be able to recognise early signs of significant distress, injury or ill health so that prompt remedial action can be taken or advice sought.

In addition:

- All equipment must be maintained in full working order.
- Appropriate standards of cleanliness and hygiene must be observed at all times.
- Where used, handling facilities must allow the procedure to be undertaken with minimal compromise to the health and welfare of the animals.
- Handling facilities must be sited, constructed, maintained and operated so as to minimise the risk of injury and avoid unnecessary distress to the animals.

Note that the above is the **minimum** standard required, i.e. legally what you must do. For best practice, in other words what you **should** do ideally there are further suggestions. As an example, best practice recommendations for castration and dehorning/disbudding state that pain relief should be used at any age, not just six and nine months respectively.

The following poster summarises animal welfare requirements for painful husbandry procedures including de-horning and disbudding, tail shortening and castration. Although it focuses on dairy cows the principles are the same for beef cattle. It can be downloaded from DairyNZ at [www.dairynz.co.nz](http://www.dairynz.co.nz) in their publications and tools section.

<p><b>JUSTIFY</b></p>  <p>Why are we doing this?</p>	<p><b>BEST PRACTICE</b></p> <p>Minimise pain</p>   <p>Use anaesthetic</p>
<p><b>STOCKMANSHIP AND EQUIPMENT</b></p>  <p>Skills Knowledge Experience</p>  <p>Good working order Hygienic Clean</p>	<p><b>MINIMISE HARM</b></p>  <p>No painful procedures before 12 hours old - if survival at risk</p>
<p><b>TAIL SHORTENING</b></p> <p>Last 2-3 vertebrae using a ring</p> 	<p><b>DEHORNING</b></p>  <p>OK but disbudding preferred</p> <p>9 months and up use anaesthetic</p> 
<p><b>CASTRATION</b></p>  <p>Right place Right size ring</p> <p>6 months and up use anaesthetic</p> 	<p><b>PENALTIES</b></p> <p>\$50,000 fine and/or 12 months in prison</p> 

PP CODE SUMMARY V4 APRIL 2013

Figure 8 Cattle Husbandry

Image retrieved from <http://www.dairynz.co.nz/media/1915392/animal-pub-painful-procedures-poster.pdf>

## Codes of Recommendations and Minimum Standards

The Codes of Recommendations and Minimum Standards (CORMS) can be viewed in full on MPI's website (<http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>) or copies can be purchased from MPI, Box 2526, Wellington 6140.

Remember that the CORMS are gradually being replaced by Codes of Welfare, but their minimum standards still carry weight and they can still be used in court to prove or disprove allegations of cruelty to animals.

The CORMS that have not yet been replaced by Codes of Welfare and that are still in use as of January 2014 are those for:

- Horses
- Ostrich and emu
- Animals at Saleyards
- Emergency slaughter of Farm Livestock
- Sea transport of sheep from New Zealand
- Animals in Boarding Establishments
- Sale of companion animals (Also refer to Code of Welfare for Companion Cats and Code of Welfare for Dogs)
- Deer during the Removal of Antlers (Also refer to Code of Welfare for Deer)
- Guidelines for the Welfare of Red & Wapiti Yearling Stags During the Use of Rubber Rings to Induce Analgesia for the Removal of Spiker Velvet (Also refer to Code of Welfare for Deer)
- Guidelines for the Welfare of Yearling Fallow Deer During the Use of Rubber Rings to Prevent Antler/Pedicle Growth (Also refer to Code of Welfare for Deer)

Students are strongly encouraged to download copies of relevant Codes because they outline minimum standards and often include discussion about what is reasonable and practical, and include educational material regarding husbandry practices and their impact on the welfare of livestock.



## An example of an Animal Welfare Code of Welfare

As noted earlier, there are several different codes of welfare for different animal groups, e.g. sheep and beef cattle, dairy cattle, deer, goats, etc. As an example of a code, in this section we will look in more detail at the Animal Welfare (Sheep & Beef Cattle) Code of Welfare 2010. This code includes some standards that are the same as standards in other codes in addition to others that are more specific to sheep and beef cattle.

**NOTE: All the Minimum Standards quoted in this section relate to the Animal Welfare (Sheep & Beef Cattle) Code of Welfare 2010.**

Codes of welfare for other animal types can be read or downloaded from MPI's website (see reference section).

### Animal Welfare (Sheep & Beef Cattle) Code of Welfare 2010

There are **twenty** 'Minimum Standards' in this Code. We will only look at a selection of these that involve some common sheep and beef farming tasks. For all *legal* requirements regarding the welfare of sheep and cattle read the code in full by viewing it or downloading it from the MPI website (<http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/> ).

#### Food and water

Most farmers aim to provide sufficient levels of food and water to their livestock to meet their needs and to optimise meat, milk and/or fibre production.

The quantities of feed and water required by animals vary over a year depend on factors such as:

- the type and class of animal (e.g. cow, steer or bull; calf, rising one year old; ewe, wether or ram; lamb, hogget)
- animals' physiological state (e.g. pregnant, lactating, dry, etc.)
- body condition required (e.g. ideally ewes should have a body condition of 3 or more before mating to ensure good pregnancy rates)
- weather (e.g. most animals require more feed in very cold and windy conditions to meet their basic needs and they may need more water during very hot weather)
- A good diet provides all an animal's energy and nutrient needs to remain healthy, allow it to behave normally and not harm it in any way. Legally farmers have to meet 'Minimum Standard No. 5 – Food and Water' shown next page.

## Minimum Standard No. 5 – Food and Water

- (a) All animals must receive sufficient quantities of food and nutrients to enable them to:
  - (i) maintain good health;
  - (ii) meet their physiological requirements; and
  - (iii) minimise metabolic and nutritional disorders.
- (b) All sheep and beef cattle must have access to water, sufficient for their daily needs and that is not harmful to their health.
- (c) If any beef animal shows signs of being very thin, or if the body condition score of any individual beef animal falls to 1 (on a scale of 0-5), urgent remedial action must be taken to improve condition or the animal must be destroyed humanely.
- (d) If any sheep shows signs of being very thin, or if the body condition score of any sheep falls to 1 (on a scale of 0-5), urgent remedial action must be taken to improve condition or the animal must be destroyed humanely.

*Figure 9 Minimum Standard No.5 – Food and Water*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

In parts (c) and (d), 'urgent remedial action must be taken to improve condition' could mean that the animal should be fed more and/or any health issues that have caused the animal to be thin are corrected.

In practice, an animal should **never** be allowed to reach a body condition score of 1. Attention should be given to the animal long before it reaches this emaciated state. Any thin animal or an animal losing weight unexpectedly is a warning sign that it does not have enough food and/or water to meet its needs or that it is not well.

### Shelter

As most farms in New Zealand are pasture-based, with animals living outdoors all year, protection from extreme weather, is an important consideration for animal production. New Zealand's climate is generally described as being temperate, with relatively mild winters and summers. However, extreme cold weather events, such as snow, occur most winters in southern and high altitude areas of the country and all but a few areas can experience extreme heat events from time to time. In addition, New Zealand is relatively windy and most areas of the country are affected by strong winds at various times of the year which can dramatically increase the harmful affects of hot and cold temperatures.

Healthy livestock can tolerate a wide range of temperatures if they are acclimatised (get used to it) and have sufficient feed and water. However, shelter can reduce production losses and improve the welfare of animals. Without shelter animals need to put more energy into normal functioning and less into production. Shelter, including shade, can minimise the impact of weather extremes and prevent suffering or possibly death.

## Minimum Standard No. 6 – Shelter

- (a) All sheep and beef cattle must have access to shelter to reduce the risk to their health and welfare caused by exposure to cold.
- (b) Sheep and beef cattle giving birth must be provided with an environment affording the newborn protection from any reasonably expected climatic conditions likely to compromise their welfare and survival.
- (c) Sheep and beef cattle must be provided with means to minimise the effects of heat stress.
- (d) Where animals develop health problems associated with exposure to adverse weather conditions, priority must be given to remedial action that will minimise the consequences of such exposure.

*Figure 10 Minimum Standard No. 6 – Shelter*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

Generally, old, young and sick animals are more affected by cold and hot weather than healthy adult animals. New-born animals are particularly vulnerable and their welfare is covered by part (b) of this Standard.

Signs of heat stress in animals, in increasing order of distress, include:

- increased breathing rate
- seeking shade
- refusing to lie down
- reduced food intake
- crowding around water trough
- agitation and restlessness
- open mouthed panting
- down and unable to move
- death

For example, if animals are breathing faster than normal (but not panting with their mouths open) and are seeking shade then they are already experiencing some stress from heat. If the temperatures does not drop and/or the stock handler doesn't provide shade or some other cooling method and the heat continues, then the animals may start to refuse to rest, eat less and crowd around the water trough. If the heat stress continues, they may pant with their mouths open, then go down and eventually die from a combination of stress to body organs and lack of water.

The best type of shelter during extreme heat protects animals from the sun and allows for the cooling effect of the wind, e.g. spaced, individual trees that provide shade but allow air movement. In contrast,

closely planted shelter belts provide good protection from cold windy weather by reducing air movement. Ideally farmers should take notice of weather forecasts and ensure animals have appropriate shelter to prevent heat stress. However, if for some reason animals do get heat stressed they should be provided with some sort of artificial shade or perhaps a sprinkler system to cool them down. Moving heat stressed animals should be avoided but if there is no alternative move the animals slowly and quietly to paddocks providing appropriate shade and air movement.

### Restraint and facilities

Restraints and facilities refer to all the man-made structures, equipment and techniques that are used to handle, house, enclose or generally keep sheep and cattle under control or carry out tasks such as shearing or vaccinating. The main focus of 'Minimum Standard No. 4 – Restraint and Facilities' is to prevent unnecessary animal discomfort, stress and harm when they are being held in some manner or handled in facilities.

#### **Minimum Standard No. 4 – Restraint and Facilities**

- (a) All facilities, including fences, yards, sheds, and housing, must be constructed, maintained and operated in a manner that minimises the likelihood of distress or injury to animals.**
- (b) Methods of restraining animals must only be used:**
  - (i) when they are suitable for those animals being handled;**
  - (ii) where the operators are fully conversant with their safe operation;**
  - (iii) if they are in good working order so as to minimise the risk of injury or unnecessary pain or distress;**
  - (iv) only for as long as necessary to perform particular husbandry practices; and**
  - (v) where they allow the animal to be released immediately if required.**
- (c) Animals that are physically restrained must be kept under supervision.**
- (d) Electroimmobilisation devices must be used only in a manner that allows animals to breathe normally, demonstrate normal responses to pain and must not be used in place of pain relief when undertaking painful husbandry procedures.**
- (e) Sheep or beef cattle to be restrained by tether (e.g. pets or show animals) must have been habituated to being handled in that way.**

*Figure 11 Minimum Standard No.4 – Restraints and Facilities*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

An example of meeting the requirements of part (a) of this standard would be to make sure yards have no sharp protrusions or nails sticking out that may cause injury.

Part (b) (ii) is a very important aspect of this Standard. It is essential that all people handling stock are trained to use restraining equipment such as head bails, automated crutching platforms, and drenching and vaccination conveyer systems. This is important for animal welfare and the safety of the stock handler.

By law, you cannot, for example, restrain a steer in a head bail then leave it unattended. Someone must be supervising restrained animals at all times (see part (c) above).

Electroimmobilisation devices (see part (d) above) temporarily immobilise animals with a low voltage electrical current similar to that commonly used in some human physiotherapy devices.

### Husbandry practices

Farming sheep and cattle involves doing a range of activities to maintain and improve animal health, welfare and production. These activities include selection of animals for breeding and farming, using technologies such as artificial insemination, monitoring and managing animals during critical periods (e.g. during pregnancy and birth), artificially rearing new-born animals and managing them in more intensive systems.

Procedures which cause pain, such as tail docking, castration, disbudding and dehorning, are addressed in the Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005. Recall that other Standards are also applicable when carrying out animal husbandry procedures. For example, if you are hand-rearing rearing calves, Minimum Standards No. 5 and 6, concerning food, water and shelter are applicable as well as Standards in this section.

### **Minimum Standard No. 10 – Lambing and Calving**

- (a) Mechanical devices to assist in lambing or calving must only be used if necessary and then by a trained and experienced operator.**
- (b) A moving vehicle must not be used to provide traction to assist lambing or calving.**

*Figure 12 Minimum Standard No. 10 – Lambing and Calving*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

Minimum Standard No. 10 concerning lambing and calving husbandry practices relates to assisting when lambing or calving does not happen naturally. Remember, this is the *minimum* action a farmer should meet when assisting at birth. An in-depth knowledge of the birthing process, and dam and offspring requirements at birth is necessary to provide the best opportunity for lambs and calves to be born unassisted or with as little help as possible. Training and experience in assisting at births is essential for successful intervention at this critical time.

## Minimum Standard No. 11 – Colostrum

**Artificially reared lambs and calves must receive sufficient colostrum or good quality commercial colostrum substitute to ensure their welfare.**

*Figure 14 Minimum Standard No.11 – Colostrum*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

Colostrum contains antibodies; compounds that help protect new-born animals from diseases. If lambs and calves are removed from their mothers soon after birth or their mothers die then, *by law*, these young animals must be given enough colostrum (or colostrum substitute) of suitable quality to ensure their welfare. This includes pet lambs and calves as well as commercial livestock.

## Minimum Standard No. 12 – Fostering and Artificial Rearing

- (a) Where restraint is used to help a ewe or cow to adopt a foster lamb or calf, the animals must be inspected frequently to ensure the dam is not becoming distressed and the lamb or calf is sucking.**
- (b) Where young are rejected by the foster dam the lamb or calf must be removed and provided with adequate nourishment, or killed humanely.**
- (c) Artificially reared animals must be given suitable liquid feeds until the rumen has developed sufficiently to allow it to utilise pasture and other solids as the sole feed sources.**

*Figure 13 Minimum Standard No. 12 – Fostering and Artificial Rearing*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

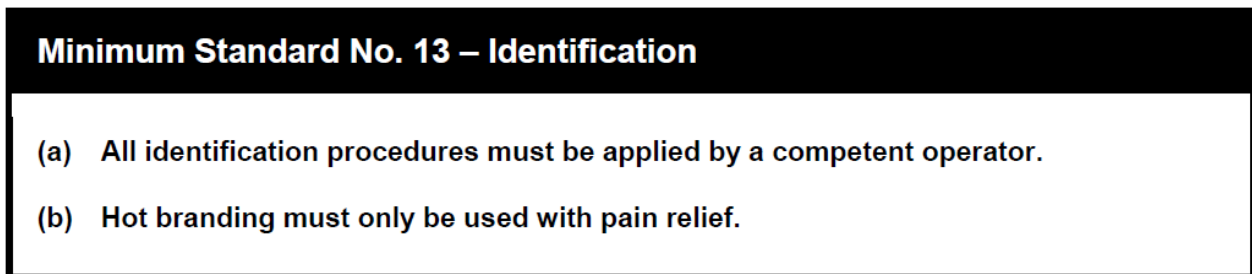
Putting an orphaned lamb with a ewe whose lamb has died and then leaving them unattended for a day or two in the hope that they bond and the lamb feeds is illegal (see part (a)).

Bonding between dams and young animals that are not related is unpredictable. Frequent, regular checks need to be made to see if the young animals are being allowed or want to suckle, or that the dam is accepting and not being aggressive toward the introduced lamb or calf.

Sometimes killing a rejected lamb or calf can be more humane than trying to force feed it. The main thing is not to let lambs or calves suffer; a quick humane death is considered kinder to the animal than slow starvation.

Lambs, calves and other young ruminants start life by drinking colostrum and then milk. It then takes time for their rumens to develop so they can digest and make use of solid feed such as pasture or cereal based

rations. When young animals are made to eat only solid feed we say they have been weaned (i.e. they no longer have access to milk – from their dams or artificial sources - and have to eat pasture, fodder crops, balage, etc.). When artificially rearing calves or lambs the cost of providing milk can be high and there may be the temptation to wean animals too soon. This can lead to health and/or development problems for the young animals. Part (c) of the above standard, means that farmers can be prosecuted if they wean artificially reared calves or lambs too early (i.e. before the rumen is adequately developed).

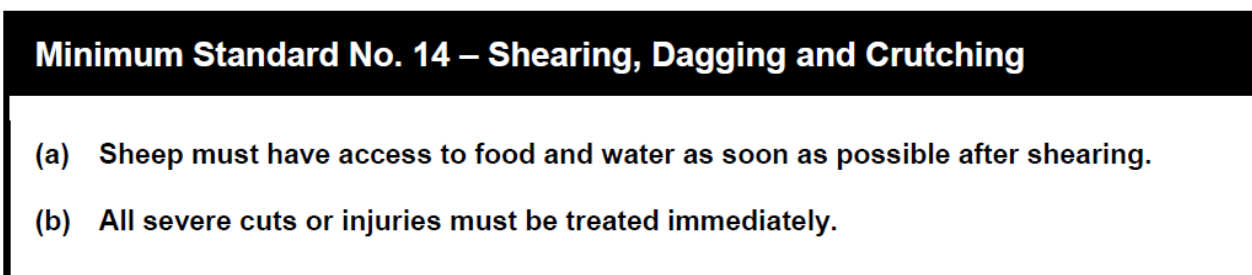


*Figure 15 Minimum Standard No. 13 – Identification*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

Animal identification of cattle and deer by eartagging is required by law so all cattle and deer stock handlers have to know how to apply identification tags in the recommended manner that reduces discomfort and stress to animals. Many sheep farmers are also now identifying all of their stock (not just breeding ewes) to help improve farm production. Good training by expert operators is the key to meeting part (a) of this standard.

Hot branding is not as commonly used as it used to be but if required, it must be used with pain relief.



*Figure 16 Minimum Standard No. 14 – Shearing, Dagging and Crutching*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

Shearing is a stressful time for sheep; mustering, dogs, handling and noise all create a certain amount of stress. Insufficient food and water can add to the stress load. On the other hand, the health of shearers also needs to be considered. Sheep full of feed are heavy, tend to struggle more when being shorn (because they are uncomfortable with a full belly) and can make floors more slippery due to more urine and faeces being passed in the shed rather than in the yards.

The Ministry of Business Innovation and Employment has developed pre-shearing fasting recommendations that aim to optimise sheep and shearer welfare. Part a) of the above standard relates to feed and water *after* shearing. Given the recommendations for pre-shearing fasting, it can be seen that providing food and water as soon as possible after shearing is vital for sheep welfare and production.

The pre-shearing fasting recommendations are summarised in the following table. Note that time off feed and water includes the time spent mustering (most sheep eat and drink very little during this time). Also the time off feed and water is for all animals, from the first mustered to the very last to be shorn. For example, *no* weaned lamb should be without water for more than 20 hours before shearing. This means the first lamb shorn will be without water for a shorter time, e.g. 10 hours.

<b>TABLE 1: SUMMARY OF RECOMMENDATIONS FOR EMPTYING OUT SHEEP PRIOR TO SHEARING</b>					
<i>Recommended Minimum and Maximum Number of Hours Without Feed and Water Prior to Shearing</i>					
	<i>Minimum number of hours without feed</i>	<i>Maximum number of hours without feed</i>	<i>Minimum number of hours without water</i>	<i>Maximum number of hours without water</i>	<i>Special considerations</i>
<b>Ewes (and adult male sheep)</b>					
Non-pregnant, non-lactating	20	32	12	24	Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases.
Early - mid pregnancy	18	30	12	24	
Late pregnancy and lactation	12	24	8	20	Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases. Where practical, unweaned lambs should remain with their mothers until ewes enter the woolshed.
<b>Hoggets</b>					
Non-pregnant, non-lactating	18	30	12	24	Use special care when handling pregnant hoggets. Exceeding these maximums may induce metabolic problems and/or precipitate clinical diseases. Where practical, unweaned lambs should remain with their mothers until hoggets enter the woolshed.
Pregnancy and lactation	12	24	8	20	
<b>Lambs</b>					
Pre-weaning	6	24	6	20	Exceeding these maximums may precipitate clinical diseases. Exceeding these maximums may precipitate clinical diseases.
Weaned	12	24	8	20	

**Figure 17 Table Summary of Recommendations for Emptying out Sheep prior to Shearing**

Image retrieved from <http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/fasting-of-sheep-prior-to-shearing-health-and-safety-recommendations-for/PreshearingGuideline.pdf>

Dairy cows and cattle are the main types of livestock held on feeding pads in New Zealand. The following space recommendations are for dairy cows but would also be suitable for beef cattle.

Cows need to have 3.5m<sup>2</sup> per cow on a feed pad when it is being used for short periods of time.



If a feeding pad is being used for around 12 hours per day then cows must be provided with a comfortable lying area allowing a minimum of 6m<sup>2</sup>/cow.

### **Minimum Standard No. 16 – Feeding Pads**

- (a) All animals must be able to lie down and rest comfortably for sufficient periods to meet their behavioural needs.**
- (b) Sufficient space must be provided to prevent undue competition for feed and water.**

*Figure 18 Minimum Standard No. 16 – Feeding Pads*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

If the pad is being used permanently with no on-off grazing then a minimum of 9m<sup>2</sup>/cow plus a 1m<sup>2</sup> feeding area per cow must be provided.

The recommendation for space per cow at the feed bin/trough/lane to ensure each animal gets its feed ration is 0.7m if all cows are feeding at once or 0.3m if they are fed *ad lib* (when they feel like it). So if you had 20 cows all feeding at once on one side of a feed trough, the trough would need to be 14m long (20 x 0.7m).

### **Health, injury and disease**

Knowledge of the appearance and behaviour of healthy animals, and an awareness of the common diseases affecting sheep and/or beef cattle, are essential in being able to recognise signs of illness, disease or injury.

### **Minimum Standard No. 7 – Injury and Disease**

- (a) Signs of ill-health or injury must result in timely preventative or remedial action, as appropriate.**
- (b) Medication must only be used in accordance with registration conditions and manufacturer's instructions or professional advice.**

*Figure 19 Minimum Standard No. 7 – Injury and Disease*

Image retrieved from <http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

As well as death, injury and disease can contribute to poor animal welfare by causing discomfort, distress and/or pain and lower animal production. 'Minimum Standard No. 7 – Injury and Disease' gives the legal requirements farmers must meet to ensure animals under their care do not suffer due to injury or disease.

Any change from normal behaviour can mean that a health problem is brewing. Some possible indicators of a problem include the following.

- An animal that feels unwell tends to stand apart from the rest of the mob.
- It may have lost its appetite and may not drink.
- It is often dull, standing with its head down and taking little interest in what is going on.
- Sometimes it will be more agitated than normal.
- If it is in pain it may be restless, kicking its belly or looking round at its flank.
- Foot, leg or hip pain may show as lameness or reluctance to move.
- If it has a brain disease it may move abnormally or circle, possibly holding its head on an angle.
- If it is blind it may blunder into obstacles.
- If it is deaf it may be unresponsive to sound

Herd animals are very good at compensating by using other senses to detect other members of the herd and stick with them, so it takes patient quiet observation to spot some types of abnormality.

Most farm animals are herd animals with a strong instinct for self-preservation and if they suspect they are being watched by a potential predator (i.e. a dog or stock handler) they can mask the signs of weakness and behave almost normally. It is important to observe the animals quietly, preferably at frequent intervals or at the same times each day. Look out for things like lameness or unusual gait, unusual posture, unusual breathing movements or fast breathing, straining to pass urine or faeces, teeth grinding or head shaking – in short, anything you do not normally expect to see.

Preventative measures include good facilities, an animal health programme, selection of stock with disease resistance traits (or culling of susceptible animals), good feeding (including meeting trace element requirements), good stock management and an understanding of the animal's needs. Animal health programmes need to include disease prevention strategies.

## Test Yourself #4

1. What is the legislation that protects animals from bad treatment?
2. Who is responsible for the welfare of animals?
3. What government department administers the legislation relating to animal welfare?
4. What is the difference between a Code of Welfare and a Code of Recommendations and Minimum Standards?
5. What Code of Welfare sets out minimum standards for castration of sheep and cattle?
6. Which of these are significant surgical procedures that must not be carried out by non-veterinarians?
  - a) castration of colt foals
  - b) castration of goat kids
  - c) disbudding of calves
  - d) de-velveting stags

Telford

## Disease Prevention

To ensure good livestock health and welfare it is very important for farmers to have an effective animal health programme. This should mean that stock are healthy and their production is as good as possible.

It involves devising a programme of measures to prevent diseases in conjunction with a veterinarian.

It might take the form of an annual calendar of events like vaccination, drenching and trace element supplementation.

Strategic stock weighing and body condition assessments are important to help monitor the effectiveness of the programme.

## Drenching

As part of a disease prevention strategy, stock are often drenched with anthelmintics to control worms. This is only one part of worm control, because drench resistance is becoming more of a problem on farms. Pasture management and minimal strategic drenching with an effective drench are all involved. It may seem complicated so, it is important to discuss your drenching strategy with an animal health professional.

Drenching involves yarding and restraining stock so that individuals can be given a medication by mouth or along the skin on their back. When giving a drench or a long acting bolus by mouth it is very important to read the instructions carefully to prevent injury to the throat area. A bolus is a large time-release tablet that stays in the rumen of cattle sheep, deer and goats.

Never use undue force. Forcing the sheep's head back and forcing a drenching gun into the mouth can injure the throat badly.

## Injections

It is often necessary to give injections as part of a disease prevention regime.

An injection can be given in one of three ways:

- Subcutaneous - just under the skin (e.g. many vaccines).
- Intramuscular – into the body of a muscle (e.g. some antibiotics).
- Intravenous – directly into the blood in a vein (e.g. calcium solutions for cows down with milk fever).

All vaccinations are given by injection and most are subcutaneous. As with all animal remedies, it is important for the farmer to read the label carefully and follow the instructions exactly.

The best site for subcutaneous injection is the side of the neck. A fold of skin can be lifted (or 'tented') and the needle directed into the base of the tent so that the injection remains under the skin. The needles must be sterile and sharp.

If intramuscular injections are necessary, they should only be given with the guidance of a veterinarian because of the risk of infections and damaging structures like arteries and nerves.

Intravenous injections are generally only performed by a veterinarian only or experienced farm staff (e.g. treating dairy cows with metabolic disorders).

As with all medications, it is important to make sure the dose is calculated accurately for the size of the animal (see next section).

## Record Keeping

Accurate record keeping is important on any farm. A farm diary should record ear tag numbers and any observations about the animal (mating dates, birthing dates) and any preventive treatments given (routine anthelmintics, trace element supplements, vaccinations).

Significant or unusual sickness, injury or death of animals should be recorded, along with any vet visits, treatments given and the outcome.

A treatment book is necessary when giving animal remedies. This should be a record of the treatment given, including the identity (e.g. tag number) of the animal treated, the reason for treatment, the treatment given, the dose given and if relevant the outcome.

The date of administration of any animal remedy or medicine must be recorded. If the remedy has a withholding period, this must be recorded and strictly followed. The withholding period is the time that must elapse between treatment and when milk, meat or wool from that animal can be sold.

## Calculations Relating to Health and Welfare

To help ensure their good health and welfare, animal remedies are administered to stock, and these require careful calculations. This could be for a single administration or a season's supply for a given class of livestock.

The recommended dose of an animal remedy is usually given as ml per kg of body weight. It is clearly shown on the product label.

For example, it might be 5 ml per 10 kg body weight. This means that for a 60 kg animal, the dose would be  $60/10 \times 5\text{ml} = 30\text{ml}$  (or  $60\text{kg}/10\text{kg} \times 5\text{ml} = 30\text{ml}$ ).

If the dose rate were 1 ml per 5 kg body weight, the 60 kg animal would require  $60/5 \times 1\text{ml} = 12\text{ ml}$ .

Dose per animal x number of animals = amount required for treatment of group.

If the dose is being set for a mob (rather than treating each animal for its individual weight) then set it for the heaviest animal in the mob to make sure no animal is under-dosed. Under-dosing, especially with anthelmintics, may make the product ineffective and build resistance to the treatment.

### Lambs – Some Examples and Questions

#### Example 1

If the dose rate of a drench for lambs is 5 ml per 10 kg live weight, how much does a 20 kg lamb require and how much drench is required for a mob of 100 lambs?

#### Example 2

If the dose rate of a drench for lambs is 5 ml per 10 kg live weight, how much does a 30 kg lamb require and how much drench is required for a mob of 180 lambs?

### Calves – Some Examples

#### Example 1

What would be the amount of pour-on required for 50 calves with maximum live weight of 120 kg when the dose rate is 5 ml per 50 kg live weight?

#### Example 2

What would be the amount of pour-on required for 75 calves with maximum live weight of 80 kg when the dose rate is 1 ml per 20 kg live weight?

Note that the above calculations only apply when the body weight of individual animals is known e.g. by using weighing platforms. In practice, farmers often guess the weight of the animals but even experienced farmers can misjudge weights and this means under-dosing or over-dosing. Under dosing can mean the

medication is ineffective and with drench it can encourage drench resistance. Overdosing can lead to toxicity, and with substances like selenium, for example, giving two or three times the recommended dose can be fatal.

If the animals are not individually weighed, it is safest to weigh some of the biggest, calculate the dose for the heaviest and, provided the animals are all about the same size, give this dose to each animal in the mob.

If the animals vary greatly in size then they should be drafted into two or more mobs by weight and dosed for the heaviest weight in each mob. Many farmers add a small margin (e.g., dosing to 40kg if the heaviest is 38kg) to allow for a small loss of product when it is given.

It is very important to check the drench gun before starting to make sure it is giving the calculated dose. Under dosing is at the root of a lot of drench resistance. Check the dose the drench gun is delivering it by “drenching” into a calibrated vessel such as a syringe barrel. The same simple method can be used to test the calibration of a vaccinating syringe and a pour-on applicator.

## Calibrating a Drench Gun

The steps involved in calibrating a drench gun are:

- Find out the dose you wish to administer.
- Set the drench gun to deliver the correct dose.
- Check that the drench gun is delivering the correct dose by squirting it into a measuring cylinder 10 times.
- Record the total volume.
- Divide the answer by 10, as this will give you the rate that the drench gun is delivering.
- Adjust the gun if necessary to get the correct amount.

## Test Yourself #5

1. Calculate the dosage rate for the following:

6ml per 12 kg  
Weight of animal = 35kg

2. Calculate the dosage rate for the following:

5ml per 9kg  
Weight of animal = 32kg

3. Calculate the dosage rate of the following:

2ml per 12kg  
Weight of animal = 90kg

4. What are the steps to calibrating a drench gun?
5. What sort of essential information on livestock health and welfare should you record in your daily farm diary?
6. If you are drenching a group of calves, what is wrong with estimating the average weight of the group and giving each calf that dose?
7. You have a group of 100 lambs with a maximum weight of 25 kg and you have only just enough mineral supplements to give them the recommended dose at a dose rate of 1 ml per 10 kg body weight. How much drench do you have?
8. If the heaviest lambs in a mob of 180 weigh 30 kg and the range of weights in the mob is 25 to 30 kg and you decide to dose each lamb with a dose appropriate for the heaviest, how much drench will you need? (The dose rate is 1 ml per 10 kg body weight.)



## References

Animal Welfare Codes of Welfare and Codes of Recommendations and Minimum Standards for the Welfare of Animals can be viewed on line:

<http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare/>

*Cattle Handling Skills*, Kevin Stafford (1997). Accident Rehabilitation and Compensation Insurance Corporation, Wellington.

*Sheep and Cattle Handling Skills*, Robert Holmes (1984). Accident Compensation Corporation, Wellington.

A useful site for information about animal welfare:

[www.lifestyleblock.co.nz](http://www.lifestyleblock.co.nz)

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## Answers to Examples

### Lambs

#### Example 1

*Dose rate = 5 ml per 10 kg*

*Average weight = 20 kg*

*Dose for average = 10 ml*

*Number of lambs = 100*

*Total amount needed = 1 litre*

#### Example 2

*Dose rate = 5 ml per 10 kg*

*Average weight = 30 kg*

*Dose for average = 15 ml*

*Number of lambs = 180*

*Total amount needed = 15 x 180 = 2.7 litres*

### Calves

#### Example 1

*Dose rate = 5 ml per 50 kg*

*Average weight = 120 kg*

*Dose for average =  $120/50 \times 5 = 2.4 \times 5 = 12$  ml*

*Number of calves = 50*

*Total amount needed = 50 x 12 = 600 ml*

#### Example 2

*Dose rate = 1 ml per 20 kg*

*Average weight = 80 kg*

*Dose for average =  $80/20 \times 1 = 4$  ml*

*Number of calves = 75*

*Total amount needed = 4 x 75 = 300 ml*

## Test Yourself Answers

### Test Yourself #1

1. *Moral and practical reasons*
2.
  - *knowledge of animal needs*
  - *understanding of husbandry system*
  - *having skills to operate husbandry system*
  - *a good rapport with animals*
  - *able to handle them*
3.
  - *The ability to anticipate and/or recognize problems early*
  - *A calm, efficient and competent approach*
  - *Good attention to hygiene*
  - *Consistency in behaviour and methods*
  - *Knowing when to intervene and when to seek assistance*
  - *Working to optimise management systems for the benefit of animal welfare*
  - *Respect for animals and a willingness to learn*
  - *Knowledge of and ability to identify the correct animals for the particular husbandry system*
4. *To see almost 360°*
5. *The blind spot*
6. *No*
7. *Yes*
8. *Because they may be startled and lash out*

### Test Yourself #2

1. *Sheep – seasonal; goats – seasonal; deer – seasonal; cattle – non seasonal*
2. *Signs of heat in the cow:*
  - *She vocalises a lot*
  - *Vaginal discharge – clear viscous fluid*
  - *She walks around a lot to find other cows.*
  - *Cows form sexually active groups of 3 to 5 cows*
  - *Cows on heat mount other cows*
  - *Cows on heat stand to be mounted*
  - *Milk is not let down fully*
3. *More aggressive*
4. *Rams*
5. *True*

### Test Yourself #3

1.
  - a) *false*
  - b) *true*

- c) *false*
  - d) *false*
2.
    - *Use a hand below the chin for restraint*
    - *When the sheep barges forward lift the chin up.*
    - *Turn its head round to face its rear on the side away from you.*
    - *Grab its rear end with your other hand, or down where the back leg joins the body.*
    - *Move backwards pulling the sheep towards you.*
    - *The legs will buckle and it will fall back towards you.*
    - *Grab its front legs and sit it up on its rear end at an angle of about 60 degrees from upright.*
  3. *Hazards*
  4. *Back injuries, butting, crushing, and kicking*

## Test Yourself #4

1. *The Animal Welfare Act 1999.*
2.
  - *Freedom from thirst, hunger and malnutrition*
  - *Freedom from discomfort and pain*
  - *Freedom from injury and disease*
  - *Freedom from anxiety and fear*
  - *Freedom to express a wide range of normal behaviour*
3. *The owner or person in charge.*
4. *Ministry for Primary Industries (MPI).*
5. *The Codes of Welfare complement the Animal Welfare Act 1999. The Codes of Recommendations and Minimum Standards were written to complement the outdated Animals Protection Act 1960, and they are gradually being replaced by Codes of Welfare.*
6. *The Code of Welfare for Painful Husbandry Procedures.*
7. *Castration of colt foals.*
  - *The castration of goat kids and disbudding of calves can only be carried out by a farmer if the animals are less than 3 and 6 months old respectively.*
  - *Note that de-velveting stags is a controlled surgical procedure that must be carried out only by veterinarians or appropriately trained and qualified laypeople.*

## Test Yourself #5

1.  $6/12 \times 35 = 17.5\text{ml}$
2.  $5/9 \times 32 = 17.8$
3.  $2/12 \times 90 = 14.9$
4. *The steps involved in calibrating a drench gun are:*
  - *Find out the dose you wish to administer*
  - *Set the drench gun to deliver the correct dose*
  - *Check that the drench gun is delivering the correct dose by squirting it into a measuring cylinder 10 times*
  - *Record the total volume*

- *Divide the answer by 10 to give you the rate that the drench gun is delivering. If the gun is not delivering the correct dose rate you need to adjust the gun and repeat the steps above until the dose rate is correct.*
5. *Information on livestock health and welfare in the farm diary should include:*
    - *Animal ID (e.g. ear tag numbers).*
    - *Observations about the animal (mating dates, birthing dates).*
    - *Preventive treatments given (routine anthelmintics, trace element supplements, vaccinations).*
    - *Significant or unusual sickness, injury or deaths.*
    - *Vet visits, treatments given and outcome.*
    - *Withholding period of any animal remedies given if the animal is to be milked,*
    - *Shorn or sent for slaughter.*
  6. *Dosing each animal in a group with the dose that would be appropriate for the average weight means that the largest will be under-dosed (this could mean ineffective treatment and encourage drench resistance) and the smallest over-dosed (with the risk of toxicity, e.g. with selenium).*
  7. *250 ml.*
  8. *540 ml.*

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