

## DEER HANDLING AND YARDING DEVICES

G.M. van Reenen

Deer veterinarians are frequently asked to advise intending deer farmers on the design of yards and handling facilities.

Most of us enjoy the unique position of being able to observe a host of different types of yards used under a wide range of conditions.

The design requirements associated with intensive deer handling for veterinary purposes are probably some of the most important in terms of the humane aspects for the animals as well as the efficiency, and safety aspects for the handler. We should grasp the opportunity and exploit our ability to improve the general standard of yard design throughout the country.

Unfortunately vast sums of money have been wasted on elaborate and clumsy yard designs simply because farmers have copied the Mark I designs of some well known, long established pioneer deer farmer. More innovative superior designs can be found on many lesser known properties.

With intensification and specialisation within the industry, the basic requirements of yard design have changed substantially in the last 10 years. In addition we have learnt much about the behaviour of farmed deer together with the emergence of ergonomics as a respected science.

The precise requirements of yards will vary substantially according to the species of deer being farmed, the nature and scale of the farming operation and the resources available.

The most striking feature of effective yards is their simplicity. Animals seldom seem to flow freely through complex structures. Yards that attempt to combine a number of functions such as drafting, crenching and velvetting into a single pen don't tend to work satisfactorily. It is best to have individual pens for specialised tasks.

---

In this paper I do not intend to provide individual plans to be taken away and copied, but rather discuss some basic concepts which can be considered when you come to be involved with designing yards for a specific set of circumstances. I will do this under the various components of a basic deer yard.

---

### Lead-in race

In any yard this structure is probably the crux for successful repeated yarding and handling of deer. A good foolproof lead-in race will invariably result in animals being much more relaxed and placid as well as a much more cheerful and communicative farmer.

I estimate that the loss to the industry to date in terms of dead and permanently maimed deer resulting from inadequate lead-in races on New Zealand deer farms would easily exceed \$1 million.

Lead-in races need to be robust, secure and be scaled in proportion to the size of the yards and the mobs being handled. Deer which are moving or are excited are unable to see a standard post and netting fence. It is vital that the raceway provide a visual barrier. There are numerous ways of achieving this, viz:

- threading battens at close intervals
- stapling wooden slabs say 6" x 1" at deers' eye level along the fence
- affixing shade cloth or scrim along the fence; shade cloth is best used doubled.
- erecting pungas along the fence.

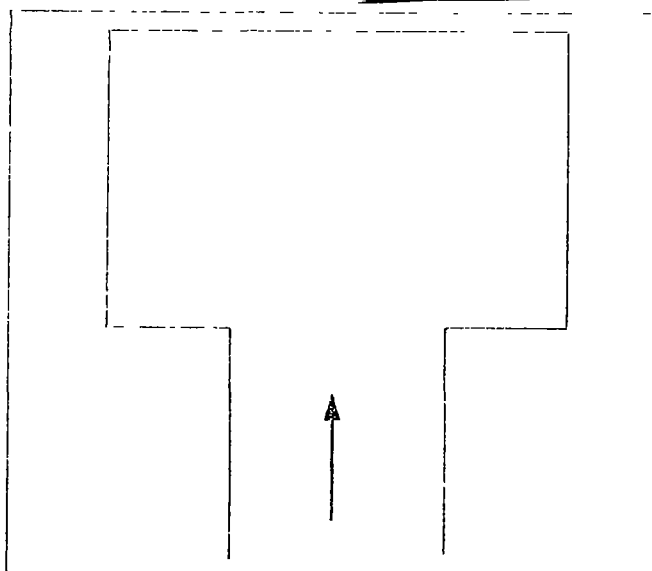
Lead-in races need to be sited to avoid likely sources of distraction for the deer such as car parks, machinery, motors, windmills, etc.

### Holding pen

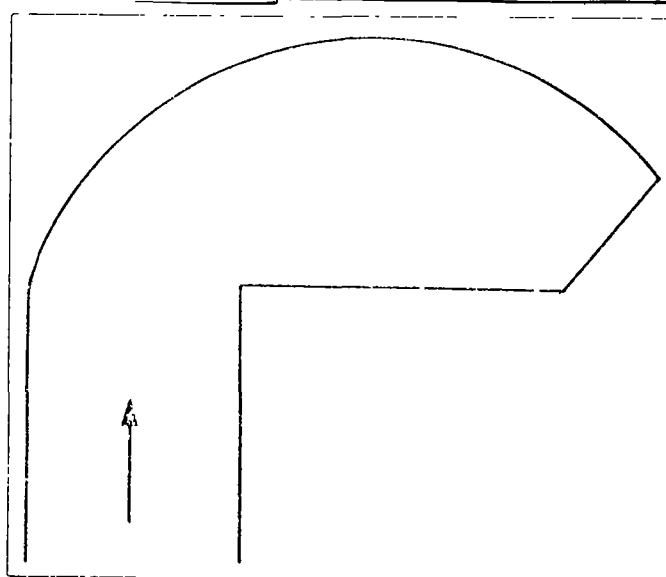
These need to be large enough to accommodate the anticipated mob size being handled. They need to be offset to one side of the lead-in race to facilitate entry since deer tend to be inherently both suspicious and optimistic. It is extremely difficult to drive them

into a pen when they can see clearly that they will become completely confined. They will tend to move into a pen more readily if they can be persuaded that there may be an escape route around the corner.

A curvature on the outside wall assists the natural flow of the animals into the offset pen and seems to settle them more readily. If deer are spooked while held in yards this feature will result in the animals milling around harmlessly rather than bunching up and smothering in a corner.



**Fig 1**  
*Deer will resist being yarded into pens of this shape : they will immediately be conscious that there is no possibility of escape*

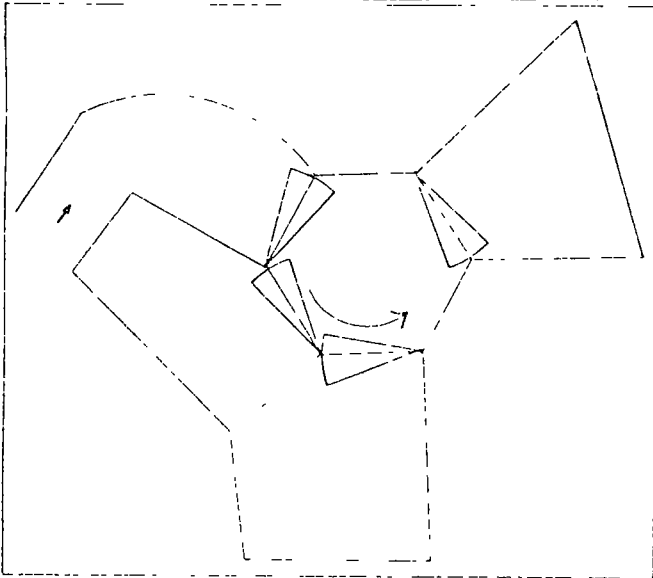


**Fig 2**  
*The design problem shown in Fig 1 can be overcome by offsetting the first holding pen from the feeding lane to one side. A curvature on the outside wall assists the natural flow of the animals into the pen and seems to settle them more readily.*

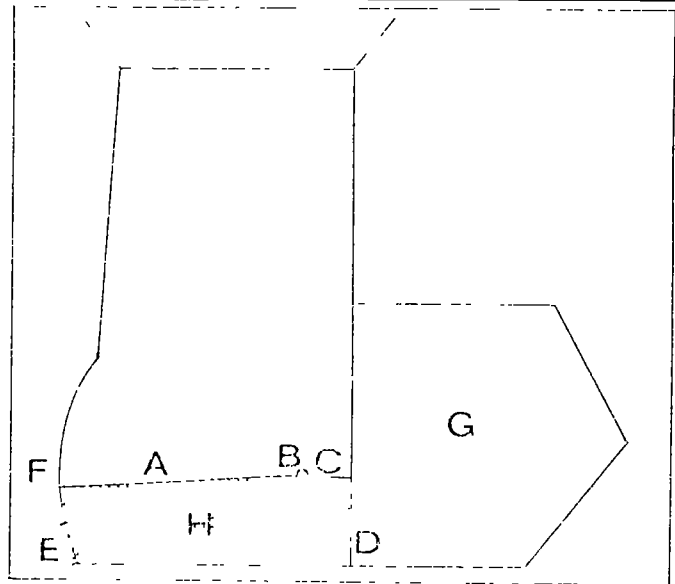
Where large mobs of deer are to be herded, necessitating breaking down the mobs into smaller holding pens before handling, then this same principle of offsetting the succeeding pens must be employed to facilitate the smooth flow of the animals.

#### Drafting area

I have found that the simplest and most effective drafting system is a hexagonal or octagonal pen with peripheral gates opening both into and out of that pen and hinged so that they can be used to draft individual deer circulating in an anticlockwise direction out into a side pen.



**Fig 3**  
 One of the simplest and most effective drafting systems is a hexagonal or octagonal pen with peripheral gates swinging in and out of the pen so that they can be used to direct individual pens circulating in an anticlockwise direction out into a side holding pen. Side pen outlines are made of metal.



**Fig 4**  
 Restraining handling pen. The dotted area H is a variable size pen which can be adjusted by pegging door A hinged on post B along wall F. C is a narrow door for rapid access for the handler at D and E are exits which can lead to loading ramp, crush, scales or rest pen, G.

The size of the drafting pen will vary from three to five metres diameter according to the size of mobs to be handled. The actual number of side gates and adjacent holding pens can be varied according to the needs of the individual farm.

Handling pen

For vets this area where the vaccinating, Tb testing, mouth and foot inspections, ear tagging, etc, are carried out is probably the most important. Many farmers use a circular pen with two centrally swung gates for this purpose. This system is versatile; however, it necessitates central siting within the yard complex. The actual shape of such a handling pen is that of a wedge which means that animals can either bunch at the hinged corner or can mill around requiring additional individual restraint.

My personal preference is for an adjustable semi-rectangular pen, in which the animals end up standing parallel to each other and facing in the same direction.

The dotted area H is a variable area pen which can be adjusted by pegging door A hinged on post B along wall F. Ideally six or eight animals are handled in pen H at a time. C is a narrow door which allows the handler rapid access in and out of the pen without disrupting the position of the deer. D and E are exits

which can lead into a loading ramp, crush and scales, or into another pen G for velvet removal. An adjustable slide can be fitted into gate A at chest level so that fractious animals can be handled safely without direct physical contact.

For larger wapiti an alternative is to have a horizontal ledge along A approximately 80cms above the ground for the handler to stand on for injections, Tb testing, etc.

There can be no question that subdued light makes handling smoother in the drafting and the handling area. However, there needs to be sufficient light for the handler to see what he is doing and to read the reactions of the deer towards him. Shafts of light through gaps in boards and gateways, especially where the yards are dusty and the sun is low, as in the early morning or late afternoon - tend to spook the deer and make it difficult to move them from pen to pen.

A rough-finished concrete floor surface keeps dust down and prevents slipping of the animals as they move through gateways. Sawdust and gravel tend to become unpleasantly dusty after a short time. Wood chips, if available, provide a satisfactory surface. Hard crushed limestone chips also appear to be a very suitable surface material. Cobblestone bricks are widely used on Chinese deer farms.

#### Handling races

A number of farmers have attempted to design handling races to cope with repeated operations such as drenching, vaccinating, mousing, Tb testing and ear tagging. These are best Y-shaped structures with a very narrow floor area (approximately 12cm wide) so that the animals cannot gain purchase to climb up on top of the animal in front. The major problem with such a race is to provide a fast enough flow through the feed-in pen.

#### Crushes

Crushes to restrain deer physically have been used by the Chinese and Russian deer farmers for centuries. They were first used in New Zealand to avoid veterinary involvement during antler velvet harvesting. They are now a fact of life on the New Zealand

deer farming scene and will become more common in future. One major reason is the discovery that the antlers from stags given a general anaesthetic tend to yield velvet with a much lower blood content, making processing more difficult and decreasing the value of the end product.

All crushes work on the principle of a dropping floor, resulting in suspending the animal with no ability to apply traction with hooves. The machine powered versions (usually pneumatic) apply a squeezing force onto the body of the animal as well.

As with handling races the major difficulty and limitation with crushes lies with the flow through the feed-in pen since this can only be done on an individual animal basis. Ironically most operators are having to sedate animals lightly to facilitate this aspect.

#### Other devices

For completeness deer veterinarians should be aware of the range of remote injection systems such as pole syringes, impact injection guns, blow darts and projectile syringes for the administration of drugs for chemical restraint of individual animals that present difficulties for direct physical handling. An electric depolarisation method is also available which "freezes" the animal. The disadvantages are the requirement to make good electrical contact with the animal at two points at least 25cm apart and the danger of a human accident with the instrument.

There is obviously a very good case for one of our deer research institutions to carry out some basic studies to evaluate the efficiency of yard layout. However, I feel that we as a profession can play a major part in future developments in this field simply by observing any innovative ideas in the course of our deer work, and recording and communicating these as much as possible. Remember that it generally takes approximately 15 years for any truly useful new farming technique to be adopted by the farmers at large - the first step is to draw attention to the idea.

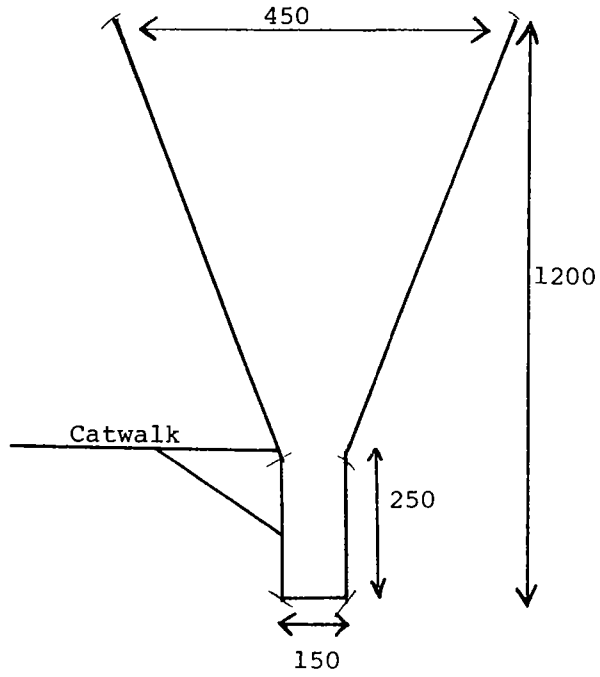


Fig. 5. Cross section of handling race. The entire race is enclosed within a darkened tunnel.

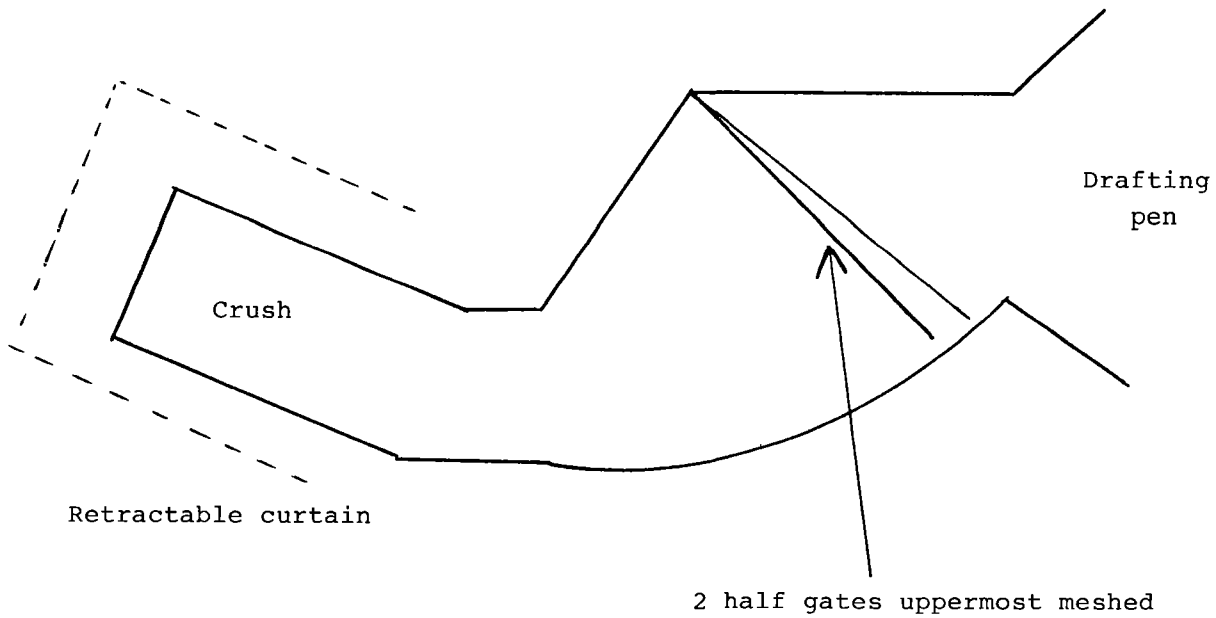


Fig. 6. Forcing pen for race, crush or scales.

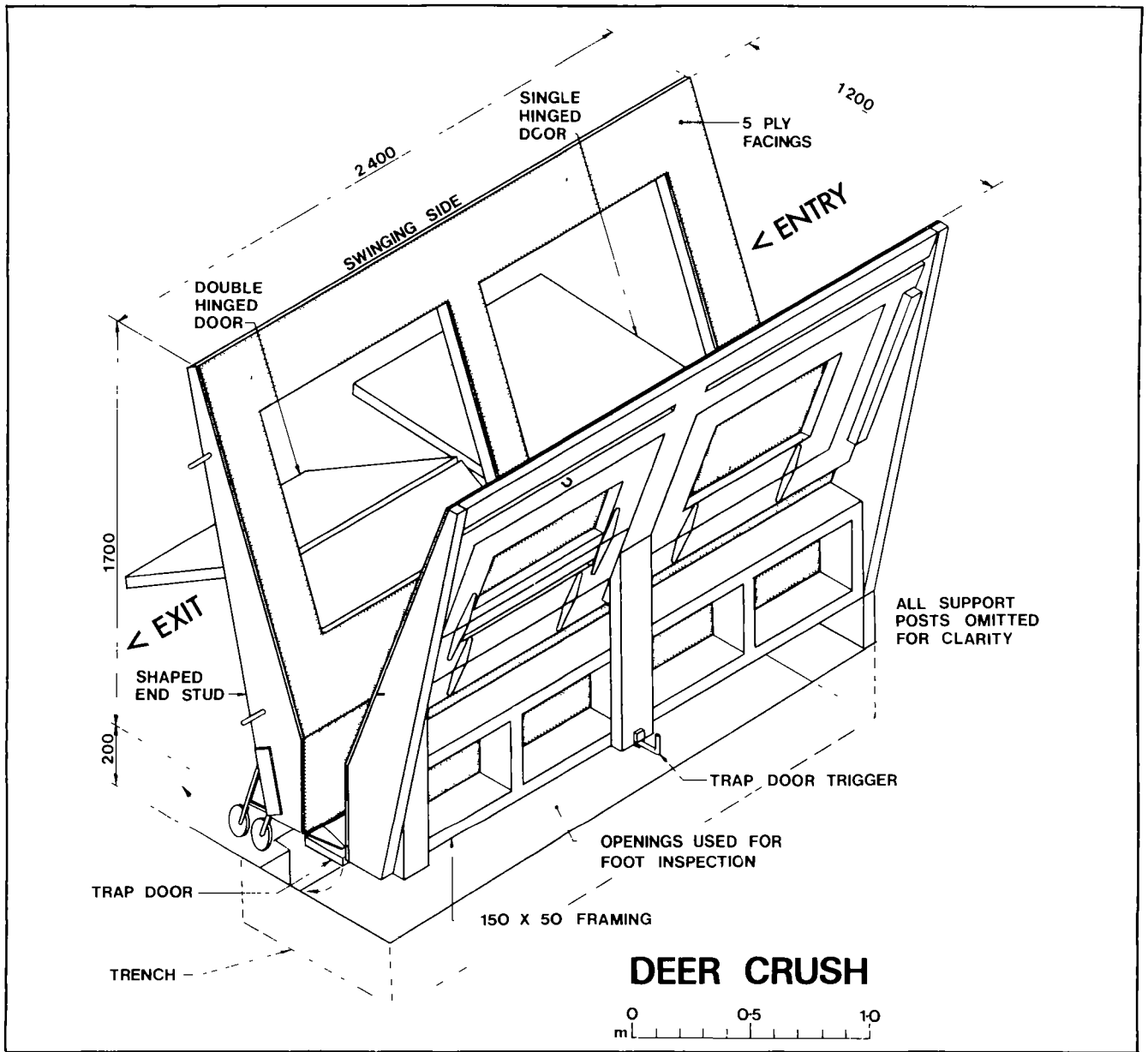


Fig. 7. Manual home-built crush. (Refer Aglink FPP97).



The following five papers are contributed  
by the workshop leaders and are intended  
as a summary of contributions and discussion  
by those in attendance at each of the  
workshop sessions.