



WOOL  
HARVESTING  
NOTE

NO: 1.14

DECEMBER 1980

## DRAFTING FACILITIES

### INTRODUCTION

The essential requirement of a drafting system is that it allows the operator to identify sheep he wishes to separate, and then to effect this separation with minimum error and effort. Time is usually important, and so the task needs to be done as quickly as possible.

These notes provide specific information for those intending to build a new draft, and as well, supply ideas whereby existing drafts may be improved.

Many drafting facilities considered by operators to be difficult to work sheep through smoothly can often be improved by quite minor and inexpensive alterations.

### SITING THE DRAFTING RACE

The direction of the drafting race should be such as to minimise effects of direct sunlight and shadows. Sheep appear to run better north into the sun (their shadow is then behind them) and the operator can see ear tags or ear marks easier when the sun is shining from behind him on to the approaching sheep.

The race should be directed away from, or parallel to, the shearing shed, dip or any other structure which has unpleasant memories for sheep. This provides the sheep with an unobstructed view through the end of the race to an open space beyond.

The race should be inclined upwards rather than downwards.

Some compromise will be required when a particular location makes it impossible to fulfil all of these desirable requirements.

### NUMBERS OF WAYS TO DRAFT

A three-way draft, with the main draft straight ahead, usually satisfies the drafting requirements in most yards. More gates than provided on a three-way draft are difficult to manage for most operators. In some situations however, a four-way or five-way draft is required, as for classing purposes on a stud property.

Possible arrangements for various drafts are shown in Diagram 1.

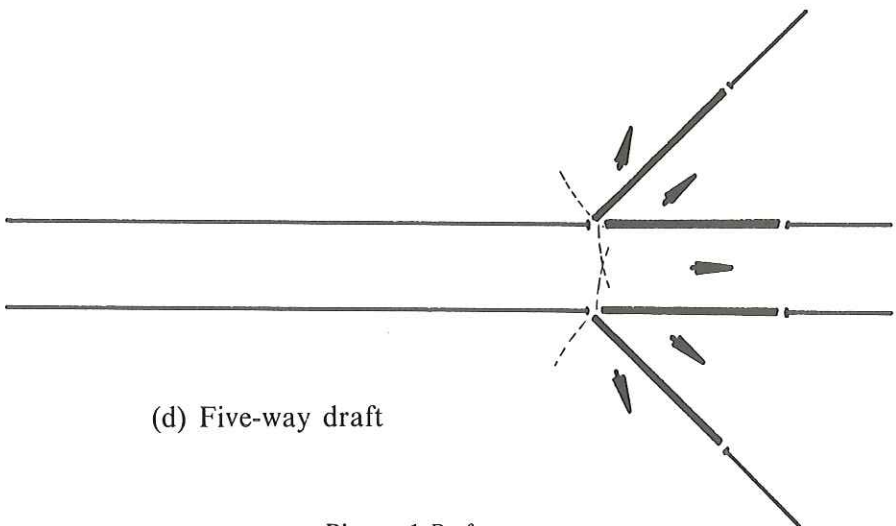
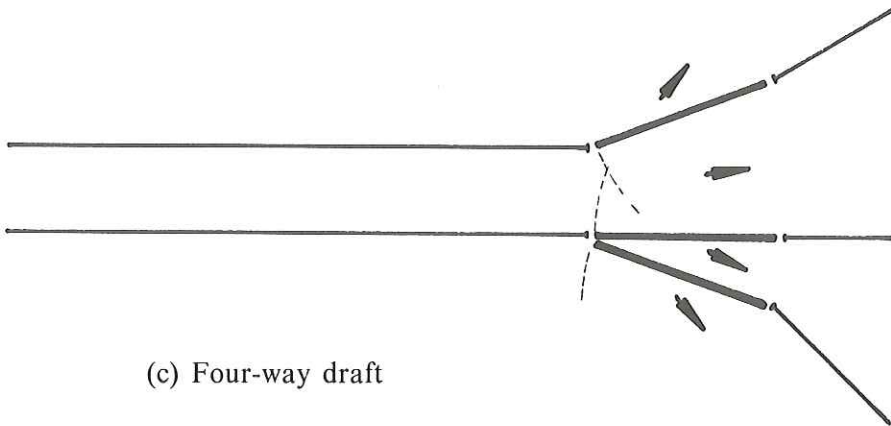
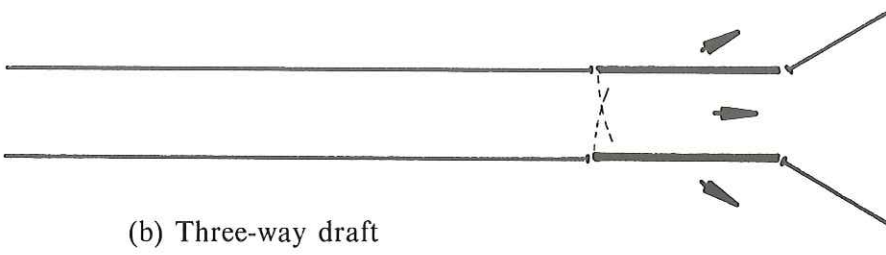
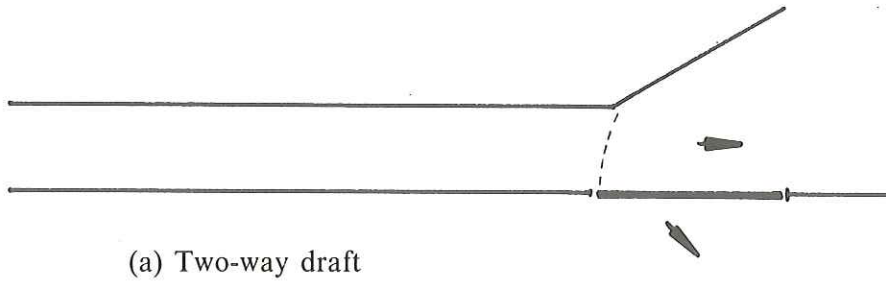


Diagram 1. Draft arrangements

### LENGTH OF RACE

The length of the race is a compromise between having sufficient length to allow identification by the drafter, and being short enough to encourage the sheep to move smoothly through the race.

A race 3 to 4 metres long generally satisfies most requirements.

### HEIGHT AND WIDTH OF RACE

The race should be 825 to 900 mm high. If it is to be built with fixed vertical sides, it should be 450 mm for merino sheep, and up to 550 mm wide for large crossbred sheep.

Races with tapered or adjustable sides are considered later in this Note.

### MATERIAL

The race should be closed in or sheeted at least on the side where the drafter stands. In most situations a drafting race sheeted on both sides to prevent side vision is used. The reason is that such a race directs the sheep's attention towards the exit - the sheep actually increase speed to get through the race.

In some yards a race not sheeted on the side opposite the drafter has been found to work well. The sheep are apparently encouraged to enter the race by being able to see other sheep moving away from the drafting gates on that side. Such a race is shown in Diagram 6.

Pipe, sheet metal and timber are all suitable materials, provided undue noise is not generated if the sheep hit the sides of the race. Waterproofed plywood is the most recent material to be marketed which is suitable for sheeting the sides of the race.

The sheeting must be placed on the inner face of each side so as to give a completely smooth surface. Any items such as parts of the frame, catches, bolt heads or hinges which protrude from this inner surface only result in slowing down the movement of the sheep through the race.

Mesh is unsuitable anywhere in the draft because horns and legs tend to become caught, and just as importantly, the wool rubbing on the mesh slows down sheep flow.

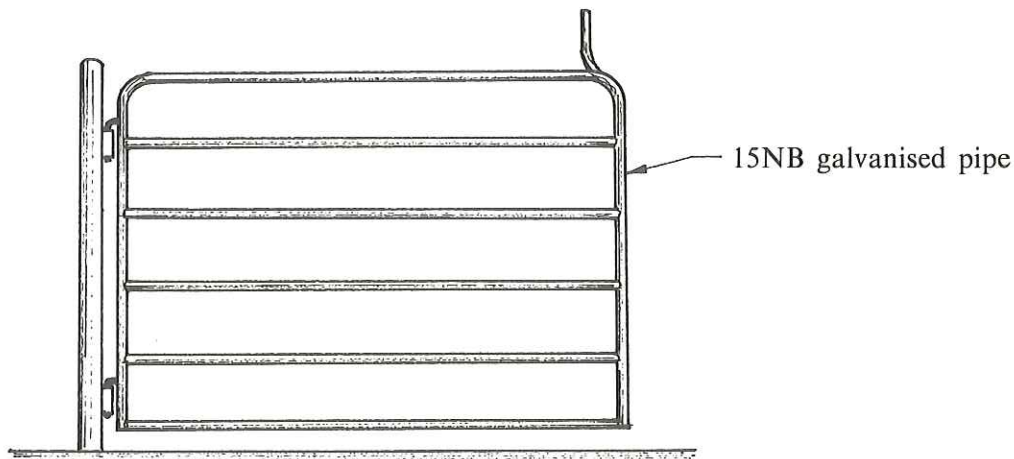
The floor of the drafting race is subject to continual wear, and a durable surface is required. Wooden battens, concrete, brick, stone or stabilised clay have all been used with success.

### DRAFTING GATES

Drafting gates range in width from 1000 to 1300 mm. Some operators prefer sheeted gates, while others consider gates with rails to be superior.

Reasons for choosing gates with rails include the following:

- (a) the oncoming sheep can see the previous sheep moving away from the draft, and is therefore more inclined to follow;
- (b) sheeted gates make the drafting race appear longer, which discourages sheep from moving freely;
- (c) open gates are lighter, and therefore quicker and easier to use.



**Diagram 2.** Rail gate for drafting purposes. The handle is offset to the side.

Producers in favour of the sheeted gate give the following reasons:

- (a) such gates act as a continuation of the drafting race giving better direction to the sheep as to the path to follow;
- (b) rail gates have a tendency to confuse an oncoming sheep, since it can see the previous sheep leaving but cannot always follow it;
- (c) these gates prevent horns or legs from getting caught.

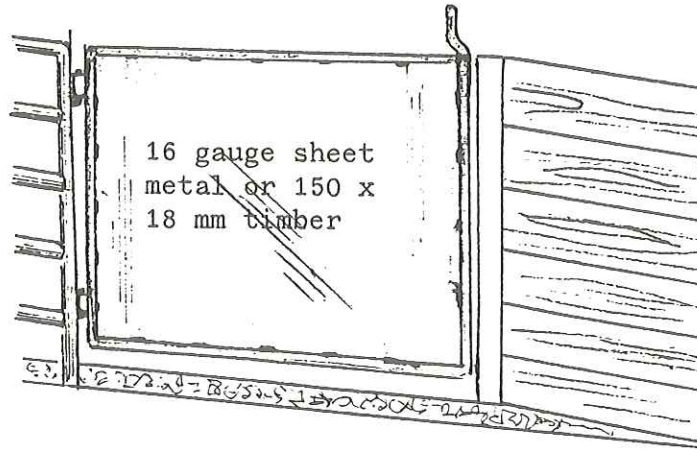


Diagram 3. Sheeted drafting gate

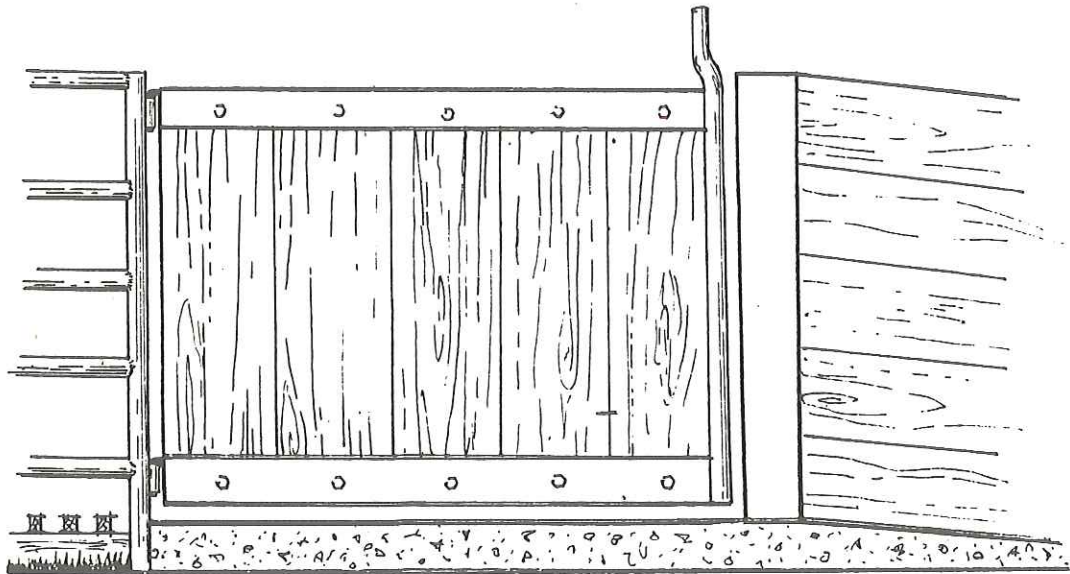


Diagram 4. Close boarded timber drafting gate

Whatever gate is chosen, it is recommended that the handle be offset to the side so that, when the operator brings two gates together, he does not strike his knuckles.

#### BLOCK GATES

There should be a convenient and secure method of closing off the outlet of the race. Using a gate recessed into the side of the race, or one of the drafting gates, is quicker and easier than using a lift-out or tumble gate.

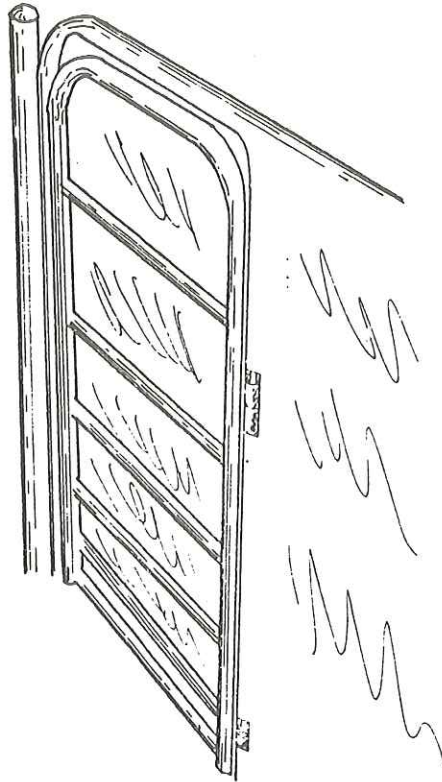


Diagram 5. Block gate built into the side of the drafting race

#### BY-PASS GATE

A by-pass gate can be useful in drafting off a few odd sheep or rams out of a large mob. This gate avoids the need to draft through a large mob just to select a relatively few sheep.

#### ADJUSTABLE SIDE TO GIVE WIDTH VARIATION

A fixed-width race is likely to be too wide for some sheep and too narrow for others. An adjustable sided drafting race can overcome this problem. A variation in width from about 350 to 500 mm is satisfactory.

Races made adjustable in width by pivoting at one end only (as in Diagram 6) have the disadvantage that sheep tend to jam due to the wedge shape produced. It is better to have a mechanism which keeps the sides parallel. One such system is shown in Diagram 7, the other end of the race being similarly constructed. A simpler way of catering for sheep of different size is to have the sides of the race inclined to each other rather than vertical.

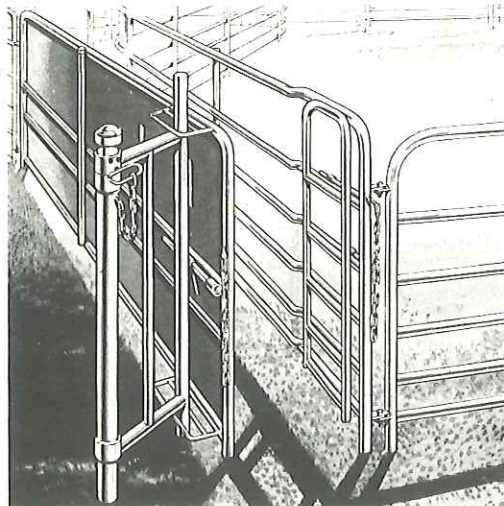
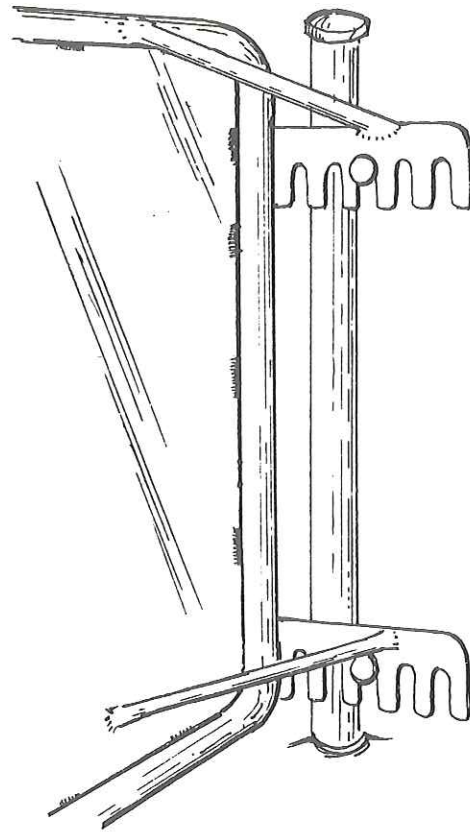


Diagram 6. Drafting race with provision to vary the race width at one end only

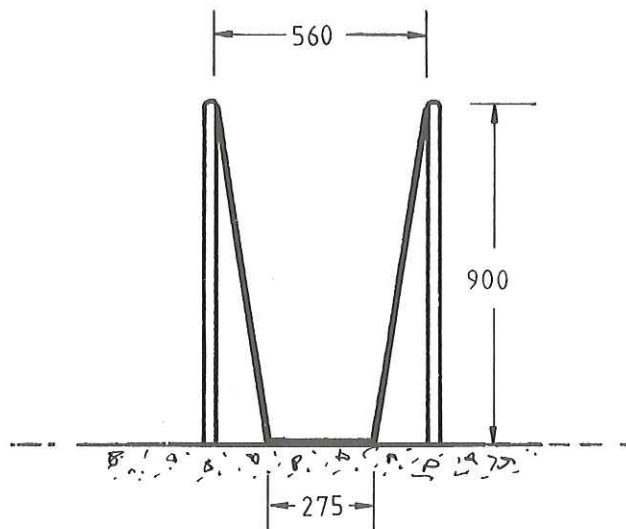


**Diagram 7.** One method of making an adjustable side for the drafting race

#### DRAFTING RACE WITH INCLINED SIDES

The most effective way of catering for sheep of different size is to use a sloping sided drafting race. The narrow bottom width restricts foot room ensuring that sheep move in single file, while the diverging sides allow plenty of room for adult sheep, including rams, to pass along the race.

A race of height 900 mm which is 560 mm wide at the top, and tapers to 275 mm at the bottom will suit all sizes of sheep. It is an advantage to have a gradual transition from vertical sides to sloping sides. A suitable form of this transition is shown in Diagram 9.



**Diagram 8.** End view of race with inclined sides  
Dimensions in millimetres

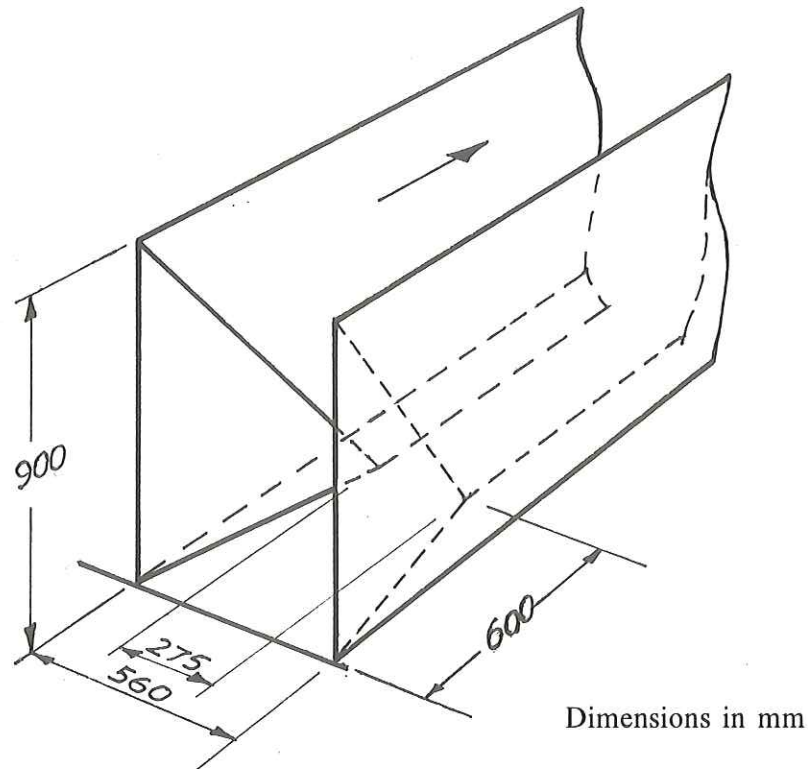


Diagram 9. Entry section for draft with inclined sides

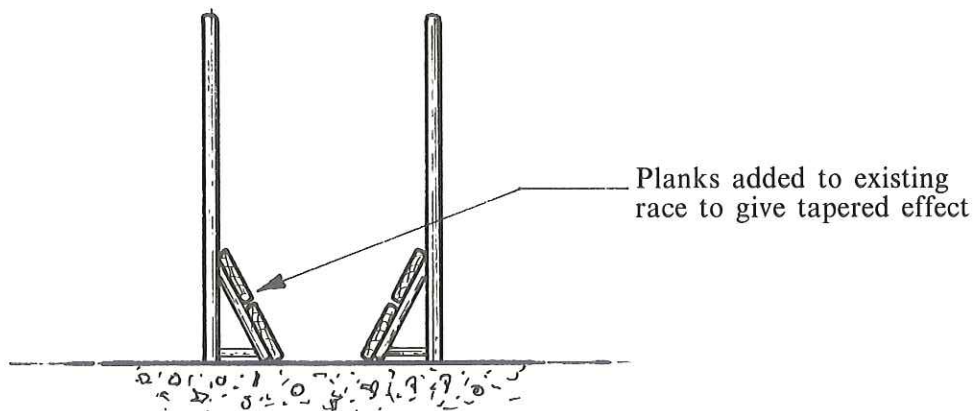


Diagram 10. Modified existing race

If an existing race is too wide, the benefit of a sloping sided race can be cheaply incorporated by using suitable timber planks fitted to the bottom sides of the drafting race as shown in Diagram 10.

#### REMOTE CONTROLLED GATES

There are times when standing at the normal position at the front of the drafting race is a disadvantage.

Drafting sheep which are fly-blown or daggy, and drafting ewes that have been raddled by the ram, is better done from behind. As the operator is then stationed near the entrance to the draft, he can generally keep the sheep flowing more consistently through the system. However, he needs some way of operating the drafting gates from this position. In fitting extra attachments to achieve this, care needs to be taken to see that they do not become a hindrance to sheep movement. In some situations, attachments have been found to cause obstruction due to their size, position, noisy operation, or shadows (often moving) which are cast across the race.

Five techniques are illustrated for drafting when a view of the rear end of the sheep is required.

Diagram 11 shows a commercial unit produced in Western Australia. It is a sloping side race, with two horizontal bars along the top which are attached to the gates of a three-way draft. The gates can be worked from anywhere along the unit. Diagram 12 shows the position of the bars for the three draft positions.

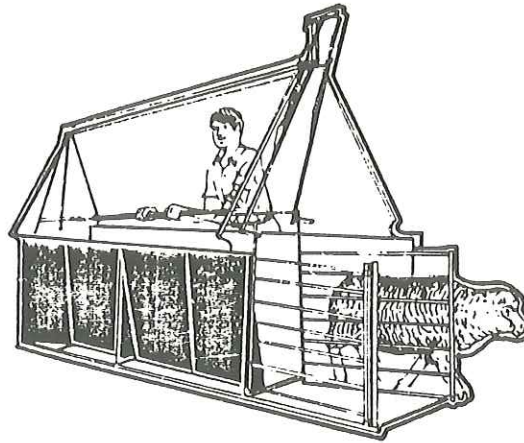


Diagram 11. Remote control drafting unit

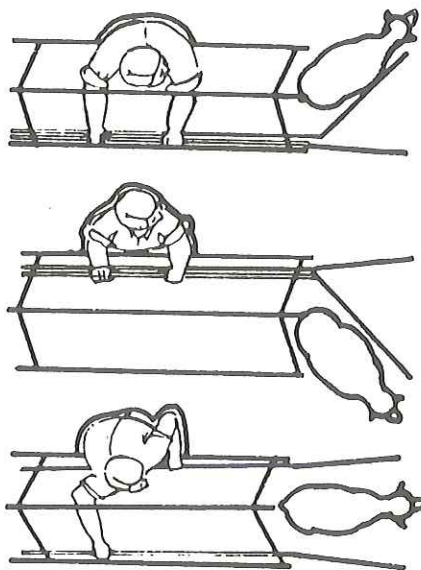


Diagram 12. Positions of the longitudinal bars for drafting three ways

A second method suitable for a two-way draft is shown in Diagram 13.

With this set-up, a board is fixed across the top of the race about one metre back from the drafting gate. A length of water pipe is attached to the gate handle with a ring, and pivots loosely in a loop on the board across the race.

The operator can work from the entrance to the race and has a good view of the tail end of each sheep. He is also in a good position to keep them moving and to sort out any blockages that occur. However, it is difficult to block sheep going the wrong way through the drafting gate.

Another method uses a mirror above the race as shown in Diagram 14.

The mirror is set up at an angle so that the drafter can see the rear of each sheep while standing in the normal drafting position.



A removable framework strong enough to withstand any sheep that jump up is recommended. Although a two-way draft is shown, the system can be used with a three-way draft.

Diagram 15 illustrates the operation of a two-way draft using ropes.

Two lengths of nylon rope are attached to the drafting gate and passed back along either side of the race to the drafter standing near the entrance. The rope passes around a short length of plastic hose where it turns a corner. This is just as effective as using pulleys.

By pulling on the appropriate rope the sheep can be drafted.

The fifth method is an improvement on the previous one. A tension spring or stretched bicycle tube holds the drafting gate in the position shown in Diagram 16.

A rope from the gate running alongside the race to the drafter can be pulled to change to the other gate position. As soon as the rope is released, the spring or rubber tube pulls the gate back.

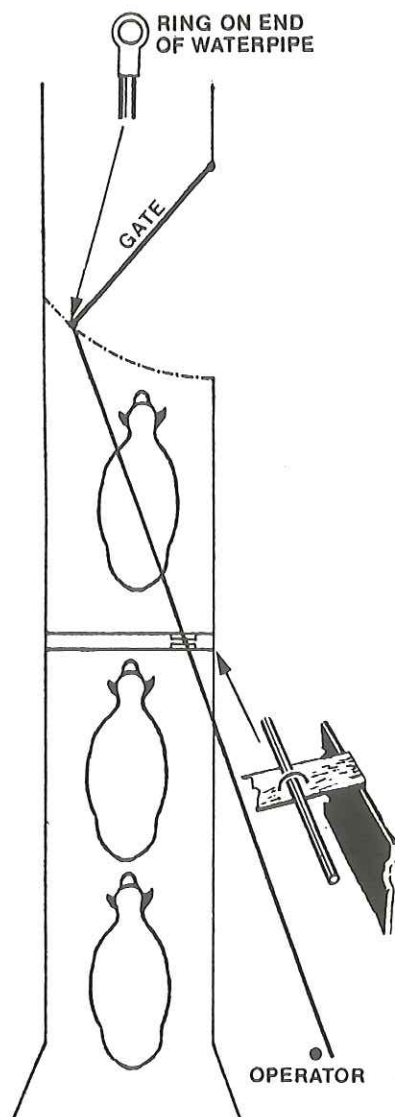


Diagram 13. Drafting from the front of the race

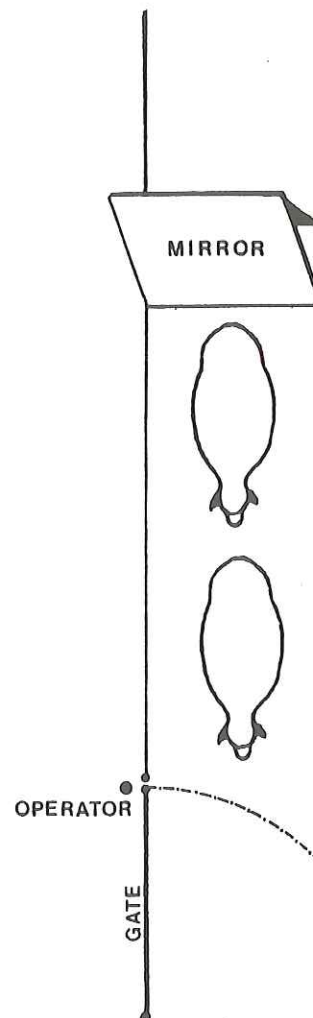


Diagram 14. Using a mirror to see the rear of each sheep

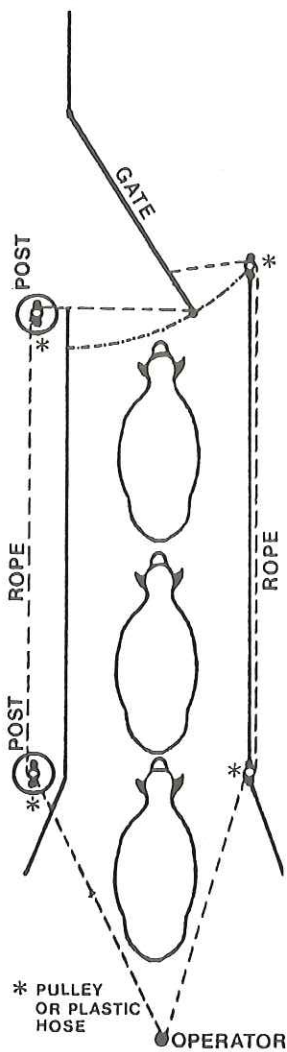


Diagram 15. Two-way draft operated by two ropes

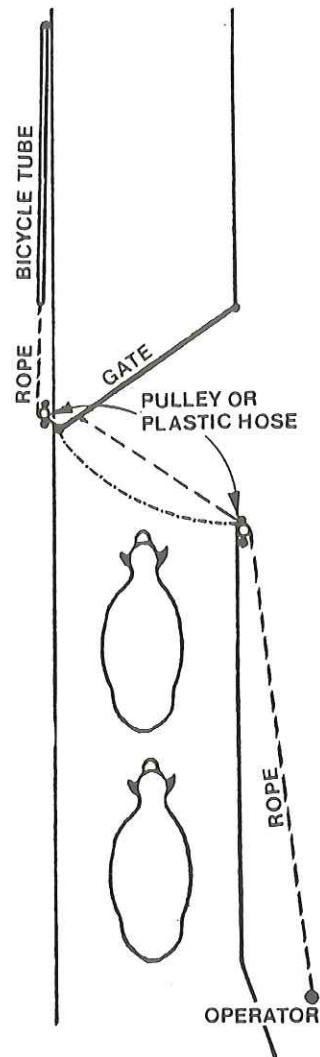


Diagram 16. Operating a two-way draft with one rope

### CAPACITY OF THE FORCING PEN

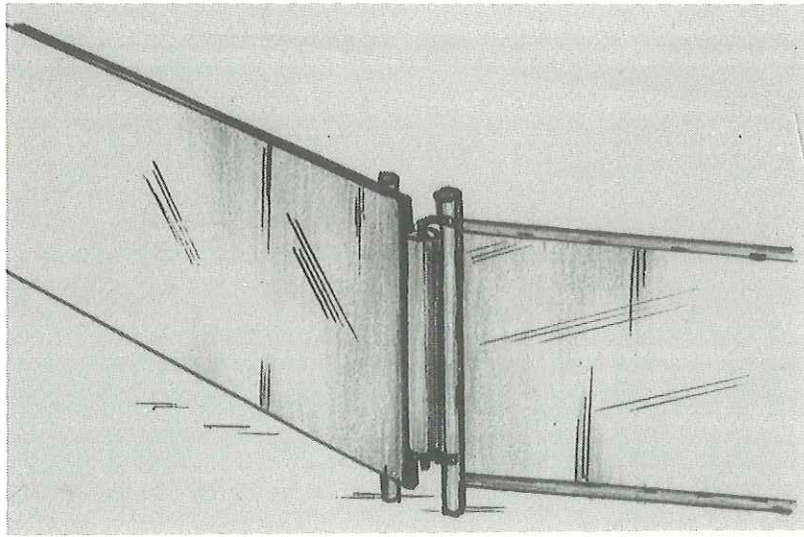
The force pen should hold from 30 to 50 sheep. Any more than this number can be difficult to get moving should stoppages occur.

### SHAPE OF THE FORCING PEN

Forcing pens are generally triangular in shape, or curved to form a bugle entry to the draft.

The better types of triangular force pens usually have one fence as the continuation of one side of the drafting race. The second fence is inclined at an angle of 30 degrees to 60 degrees. For angles less than 30 degrees, the sheep tend to jam in the entrance to the race. For angles more than 60 degrees, there is a tendency for sheep to turn across the race entrance and escape past the operator. An angle of about 30 to 40 degrees is satisfactory.

A vertically mounted roller, fitted as shown in Diagram 17, may reduce jamming at the entrance to the race. The sheep against the roller should be able to free itself more easily than one jammed against the opposite side of the race.

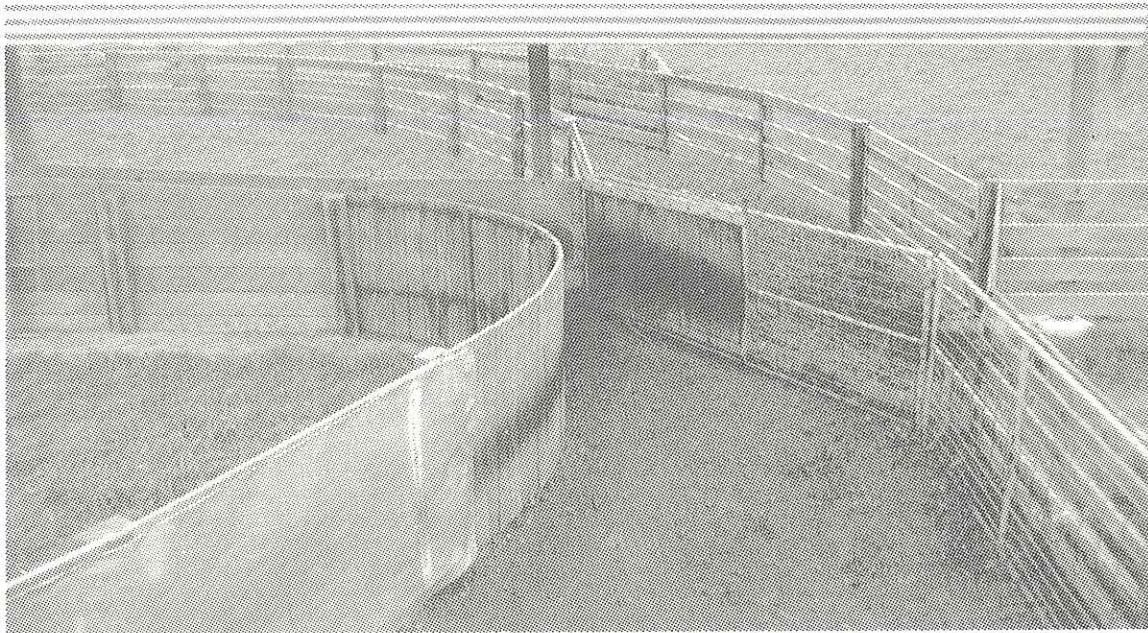


**Diagram 17.** Vertical roller at entrance to the draft

The bugle forcing pen is designed to:

- allow the operator easy and quick access to the sheep being drafted,
- reduce the number of points where sheep can become jammed,
- deliver the sheep back in the direction from which they entered the yards (i.e. towards "home"),
- keep the sheep from moving towards the operator until they actually turn the bugle corner.

Using the same forcing area for the drafting race and handling race can save on material and space. Additional data on force pens is given in Wool Harvesting Note No. 1.131.



**Photo 1.** Bugle turn into a drafting race showing the close-boarded section on the inside of the curve to prevent the operator being seen by the sheep, and to provide a blind corner for the sheep to move around.

## NOISE REDUCTION

Noise should be kept to a minimum for best results when drafting.

Wooden or steel gates fitted with rubber dampers reduce noise levels, and sheep will usually flow better as a result. Where the race is noisy because of construction or material used, painting with sound-deadening bitumous paint on the outside surfaces will lessen the problem.

## ROOFING THE RACE

Roofing the race, forcing pen and check pens eliminates contrasts of light and shadow, and provides protection from weather. Sheep will run better and operator comfort is improved. Fluorescent lights over the race and check pens allows drafting to be done in the cool of the evening. Sheep often run well under these lights at night.

## CHECK PENS

Check pens are the pens into which the sheep are directed after passing through the draft. While the sheep are in the check pens it is possible to take out the occasional sheep missed in the draft.

The area of the check pens is usually not less than that of the forcing pen, otherwise hold-ups will occur during drafting. The individual pens can be of varying size as the groups drafted from a mob are rarely equal in size.

## DIMENSIONS OF A DRAFTING RACE

Race:

Length	3 to 4 metres
Height	825 to 900 mm
Width	(a) Fixed vertical sides 450 mm (fine wool Merino) up to 500 mm (crossbred)
	(b) Sloping sides 275 mm at the bottom 560 mm at the top, for a height of 900 mm
	(c) Adjustable width 350 mm to 550 mm

Gates:

1000 to 1300 mm long

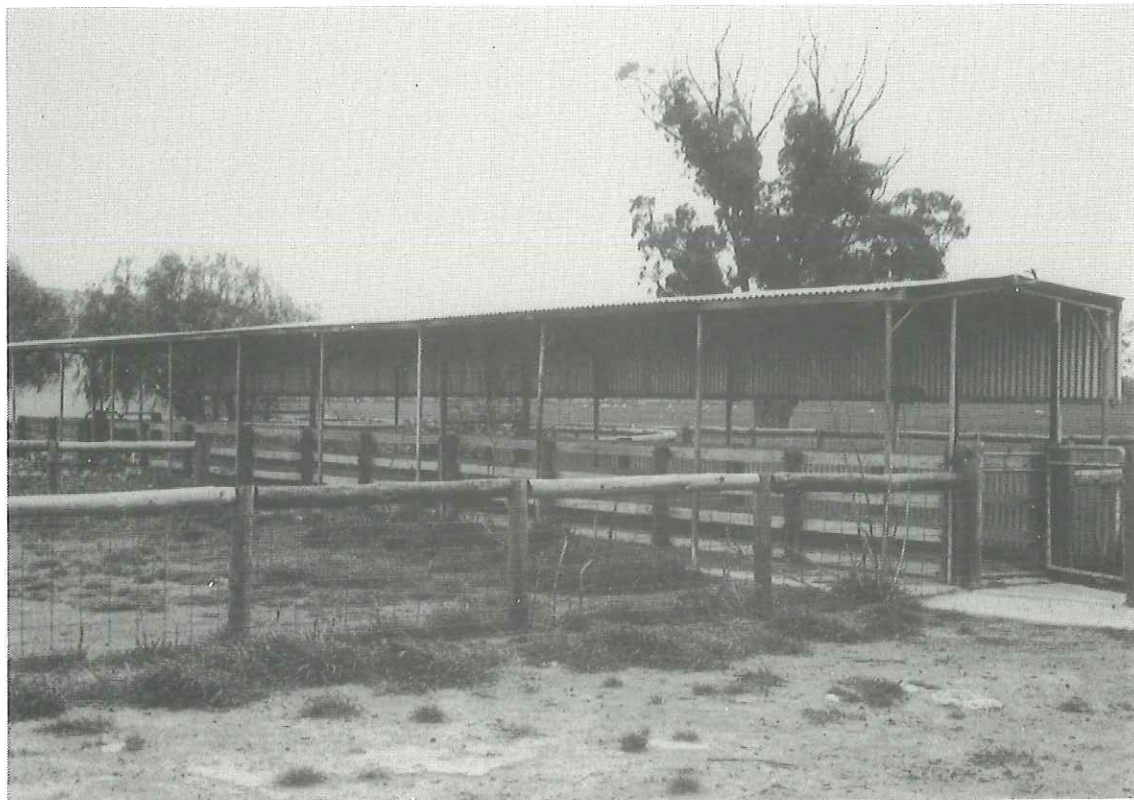


Photo 2. Roofed drafting and working races