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Designing yards for sheep

This article has been adapted from a report of the 1976 Sheep and Wool Refresher Course. Such a course is arranged every few years for sheep officers employed by State Departments of Agriculture, and is funded by the Australian Wool Corporation. Western Australia, with its success in developing sheep handling aids, was chosen for the 1976 Course.

The officers attending the Course inspected W.A. farms, and then met in groups to discuss what they had seen, and to pool their experience in compiling a report. This article has been adapted from the report of the group working on the topic "Sheep yards and facilities".

The W.A. representative in the group working on sheep yard design was Mr John Wise of the Department's Katanning office.

The principles discussed here should help farmers either design new sheep yards, or improve the movement of sheep through existing yards. Department of Agriculture advisers will also help farmers with designs for new yards or modifications.
Traditional designs of sheep yards evolved when farming was much more labour intensive, with more skilled stockmen to keep sheep moving. Yards were built on simple square patterns, with cheap materials. They often became more complex as facilities were added.

Since World War II there has been a much greater emphasis on handling large mobs of sheep with a minimum of labour (especially with only the owner, and perhaps his family) without excessive physical effort.

The average number of sheep handled per man has increased rapidly, especially in W.A. Some properties in W.A. and other States are running 8,000 sheep or more per man.

New materials such as weldmesh and light steel panels make curved designs more feasible and light prefabricated panels have made experimentation easier.

Function

Generally, the sheep yards are the basic unit for all sheep handling operations. Facilities need to cope with some or all of the following operations:

- shearing and trucking,
- "marking", mulesing, crutching, jetting, dipping, drenching, inoculation, foot paring, foot bathing, or pizzle rot control,
- identification—ear tagging or branding,
- selection—weighing, condition scoring, classing, mouthing or drafting.

Before designing yards to handle all these jobs, the list should be examined to see which practices are essential in the yards, if any.

Sheep behaviour

As the amount of labour available to force sheep through the yards has declined, greater interest has been shown in the natural instincts and habits of the sheep and how these can be exploited or modified.

Mr Donald Hopkins, a Victorian sheep farmer and inventor, has suggested the following principles of sheep movement:

- The sheep must not be able to see other sheep behind them.
- They must see treated sheep escaping—stationary sheep are motivated to move by running sheep.
- Oncoming sheep must not see operators and the noise of the operation must be minimised.
- The front of the race should be open so that the sheep do not approach a dead end.
- Strong contrasts in light should be avoided as these tend to balk the sheep.
- Sheep seem to move more readily around corners than in straight lines.

Sheep movement is affected both by the animals' individual natures and by their mobbing instincts. They may also be trained to become accustomed to certain methods of handling. As they become used to a certain routine, any deviation from it can cause stress and confusion. Sheep have their leaders which determine the nature and timing of mob behaviour.

Important differences exist between breeds as well as within breeds and flocks. For example, Merinos have pronounced gregarious instincts and tend to graze and camp in large mobs.

However, British breeds and their crosses are more individualistic and tend not to have this flocking habit to the same extent.

Yards should control sheep behaviour to the operator's advantage.

Design and construction

Receiving and holding yards.

Elaborate and expensive construction (or surfacing) is not required for receiving and holding yards. They should be big enough to hold the largest mob at low density—at least one square metre per sheep.

The lower the density of sheep, the lighter the materials can be. Shade and water should preferably be provided.

These yards should be easily accessible from the main sheep traffic ways through the property.

Pathways

The pathway is used to move the sheep from the main storage area to the work areas.

Because the surface of this pathway is subjected to wear it should be treated to reduce the summer dust and winter slush problem.

Where the yards are on sand with only a summer dust problem, water or sump oil can cheaply cope with the problem.

Winter slush control is more difficult and a well drained site should be chosen to reduce the collection of water. A cement slurry rotary-hoed into the surface has been used successfully on some farms to reduce sheep soiling in winter.

The sides and entrances of the pathways should be built of a material which is clearly visible and strong. This more costly building material is needed because pathways have sheep at a much higher density than the storage areas, and are used to force sheep into the work section of the yard.

The principles of the natural circling movement of sheep, such as the bugle race, can facilitate the movement of sheep through the pathways. Such designs put the operator in a better position to control sheep flows, dogs and other labour.

Fig. 1. Bugle design

Curved approaches to the drafting race should be made of solid lightproof panels on the inside of the curve for the last 6 to 7 metres and on the outside for the last 1 to 2 metres.
Gates and gateways

Gates and gateways are important elements in sheep flow. They need to open and close freely, and be clear of the sheep flow. They should have secure, quick action catches and should preferably swing both ways. Four-way “diamond” interchanges in corners of pens add to flexibility of movement and wide gateways speed up the flow of sheep.

Drafting

A drafting system should allow the operator to identify the sheep he wishes to separate and then help this separation with a minimum of error and effort. It should preferably be capable of drafting three ways and the sheep should move rapidly in single file through the system.

It may be aided by the following:

- Tapered sides—narrowed at the bottom
- Solid (lightproof) sides
- A slight upward slope
- Durable surfacing—battens, wire mesh or concrete
- There should be a convenient method of closing the outlets of the drafting race. A gate inset into the side of the race or one of the drafting gates is quicker and easier to use than a lift out or tumble gate.
- Sheep should have an unobstructed view through the end of the race to some open space beyond.
- Solid drafting gates are preferred for horned sheep
- The direction of the drafting race should minimise the effect of the sun and shadows on operator and sheep. A south to north direction is preferable.
- Roofing the race not only provides more pleasant working conditions, but gives a more even light; shadows may distract sheep.
- Remote-controlled drafting gates may be useful in some cases, such as standing behind the sheep to identify daggy ones.
- A by-pass gateway replacing a panel of the forcing pen may be useful where only a small proportion of sheep have to be separated from a very large mob. In this case, most sheep are allowed to flow through the by-pass while wanted sheep and a few others are diverted into the normal drafts.

Working race

The need for a series of different races for the various activities of classing, drenching, footbathing and so on disappears if a common race can be adapted for all or most purposes.

A multi-purpose race can be made with an adjustable side. This allows its width to be altered to suit the size of the sheep or the job being done and the operator can work inside or outside the race.

Because the race capacity is increased by adjusting its width, the race does not have to be very long, especially if the flow of sheep can be kept up to it.

- The working race should be located to allow easy access from the drafting area.
- The race should also be located convenient to other facilities that may be used, such as an automatic jetting race or crutching cradle.
- Open sided construction is preferable.
- A durable floor, preferably raised. Slatted floors are the cleanest.
- Double or treble races reduce time, effort and material costs.

Design specifications

In holding yards, allow for one sheep per square metre.

The forcing pen should hold 30 to 50 sheep allowing three per square metre. The angle of the junction between force pen and race should be 30 degrees.

Drafting race dimensions: 3 to 3.5 metres long, 850 to 900 mm high, width at the bottom 280 mm, and 550 mm at the top.

Fence height: External fence 1 metre. 900 mm is suitable for the main yards.

Gate sizes: Entrance to receiving yards, 2 x 3 metre gates; other main gates, 2 to 4 metres; and drafting gates, 1.3 metres.

Working race: The working race should be 10 to 15 metres long. Sides should be adjustable from 600 to 800 mm to cope with variations in sheep size, fleece cover and the operation being carried out. If fixed, sides should be 650 to 700 mm, depending on predominant size. The height should be 850 to 900 mm.

Handling devices

Handling devices need to be placed as appendages to the main sheep pathways, so that sheep may be conveniently diverted into them. If portable units are used, access through wide outside gateways must be provided.

Dip and foot bath. Where required in sheep yards, the dip and foot bath should be placed as appendages to the main sheep pathways, in such a way that they will
not interfere with normal sheep flows. For example dips should if possible, not be upwind of the yards.

Loading ramp. Raised shearing sheds in many cases provide excellent loading ramps. Elsewhere, like dips, they should be added as appendages to the main sheep pathways.

Temporary and portable yards are useful for large or segmented properties, or lamb marking. They are of particular value where portable sheep handling equipment is used.

The principles of sheep movement apply equally to portable yards.

Examples of sheep yard plans

Fig. 3. A circular design—the Woodruff plan

Fig. 4. A bugle design

Fig. 5. A semi-circular design

Fig. 6. Rectangular yards with centre diamond

Dogs

A final comment on sheep yards is that a well trained, well worked dog (or dogs) is an invaluable aid, and can greatly add to the efficient working of sheep through even the best set of yards. A poor dog is a liability.