

Modifying Existing Cattle Handling Systems to Improve Human Safety

Technical Note

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SUMMARY

- Some persistent problems found in Scottish beef handling systems could be overcome by fairly simple modifications to the existing facilities
- These modifications need not be expensive
- In addition to improvements in human safety, the modifications recommended below may also reduce the incidence of cattle injuries, improve growth rate and increase handling efficiency



Why are modifications to existing handling systems needed?

By examining the Health and Safety Executive annual statistical reports, it is apparent that there has been no reduction in the number of human fatalities whilst handling cattle in the UK since the 1970s, despite a reduction in the total rate of agricultural fatalities. Based on a sample of 314 producers surveyed in 1994 and 1995, it has been

estimated that around 19% of producers in the UK receive injuries whilst handling either beef or dairy cattle, although most of these injuries are bruises¹. This information is enough to suggest that there is scope for improving safety whilst handling cattle. Handling systems can greatly reduce the risks to human safety when designed and operated correctly. With the low net profit margin in the beef industry in recent years, not all producers have the resources available to construct new handling facilities. However, considerable benefits to handling ease and

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human safety can be made by modifying existing handling systems. This Technical Note describes how such modifications can be made at little cost. An accompanying Technical Note 565 (Title: *Recommendations for the design of new, safe and efficient cattle handling systems*) provides recommendations for the design of new handling systems.

Costs and benefits of modifying existing systems

The financial costs of modifying existing handling systems to improve human safety can be estimated before work begins. More difficult to quantify are the future benefits of this outlay. Partially this is due to the difficulty of assigning a monetary value to improved human safety. Examined purely in terms of lost earnings through injury, there is an incentive to improve safety. During the 12 month period of April 2002 – March 2003, the cost of all agricultural injuries to Scottish producers was £13.7 million².

Human safety is best improved by incorporating basic design principles into handling systems, the most important of which is that the facility should encourage cattle to move calmly and efficiently from one area to another. Taking this approach, additional benefits, which may be difficult to estimate from the outset, can be realised as a result of changes to existing handling systems. These benefits include a reduction in labour use whilst handling and a reduction in bruising and the incidence of other traumatic injuries to the cattle. A reduction in stress experienced by the cattle, which is responsible for poor growth rates and both dark cutting and pale, soft, exudative meat at slaughter, may also be realised. Improving human safety whilst handling cattle can be achieved in many cases with low-cost modifications to existing systems. These modifications can often be performed by farm staff and with readily available materials. Crucially these modifications must introduce or enhance the basic design features which reduce the likelihood of injury.

Basic design features which improve safety

All handling systems should:

1. **Make use of cattle behavioural tendencies to improve the flow of animals through the system, thereby removing the need for the handler to stand in direct contact with the animals to encourage them to move**
2. **Wherever possible, provide a solid barrier between the cattle and handler**
3. **Minimise points where limbs can be trapped**

The rest of this Technical Note makes recommendations on how existing handling systems can be modified at low cost to adhere to these three basic principles.

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Starting point – current designs in use

Permanent handling systems used in Scotland have changed little in recent decades. A survey of 139 Scottish beef farmers, undertaken in 2004 by SAC, showed that the majority of systems currently in use have one or more large collecting pens leading to a straight-sided forcing pen and a straight, open-sided race, as in Figure 1.



Figure 1: An example of a handling system incorporating some of the features commonly found on Scottish beef farms

Recommendations for the modification of existing handling systems

In the following paragraphs, suggestions are made as to how the three basic design principles, outlined above, can be incorporated or enhanced in systems of this kind.

1. Making use of cattle behavioural tendencies to encourage calm movement

1.1. Exits from pens and crushes should be obvious to the animal.

- No gate, wall or other obstruction should be positioned within 6m of the exit of the crush (Figure 2)
- Gates should open fully. Those which fail to lie flat against a wall or fenceline are likely to be accidentally closed by the cattle as they attempt to move past them (Figure 3). This increases the likelihood of bruising to the animals as they make contact with the latch and encourages them to escape past the handler. Consideration should be given to moving the location of the hinge pintles to prevent the post from impeding the full movement of the gate (Figure 4).
- In circumstances where cattle frequently escape past the handler when trying to empty a collecting pen, it is likely that the collecting pen is too wide. It has been recommended that two narrow pens of 3.7m width are preferable to one wide one. Consideration should therefore be given to dividing a wide collecting pen into two.

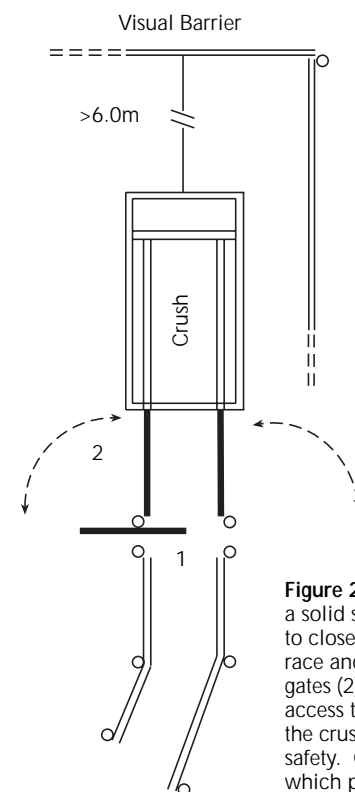


Figure 2: Inclusion of a solid sliding gate (1) to close the end of the race and swinging gates (2) to allow access to the rear of the crush will improve safety. Obstructions which prevent access to one side of the crush and those within 6m of the crush exit should be removed where possible.

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1.2. Cattle are easily influenced by the sight of other animals in adjacent pens and humans standing alongside the crush.

- Research has shown that boarding the sides of an open race, such as that in Figure 1, will improve the ease of moving cattle. Similarly, cattle will be more willing to enter a crush which has sheeted sides, although care should be taken to avoid increasing the risk of entrapment injuries to the handler
- Incorporation of a gentle bend into the end of the race will prevent cattle from seeing the crush until they are almost inside it. This does not necessarily require the use of curved hurdles. Standard straight hurdles can be used to create a gentle curve where they join the race (Figure 2). This may be most easily achieved when using portable handling facilities.

1.3. Cattle are hesitant when walking over slippery surfaces. Research at UK slaughterhouses has shown that smooth floor surfaces are particularly problematic at corners³. Floors with strong contrasts in texture or colour also cause cattle to hesitate.

- Worn out floors should be re-grooved
- Old wooden crush floors should be replaced to encourage the animals to stand still when restrained. Raised wooden battens, however, should be avoided as they do not encourage cattle to stand still and, when worn, the nail heads tend to protrude
- Contrasts caused by shadows can be minimised by boarding open sided hurdles



Figure 3: Ensure that gates can not be accidentally closed as cattle move out of the pen.



Figure 4: Hinge pintles may need to be moved to allow gates to open fully

1.4. Cattle will hesitate when alarmed by sudden noises

- The sound of metal components striking against each other should be minimised by the use of rubber strips to prevent metal-to-metal contact
- Shouting at cattle to encourage movement is often counterproductive

1.5. Cattle will tend to collect in a corner

- Placing a board across the angle of a corner can prevent cattle from standing with their heads orientated away from the exit (Figure 5)

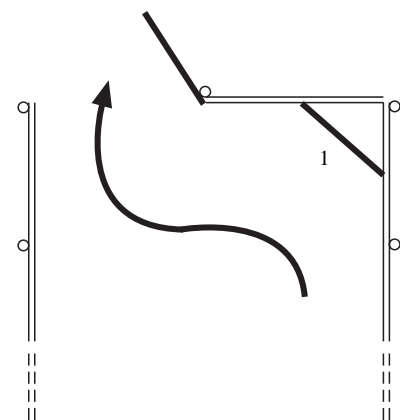


Figure 5: A board placed across the corner of this pen (1) will encourage cattle to face in the direction of the exit.

2. Provision of a solid barrier between the cattle and handler

Encouraging the calm flow of animals through a handling system reduces the need for the handler

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and cattle to be in direct contact. Additional considerations are:

- If a forcing gate is used, a latch should prevent the gate from being pushed back against the handler
- A catwalk alongside the race may allow access to the animals without the need to stand behind them in the race
- Serious injuries have occurred through the failure to anchor hurdles to each other and to the ground. All equipment should be securely fixed and well maintained
- A sheeted gate should allow the end of the race to be closed to prevent waiting cattle from making contact with a handler positioned at the rear of the crush (Figures 2 and 6)
- If space allows, a cattle-free safe working area around the crush can be created



Figure 6: An arrangement of gates which protects handlers working at the rear of a crush. Note that that sliding barred gate should ideally be sheeted.



Figure 7: An example of a crush which allows unobstructed access

3. Minimising points where limbs can be trapped

In a survey performed by SAC, activities such as belly clipping and foot trimming which require the handler to place their arm inside the crush are associated with a high risk of injury. Stretching under an animal also places the handlers head at risk of injury. Entrapment can be minimised by:

- Purchasing a crush which opens fully along both sides rather than one which provides only restricted access (Figure 7)
- Positioning the crush such that both sides can be accessed, removing the need to stretch under an animal

Conclusions

Common problems encountered whilst handling cattle can often be reduced by the adoption of basic design principles. Many of these design principles can be incorporated into existing facilities at little or no cost and can have direct benefits not only for human safety, but also for cattle safety and welfare, handling efficiency and productivity.

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Further information

Recommendations for the design of new handling facilities are provided in Technical Note number 565 (Title: *Recommendations for the design of new, safe and efficient cattle handling systems*). Your local SAC Farm Business Service Office can also provide guidance on the design of handling facilities.

Further information on the use of cattle behaviour to aid movement, based on experience in the US beef industry, is provided on Dr Temple Grandin's website: www.grandin.com

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Author: Dr. Simon Turner

Sustainable Livestock Systems Research Group

SAC, Sir Stephen Watson Building
Bush Estate
Penicuik
EH26 0PH
Scotland UK
Phone 0131 535 3208
Simon.Turner@sac.ac.uk