FEEDLOT DESIGN AND CONSTRUCTION

37. Stables

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The aisle between two rows of stalls should be at least 3m wide.

Run-out area adjoining stables. Note a feed and water trough is provided in the run-out area.

Exercise/training yard with sand bedding and lined inner walls

Introduction

Many feedlots use horses for monitoring cattle (pen riding) and for moving stock around the feedlot. For their optimal health and welfare, horses should be provided with a clean shelter (usually a stable or stall), a run-out area, suitable feed, watering facilities and areas for husbandry procedures.

Design objectives

The stable, and associated horse facilities at a feedlot, should provide

- a comfortable environment for the horses, including protection from the sun, wind, dust, storms and constant or intermittent loud noises
- a safe working environment for people
- a hygienic, well-ventilated environment
- sufficient space for each horse to lie down and comfortably turn around
- an adequate run-out area with suitable space for movement connected to the stables
- a large spelling area
- access to clean and reliable water
- storage for horse feed
- a saddle room to store pen rider equipment and tack
- a storage area for bedding material.

Mandatory requirements

Compliance with

- Australian Animal Standards and Guidelines for Horses (DAFF, 2013).
- National Guidelines for Beef Cattle Feedlots in Australia (MLA, 2012a). This states that the water must be suitable for livestock use.
- National Beef Cattle Feedlot Environmental Code of Practice (MLA, 2012b). Performance measure 1.5.2 states that a feedlot has a water supply able to sustain the operations of the feedlot under normal conditions.
- quality standards for livestock drinking water as outlined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) (ANZECC and ARMCANZ 2000).
- relevant state and local authority codes and regulations as applicable to feedlot development water licensing.

Design choices

Location

Ideally, stables should be located away from primary sources of vehicle movement, noise and dust. They should have good road access for delivery and retrieval of horses. Avoid the dusty and noisy feedlot environment, including feed preparation and storage areas and heavy vehicle movement.

Layout

Horses should be provided with a stable or stall to provide protection from the sun, wind, storms and dust, along with a run-out area. Stables or stalls should be large enough for the horse to lie down and comfortably turn around e.g. 100 m^2 per horse (typically 10 m wide and 10 m long). If stables are used, the stall gate will usually be left open to allow free access to an outdoor run-out area. The run-out area should be at least 300 m^2 per horse (typically 10 m wide and 30 m long). Some individual stables or stalls and run-out paddocks should be provided.

The total area needed for horse accommodation depends on the total number of pen riders, the number of horses each pen rider has and the area provided per horse. Not all pen riders will be working on any given day, while some pen riders have multiple horses that they rotate.

Stables or stalls can be set out in a single row but it may be more economical to build two rows that are separated by a common access/alley. The aisle between the rows of stables or stalls should be at least 3 m wide to allow access for vehicle or skid steer loader for stall cleanout.

Sick or injured horses should be confined to their stable or stall and run-out area. At large feedlots, one or two separate stables that are isolated from the main facility may minimise the risk of disease spread.

Because of the high levels of dust at feedlots, horses should be spelled from work every 3–4 weeks and at least every two months. Horses being spelled may be kept in paddocks on the farm, in backgrounding paddocks or on nearby agistment, with an area of 0.4–1 ha per horse.

Spelling paddocks with natural tree shade

Spelling paddocks with artificial shade – steel posts supporting suspended shade cloth

Materials

Stable walls should be at least 2.75 m high. They should be built of a solid material that provides good insulation (e.g. timber or besser bricks). Metal sheeting is unsuitable as horses have kicked through it or caught their hooves underneath. To prevent injury and damage to the walls from pawing or kicking, the inside walls may be lined with rubber conveyor belting or smooth wooden planking to a height of 1.4 m.

Stable doors and stall gates should open outwards and be at least 1.2–1.4 m wide with no protrusions that could injure the horse or handler. Latches should be strong and easily turned with large, flush handles with no protrusions.

The stable or stall is a high traffic area. A 100 mm deep reinforced concrete slab with a 1 m wide apron into the run-out area should have a non-slip surface. Both the stable or stall area and the run-out area need gates for skid steer or loader access, and these could be located just below the stable or stall.

Bedding in stables with no adjoining run-out area. Note conveyor belting covering the iron sheeted wall at the back of the stall.

Fencing

The run-out area should have fencing 1.7–1.8 m in height, with a maximum panel length (between posts) of 2.3 m or 2.4–2.75 m including posts. Barbed or plain wire fencing is unsuitable due to the risk of injury to the horse. Posts can be 230–310 mm diameter timber or 76 mm diameter steel posts. Although concreting steel posts into the ground avoids the need for cap rails, these rails do make the fencing more visible to the horses. Rails may be steel cattle

Bedding stockpile to the right of the stable complex.

cable or 150 mm x 50 mm hardwood rails, 150 mm diameter bush timber rails or 45 mm diameter steel piping. Cap rails can be 76 x 76 mm hardwood rails or 45 mm steel piping.

Entrance gates should be at least 3 m wide and internal gates 2.4 m wide. Gates must fit neatly to prevent horses from rubbing at corners and trapping their necks in gaps, which can cause choking.

While post and rail or steel cable fencing is preferred, this could be expensive for spelling paddocks. Alternative fencing needs to be easily visible and escape-proof.

Plain wire fencing or electric fencing can be used and should be at least 1.4 m high, have 5 wires (plain 2.75 mm or 11 gauge high-tensile), strainers at least every kilometre depending on terrain, 50 mm galvanised or treated posts every 30 m and wooden droppers every 3 m. Plastic objects placed along the fence can act as additional sight barriers. Objects that may cause harm to horses need to be removed.

Drainage

Good drainage will prevent wet, muddy conditions in the run-out area. Ideally, run-out areas should have similar compaction and a similar slope to the feedlot pens with drainage away from the stable or stall and directed to the feedlot drainage system. The roof of the stable or stall should have gutters that drain away from the horse complex.

Stable tie-up for shoeing and grooming.

Dust control and ventilation

As horses are susceptible to respiratory disease, hoses or sprinklers will suppress dust suppression in the run-out area. For good ventilation, stalls should be enclosed on the side that receives the prevailing wind and open on the alternate side.

Safety and power supply

Lighting should be provided within the stable and tie-up area for safety and ease of management during the early hours of the morning. Power may also be needed to allow for the use of clippers and other appliances.

Smoke detectors should also be installed for fire safety.

Horse crush area for veterinary access or vaccinations.

Feed

An average-sized stockhorse requires around 4–5.5 kg of chaff or hay per day. Horses should be fed using individual galvanised or plastic feed bins that hang on a rail or wall in the stall, and not fed directly from the ground. The feed bin should not have a sharp edge and should have a rim wide enough to prevent the horse from crib-biting. Trays that are too low may be damaged by pawing and there is an increased likelihood of fouling the feed.

Horses kept in paddocks may need supplementary feeding depending on the quality and availability of paddock feed.

Water

Clean water must always be available; horses will refuse to drink dirty or contaminated water. Self-filling bowls at a height of 1 m in the corner of each stable or stall are convenient and the regular inflow helps to maintain water quality. However, new horses may need to be introduced to their use.

Continuity of water supply is also essential. A typical 400–550 kg stockhorse will need approximately 16–22 L/day (4 L/100 kg liveweight per day) when resting in cool conditions, and 40–80 L/day when exercising or in hot weather.

Self-filling bowl waterers can fail, so unless there is a strict policy of checking all waters daily, an alarm that detects failure to refill is recommended. An alternative is to provide a larger trough in the run-out area.

Clean water must be continually available for horses kept in paddocks.

Concrete pad used as a washdown area for horse.

Husbandry

Facilities for the care and husbandry of the horses should be provided in close proximity to the stable area. These include

- tie-up facilities (horizontal pipe or hooks) – for saddling horses and for routine husbandry practices such as worming
- wash bay – a concrete pad with good drainage to the feedlot effluent system, possibly via sewer pipe
- shoeing area with tie-up facilities – a concrete floor, shelter from heat and rain but open enough to allow the farrier to escape a kicking horse.

Saddle room for storing saddles, tack and wet weather gear.

Storage

A saddle or tack room should be provided to store pen rider equipment. Horse feed can be stored in a large saddle room, otherwise in a separate weatherproof shed.

Purpose-built bunker storage or a just a stockpile area should be provided close to the stable complex to store fresh bedding.

Quick tips

- Locate horse accommodation away from vehicle traffic, dust and noise, ideally within the controlled drainage area
- Provide at least 100 m^2 of stable or stall area and at least 300 m^2 of run-out area per horse
- Provide a concreted floor with good bedding in the stable or stall and a run-out area with similar compaction and slope as the feedlot pens, with drainage directed to the feedlot drainage system
- Choose materials for the stable walls that are strong, provide good insulation and are safe for the horses (e.g. timber or besser blocks possibly lined with rubber conveyor belting, or smooth wooden planks)
- Sprinklers or hoses should be available for dust suppression in the run-out area
- Feeders should be positioned with the tray about 1 m above the floor.
- Self-filling water bowls are convenient but must be checked regularly or have a failure detection system.
- Steel cable or post and rail fencing are suitable for the run-out area
- Tie-up facilities, a wash bay, a concrete floored shoeing area with shelter and weatherproof storage areas for tack, rugs and feed need to be provided near the stable area
- Horses being spelled need suitable stable or paddock areas, along with shelter, feed and watering facilities.

Further reading

ANZECC, 2000, Australian and New Zealand guidelines for fresh and marine water quality: Volume 1 - The guidelines. Australian and New Zealand Environment and Conservation Council Agriculture and Resource Management Council of Australia and New Zealand – 2000.

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MLA, 2012b National Beef Cattle Feedlot Environmental Code of Practice. Meat & Livestock Australia, Sydney, NSW.