Better Returns Programme

Improving sheep handling for Better Returns

EBLEX

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Better Returns Programme
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On all sheep farms, animals have to be moved and handled several times during the year.

Common treatments such as yarding, drafting, shearing and crutching are all unnatural activities for sheep and can compromise overall performance if managed badly.

Up to 40% of the time taken to perform a procedure can be spent moving sheep through yards and races. Well designed systems and methods can speed flock movement and reduce this 'wasted' time.

Planning a system before construction can save time and money in the long term, by improving efficiency, worker health and reducing any stress caused to the animals.

The most successful handling systems exploit the normal behaviour of sheep and include features that encourage animal movement in the direction required. It is better to make use of the sheep's willingness to learn to negotiate a system, rather than using fear as the motivator.

This manual gives an insight into a range of sheep behaviours that all sheep farmers will be familiar with. It also explains how, by understanding these, a system can be designed and operated to handle sheep calmly, safely and efficiently for Better Returns.

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Why good handling matters

Well thought-out handling reduces stress on animals and cuts the risk of occupational injuries to staff.

Reduce stress

Common treatments such as yarding, drafting, shearing and crutching are all stressful for sheep. They can suppress reproductive performance and reduce immunity to disease which can compromise overall output.

Close confinement and inversion are stressful

Improve efficiency

With any handling event, up to 40% of the time taken can be spent moving sheep through yards and races, with only 60% of the time spent on the actual procedure. Good handling systems can speed flock movement and reduce overall handling time.

Carcase damage

There is increased risk of economically significant bruising from wool-pull if sheep have to be man-handled in raceways because of bunching.
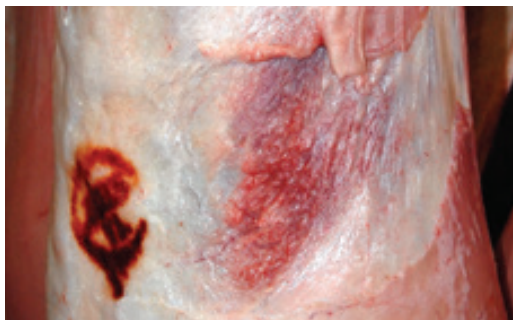
Sheep may also bruise and damage themselves if they make contact with a poorly constructed or badly maintained handling system.

Worker health

Handling sheep frequently involves bending over races, stooping, lifting and turning. Poor handling facilities and bad techniques increase the risk of long term injuries.

Good handling is better for you and better for the animals.

The animal's viewpoint

Understanding sheep behaviour is critical to good handling design and operation.

Vision

Sight is important in the handling situation. Sheep need to keep in visual contact with each other.

Sheep have eyes at the side of the head giving them a **narrow binocular field of vision** at the front, where they can see clearly. This can be restricted due to the shape of the muzzle and the amount of wool on the face.

To the side, sheep have a **wide monocular field of vision** (about 320–340°). This allows the sheep to graze, head down and pick up movement of potential predators or the rest of the flock.

The **blind spot** lies directly behind the body, where sheep cannot see at all.

Point of balance

The point of balance is at the animal's shoulder, running 90° from the spine. Movement behind the point of balance close to the animal will make it move forward. Movement in front of the point of balance close to the animal will make it turn and move away.
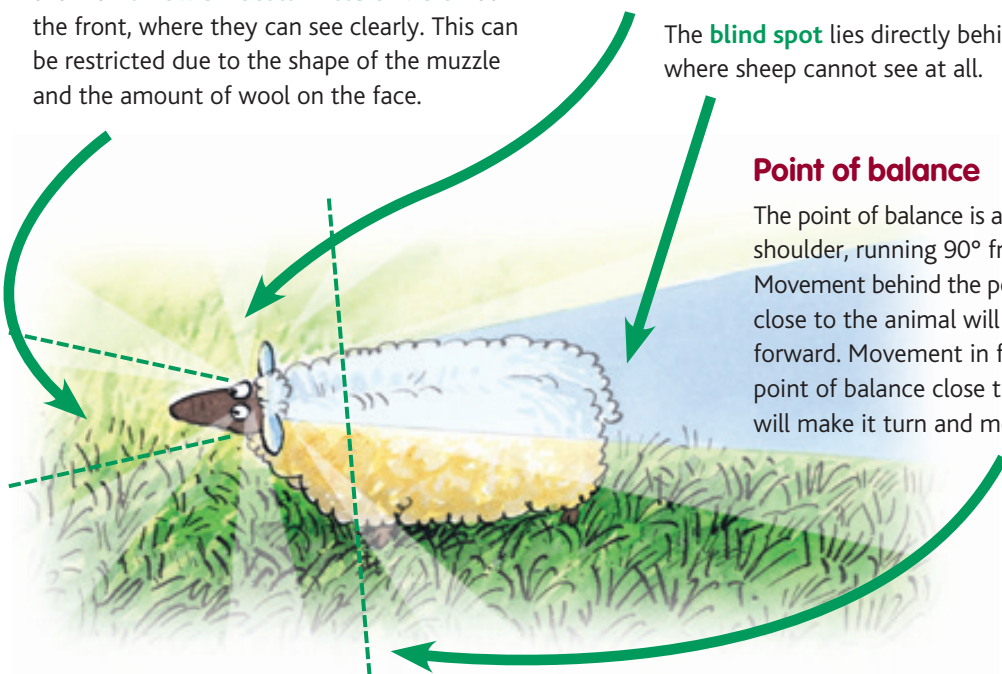
Smell and hearing

These senses are much less important in the handling situation, although sheep are sensitive to higher frequency sounds than humans and find intermittent noises more disturbing.

- Sheep only vocalise when they are isolated and for ewe or lamb recognition
- Vocalisation level is not a good indicator of stress when handling
- Sheep mainly use smell to recognise other individuals over relatively short distances
- Sheep can detect dog faeces through smell
- Sheep are reported to be able to detect the smell of a human at 300 metres under favourable conditions

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Following and flocking
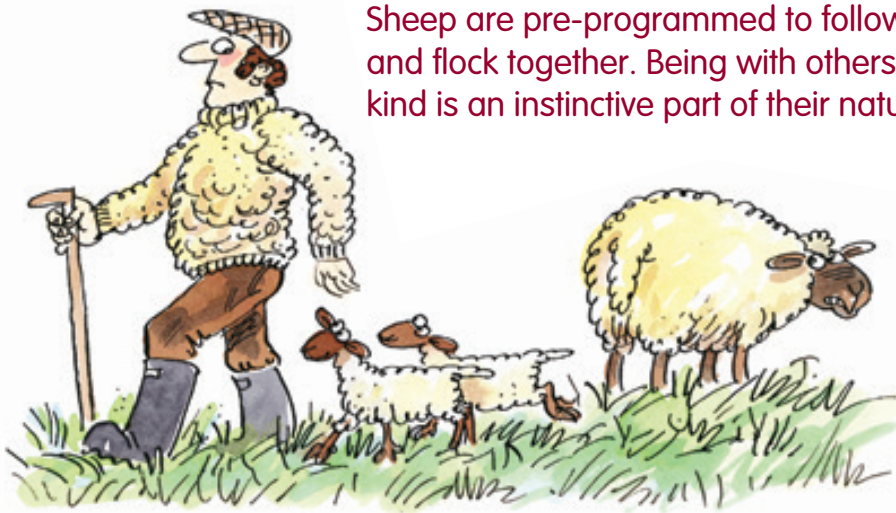
Sheep are pre-programmed to follow each other and flock together. Being with others of their own kind is an instinctive part of their nature.

Following

Sheep are 'follower' animals and as lambs, move towards any large moving objects. This response is strongest between four and ten days of age.

Sheep imitate the behaviour of those around them and tend to do the same things together, such as feeding or resting.

The same individuals are consistently at the front or back of the flock. Dominant animals tend to be in the middle of the flock.

Flocking

When under threat, most sheep form compact groups consisting of at least four or five individuals. The flocking instinct develops as lambs mature. When sheep are mixed from different sources, it takes time before they operate as one flock.

Sheep appear to have favourite flock mates and offspring will usually stay close to their dam. Due to the ability to visually distinguish faces, sheep often remain with their own breed and segregate according to age and sex.

Training sheep to be leaders

Sheep can be successfully trained to lead the flock. This need not be time-consuming if you pick the right time and animals.

A few 'nanny' ewes can earn their keep by leading weaned lambs when they have to be handled.

Learning

Sheep show excellent spatial learning ability, which can be put to good use in the handling situation.

Sheep exhibit excellent spatial learning and in experiments remember how to run a maze in a few attempts for a food reward. Over time, running the maze itself becomes a self-rewarding activity, ie sheep will do it for fun.

Sheep show a strong lateral preference, opting more often for moving to one side than the other. They can also learn between left and right turns.

Sheep are good at learning where food is located, particularly if there are other visual cues. Handling times improve if the event is associated with some form of food reward.

Sheep can remember a nasty experience. Repeated adverse events, for example within a raceway, can increase the time it takes to move sheep through the system.
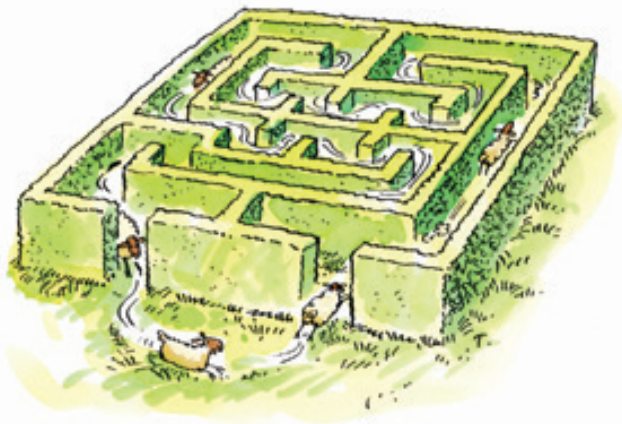
It is better in the long term to exploit the sheep's willingness to learn to negotiate a system, taking themselves to the treatment point, rather than using fear as the motivator.

Top Tips

- Familiarise sheep with the yard and race layout
- Try to reduce the severity of any treatment
- Break any association the sheep may have between nasty events and the handling area
- Use the same basic race configuration to reach different treatment areas

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Arousal – flight or fight

Arousal is the term used to describe an animal's level of activity, ranging from sleep at one end to flight (or fight) at the other.

sleep   graze   walk   fright   flight or fight

Ideal level of arousal for effective handling
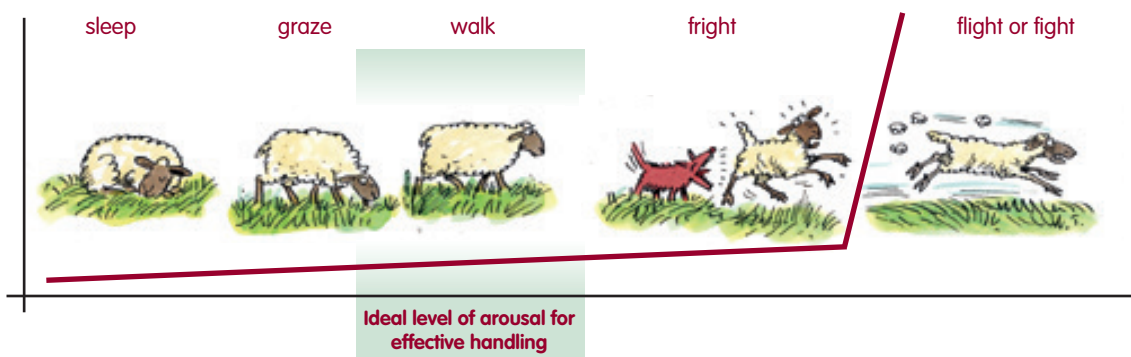
Handling will generally produce a flight response in sheep, as handlers and dogs are seen as a significant threat.

In any handling event keep the arousal level to a minimum to reduce the incidence of escape behaviour such as running, jamming, bunching and jumping or squeezing through barriers.
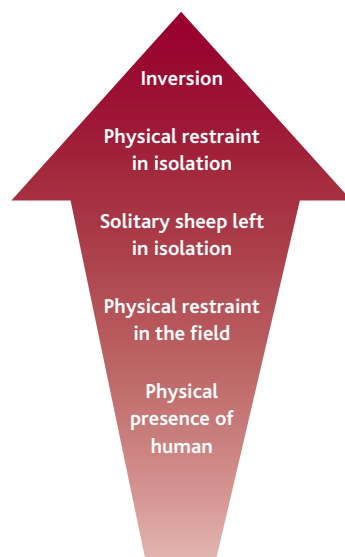
Repeated, quiet handling can, over time, reduce a sheep's fear of humans and reduce the alarm response. In some flocks this will produce additional benefits, for example milk let down will not be adversely affected if a ewe has to be handled at lambing.

Sheep have a 'personal space' or 'flight zone'. The size of the flight zone depends on the breed and past experiences of the animal.

If the handler goes too deep into the animal's flight zone, the reaction will either be to run away if they can escape, or turn and attempt to run back past if it is confined.

The size of the flight zone can be increased or decreased and the response of the animals controlled by the approach taken. Being quiet and still reduces the flight zone; noise and movement increases it.

Inversion

Physical restraint in isolation

Solitary sheep left in isolation

Physical restraint in the field

Physical presence of human

Increasing stress levels

Handlers and animals

It is not normal behaviour for sheep to be forced or directed to go to a particular point. To minimise stress levels, a handling system should maximize the 'pull through' and minimise 'the push' ie the fear response to humans and dogs.

In a handling system, controlling position, posture and movement can help to reduce the level of threat.

- The sheep's behaviour response is greatest when they can see people move

- Sheep are less able to distinguish faces that are looking down or away, or if the eyes are covered

- Humans are less threatening side-on or low down

Humans

Sheep receive conflicting messages about human handlers. One minute they are quiet, care givers who give out food; the next they can be noisy, use dogs and administer treatments.

Dogs

Dogs produce an alarm response in sheep and the combination of dog and human will create a greater response than to a human alone.

In confined areas dogs can be counter-productive, as they may provide too strong a stimulus. The sheep will turn to focus on the dog rather than look for the exit route.

Preventing dogs from entering the handling area takes away a stressor and sheep will soon learn that the handling area is a dog-free zone.

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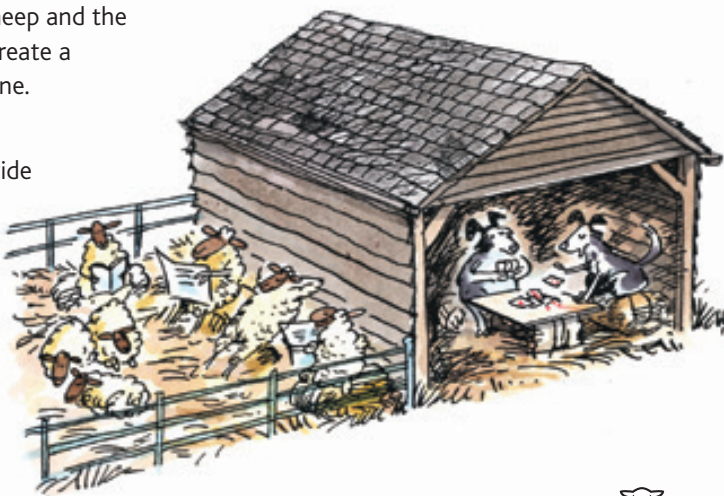
Setting up the right facilities

Planning

Planning a handling system takes time but can save money. Whether you are modifying existing facilities, building new, or buying portable equipment, there are some key things to consider first.

Operations

• Tasks to be done:
   ☐ shearing   ☐ crutching   ☐ dipping   ☐ sorting
   ☐ worming   ☐ vaccination   ☐ condition scoring   ☐ scanning
   ☐ foot-trimming   ☐ foot-bathing   ☐ weighing   ☐ loading
   ☐ other ....

• How many sheep need handling?
• Consider the future – will flock numbers increase/can the system be extended easily?
• How often will the facility be used?
• Is there sufficient vehicle access for loading and unloading?
• Is there access for cleaning and maintenance?

Resources (people, space and money)
• How many people will work the system – maximum and minimum?
• What are the skill/ability levels of the operators?
• How much space is there available?
• What materials are on hand that can be used in its construction?
• What is the budget?

Location
• Where is the best location for a fixed site, or would the use of portable equipment be more suitable?
• What is the impact of prevailing winds and the position of the sun?
• How can location and orientation exploit the sheep's natural behaviour?
• How does the location relate to features such as field and yard entrances, the transport loading bay/ramp, sheep housing and other buildings?
• How easy is it to connect to important services such as water and power?

Portable handling equipment reduces the time and stress of long distance movements to a centralised handling system. However, it does require time and thought when constructing, to ensure it is suitable and safe for the job in hand. Try to keep the layout the same to use or exploit the sheep's learning ability.

Setting the priorities

Budget or time may limit what is possible. Set priorities:

- **'Must have features'** – essential to carry out key tasks with minimal stress on sheep and workforce
- **'Should have features'** – not vital, but would make the system more efficient
- **'Long term features'** – not immediately essential, but a beneficial investment

TIP: For existing systems – stand and stare

Spend time watching animals go through the existing system. Note where animals move freely forward and where they stop. Make a sketch of the current layout and mark red where they get stuck and green where they move on their own accord.

Making a few simple changes can sometimes be very effective and not cost much.

Design

When designing a system from scratch exploit the sheep's natural behaviour.

It is much easier to install hardware and adopt a way of working to suit the animals, than change their behaviour.

There are a wide range of different layouts used throughout the world – no one system is better or worse than another. Every site and the requirements of each particular enterprise are different.

Go and look at as many systems as possible. Do not be afraid of getting down and taking a sheep's eye view to assess how it might make them react. Take away ideas that could work in your space, with your staff and your sheep.

1) Rectangle design in the UK
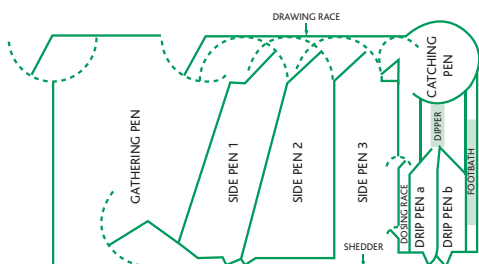
2) Bugle yard in Australia
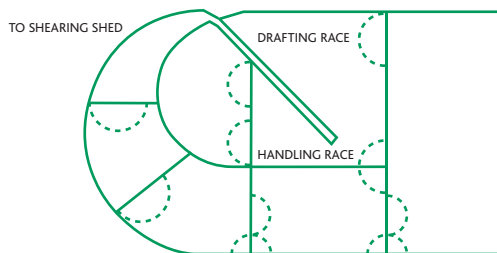
Remember your needs when designing a new system, to avoid back strain and injuries.

The best systems for people are those where:

✓ The sheep move to the work areas without prompting

✓ It is easy to lean over to reach the sheep

✓ Sheep are at working height

✓ Equipment is within easy reach

✓ Races can be adjusted to the size of sheep

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Animal-centred design

The most successful sheep handling systems include features that encourage animal movement in the direction required.

Sheep will:

- Move faster on the level and going uphill rather than downhill
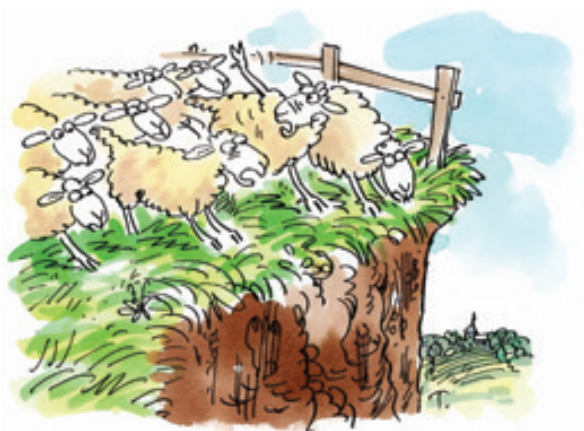- Move well where it is flat, wide, straight
- Not be distracted if the sides of a raceway are covered
- Look down to see where they are going
- Draw back from a real or perceived visual cliff
- Stop at gratings or false floors
- Stop, turn and walk away 3 metres from a solid wall or 'dead end'
- Attempt to get through any small gap to escape

Make sure that:

- Flooring is slightly sloping for good drainage and sound footing
- If undercover, there is a good standard of lighting which eliminates dark corners and does not cast shadows
- Unnatural noises are kept to a minimum. Grease all moving parts of gates, raceways and use rubber dampers and sleeves to reduce 'banging' and 'clanging'
- All areas are maintained in an animal-safe condition so that wool, legs and horns do not get caught on mesh or open and uneven sides
- Gates work efficiently and smoothly

Solid or open sides?

As vision is the most important behavioural factor when designing sheep systems, it is important to exploit this. The best systems have solid sides in some areas and open sides in others.

Give sheep a clear, unobstructed view towards something attractive in the area they are required to go to. Sheep are attracted by the sight of other sheep – including models, mirrors and photographs. But only movement stimulates movement and the sight of stationary sheep slows them down.

Solid	Open
1 Prevents them seeing human's legs moving	**4** Sheep will see an exit
2 Blocks the sight of stationary sheep in holding pens	**5** An open side on the outer curve of the yard helps to draw sheep round
3 Blocks the view of the treatment site and activity	**6** Sheep will see other moving sheep which have been treated and try and join them

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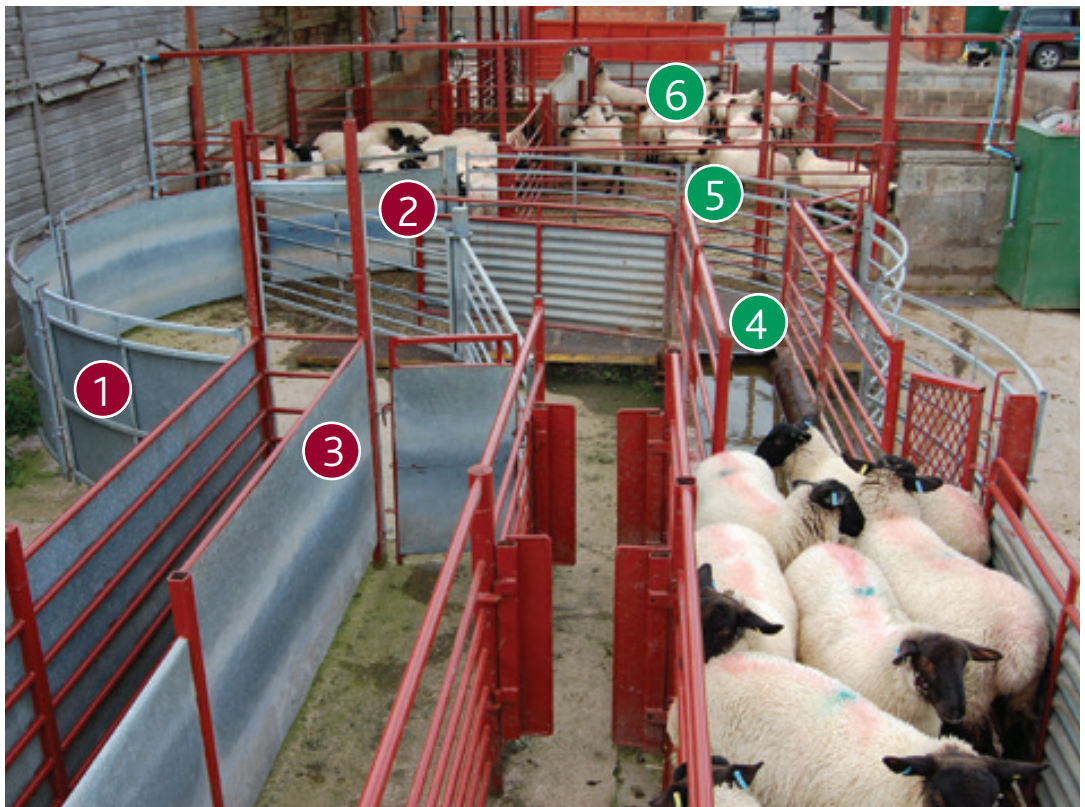
Key elements and dimensions

In every handling system there are several common features such as holding and forcing areas, raceways and treatment sites.

Getting the dimensions right for these key elements is vitally important.

Measure the sheep that are going to use it; measure the bits that work in the existing system and note down the dimensions of successful systems seen on other farms.

Low density holding areas

- Secure enough to prevent escape, particularly by lambs
- Outside boundary fence at least 900mm to 1000mm high
- Nearby pastures, lanes or yard areas can be used to reduce costs
- Allow plenty of space

Adjust dimensions according to the size of your sheep.

High density holding areas

- Medium to strong fences required
- Allow 2 sheep/m^2 (in full fleece)
- Leave additional space for people to work and gates to swing
- Long, narrow pens make groups easier to control while being driven towards the forcing area

Forcing or crowding areas

- The shape of the force pen is critical
- Allow 2.5–3 sheep/m^2 in the force pens
- A 30–40° entry angle to the race is critical. Funnelled races cause jumping and jamming
- The lead up to the forcing area must be about 3m wide
- Sheep run well as a bunch in straight, 1.5m wide crowding areas. Only when animals are in single file do curved raceways work better than straight
- Put no more than 100 sheep in the forcing area to keep control
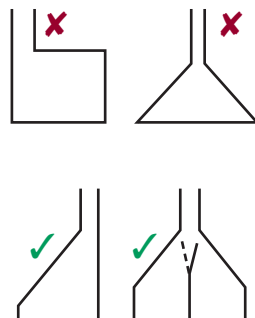
Drafting or sorting race

- Drafting races require an even flow of sheep to work efficiently

- Usually a minimum of 3m long

- The exit point must have a clear escape route – at sheep eye-level

- Sides can be solid to focus sheep forward. Or have open panels on the opposite side to the stock handler, so sheep can see other sheep moving away from the drafting gate

- Sides may need to be adjustable or tapered to deal with size variations

- Floor must be non-slip and durable

- Remote-control gates are an advantage when labour is short

Open gate to front encourages sheep to move forward.

- Think carefully about position – sheep appear to move better into the sun, with their shadows behind them. But low, very early morning sun will blind them

- Direct the race away from, or keep parallel to any building or other perceived dead end. Give sheep the impression of going back to the 'home' field, a hill or the horizon after treatment

- Sheep in drafted pens should be clearly visible at each exit point, to act as decoys and encourage ongoing sheep flow

- Make sure drafting gates close tightly so they act as a smooth continuation of the drafting race and direct sheep to the exit pen. This will also prevent horns or legs from getting caught on the way through

Handling or working races

- A separate sheep handling race is useful for drenching and vaccination. Animals remain in a group and are not in single file

- **Single races:** If operator works from the outside, width required is 520–640mm

  If operator works inside the race, width required is 700–800mm

  A race with adjustable sides needs to between 450–800mm wide. Only when animals are in single file do curved raceways work better than straight

- **Double races:** only fill one side as the other is emptying

- **Triple races:** If operator is in the middle, the length should be 9–15m and the sides 850mm high

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Other BRP publications available

Sheep BRP

Manual 1   –   Marketing Prime Lamb for Better Returns
Manual 2   –   Buying a Recorded Ram to Generate for Better Returns
Manual 3   –   Target Lamb Management for Better Returns
Manual 4   –   Target Ewe Management for Better Returns
Manual 5   –   Target Store Lambs for Better Returns
Manual 6   –   Target Easier Management for Better Returns
Manual 7   –   Reducing Lameness for Better Returns
Manual 8   –   Target Worm Control for Better Returns
Manual 9   –   Improving Ewe Breeding for Better Returns
Manual 10 – Controlling External Parasites for Better Returns
Manual 11 – Target Ewe Fertility for Better Returns
Manual 12 – Improving Ewe Nutrition for Better Returns
Manual 13 – Improving Sheep Handling for Better Returns
Manual 14 – Reducing Lamb Losses for Better Returns

Joint Beef and Sheep BRP

Manual 1 –   Improving Pasture for Better Returns
Manual 2 –   Improved Costings for Better Returns
Manual 3 –   Improving Soils for Better Returns
Manual 4 –   Managing Clover for Better Returns
Manual 5 –   Making Grass Silage for Better Returns
Manual 6 –   Using Brassicas for Better Returns
Manual 7 –   Managing Nutrients for Better Returns
Manual 8 –   Planning Grazing Strategies for Better Returns
Manual 9 –   Minimising Carcase Losses for Better Returns

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