

8. HORSES ON FARMS



THE HAZARD



Horses play a significant role in rural industry and rural recreational activities in Australia. However, their size, speed and their unpredictable nature as well as the environment in which they are often ridden, provides a mix of factors which can result in injury or death. Horses are, historically, a prey animal. Therefore, their first instinct is to flee. This natural instinct to flee is a key feature of the hazard.

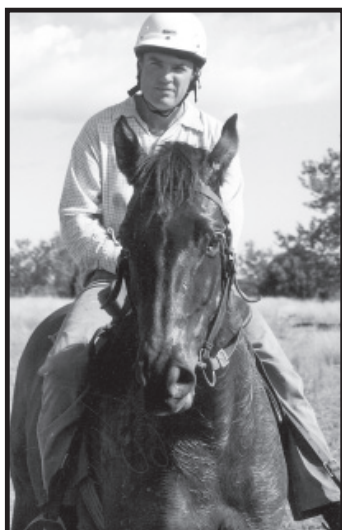
Mechanical forces result in horse-related injury. Most of these injuries are caused by the rider falling from the horse and subsequent contact with the ground, a structure or the horses hooves. A smaller but significant proportion of injuries occur in non-riding situations. Horse-related situations which commonly result in injury or death are:

- Falls from a horse
- Being crushed by a horse which falls
- Being kicked by a horse
- Being entangled in a stirrup and dragged along the ground
- Striking an object such as a tree while riding
- Having the hand entangled in the leadrope
- A blow from a horse's head
- Being stepped on by a horse
- Being bitten by a horse
- Being crushed between the horse and a yard or fence

The first four situations above are in rank order of frequency of occurrence.



HAZARD IDENTIFICATION



- Assessments of horse safety on the farm should look for all possible causes injury from horses. Assessments need to consider the rider/handler, the horse, the environment in which it is used and the interaction between them.
- Characteristics of the rider/handler which need to be looked at are age, experience, and training.
- Consider the horse's age, temperament (which includes the breed) and education.
- The condition and slope of the terrain over which a horse is ridden is important as well as the design of yards and stables. Another environmental aspect is the situations in which a horse is ridden. For example, is the horse ridden in the company of other horses or alone? Is the horse ridden over jumps or used for fast stock work? How much supervision is given to inexperienced riders?

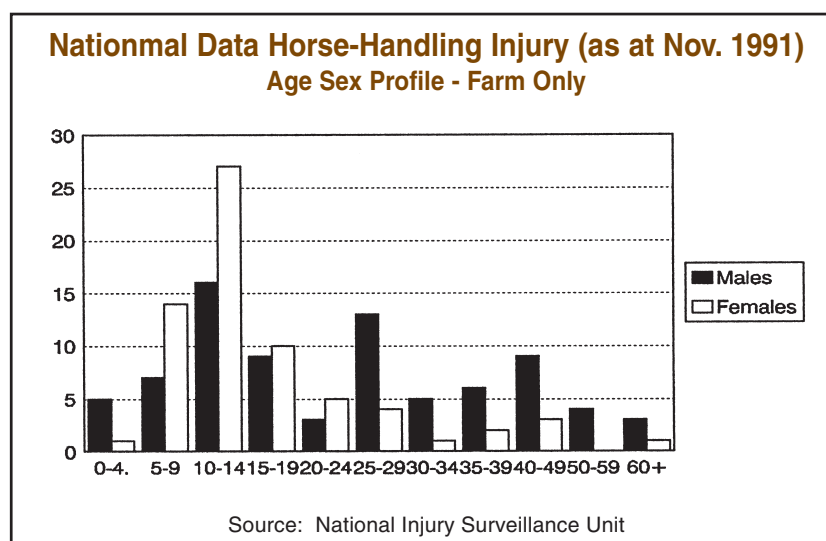
Further reading on hazards which relate to horses can be found in the following Guidance Notes:

- ☛ Children on Farms (Number 7)
- ☛ Animal Handling (Number 10)

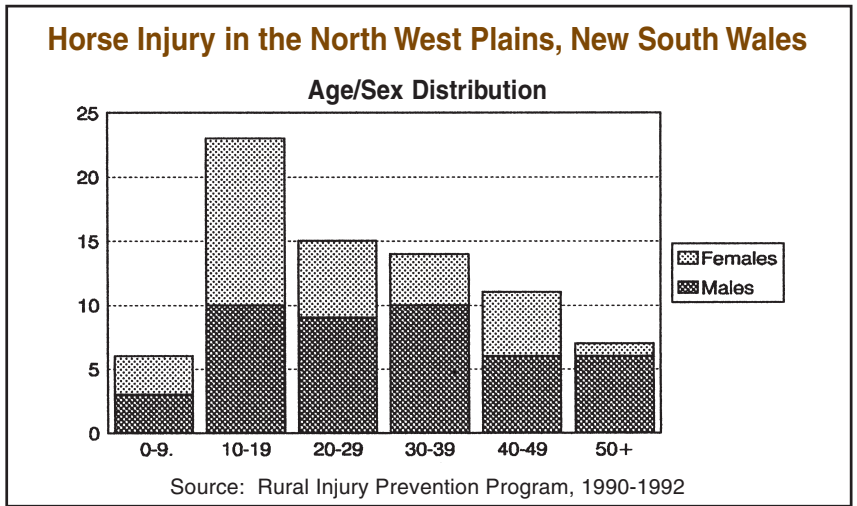
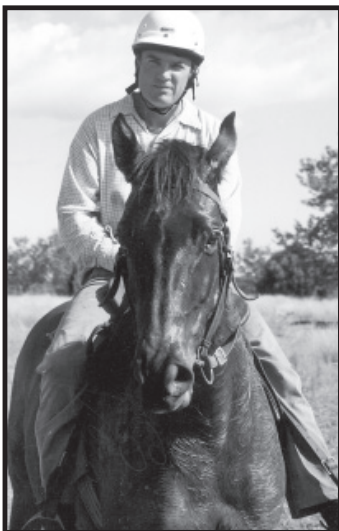
THE RISK

1. *Who is at risk*

- All individuals who ride or handle horses are at risk of injury.
- Also at risk are those who are in the presence of a horse which is being ridden or handled. Children under 5 years are especially at risk due to their lack of fear and size which makes it more likely that they will either be stepped on or cause the horse to take fright and kick them.
- Age and gender determine to a large extent who is at risk. Females in the 10-19 year age-group are injured more often than males during recreational riding as shown in the graph below. This data is national but, because of the manner of data collection, there is a bias to the East Coast of Australia. These statistics which show that females are more at risk may only reflect the increased participation by females in horse riding.



- Where horses are used in a work situation, the age/sex ratio of those injured changes. In a study of the North West Plains of New South Wales, horse-related injury is much more common in males and more evenly distributed throughout the age-groups as shown in the following graph.



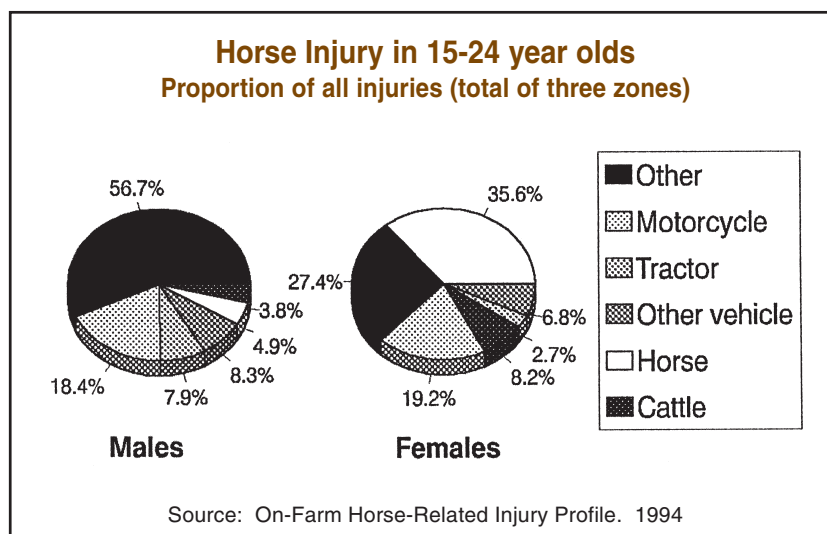
- Those who muster stock on horseback are at risk of death or injury because of the nature of the work; riding fast, often over rough or hilly ground on an excited horse after an excited beast. Data from Queensland shows that over the period 1985-1995, there were 20 deaths related to mustering on horseback.¹
- Riders who don't wear helmets which comply with the Australian Standard are more at risk of head injury and death.
- People who ride horses which are fed on high energy supplementary feed and under-exercised are more at risk. Horses are now bred for performance and when they are fed a diet of energy-rich feed, they can become difficult to handle due to the excess energy which is not being used.
- Riders of an unfamiliar horse are at greater risk of injury. This is something to consider when borrowing or lending horses.

2. Nature of the potential injury/illness

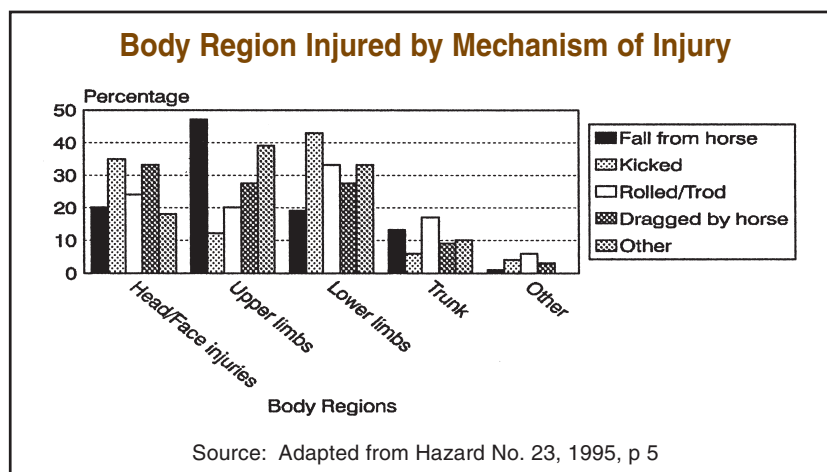
- When considering statistics on horse-related injury, it must be remembered that the level shown is an underestimate of the real figure. This is due to the way statistics are collected in hospital Accident & Emergency departments when the injury may be recorded as a fall but the horse may not be noted to be involved in that fall.
- Horse injuries can result in death. Over the period 1988/89 to 1991/2 inclusive, there were 17 horse-related fatalities in Australia. Head injury is the major cause of death from horse-riding or handling. Of the injuries which present to hospitals, around 31% of children and 22% of adults who were injured while riding required admission. Non-riding admission injuries occurred in 42% of children and 14% of adults. Injuries to the head and spinal column are the most severe injury outcomes.

¹Queensland Fatal Work-Related Farm Incidents, 1985-1995

- In terms of injury, an injury profile from Victoria and New South Wales 1990-1993 shows that horse-related injury is the largest proportion of all farm injury for females 15-24 but a very low proportion of all farm injury for males. However, peak prevalence is females aged 10-19 years.²



- Around 75% of horse-related injuries on farms are to riders and the remaining 25% occur while handling horses.
- Falls from the horse are responsible for 90% of the injuries which occur to riders. Falls can result in head injury which may be concussion, scalp lacerations, skull fractures, facial fractures or/and facial lacerations. The risk of head injury is higher in younger and less experienced riders. The following table shows the body parts which are most often injured in various situations.



- The most common horse-handling injury is a fracture followed by bruising and sprain/strain.
- The body parts usually injured in horse handling are the upper extremity (shoulder and elbow), lower extremity (wrist) and head/face.

²Wolfenden, K. & Clarke, L. *Final Report: Horse-Related Injury*. Australian Agricultural Health Unit. Moree. 1994

- Facial fractures found in horse-related injury are often compound which makes them more severe than those found in other sports.³ Fractures are more common in children than adults.
- Although non-riding injuries tend to be less severe as the victims are not falling from a height, they are significant problem in children, with half of the injuries involving the face and head. These injuries often result from kicks and therefore tend to be serious due to the high-impact to the face and head. Non-riding injuries to adults centre on lower limb, arm and finger injuries.



3. *Degree of risk*

When assessing the degree of risk from horses on the farm, consider the following questions:

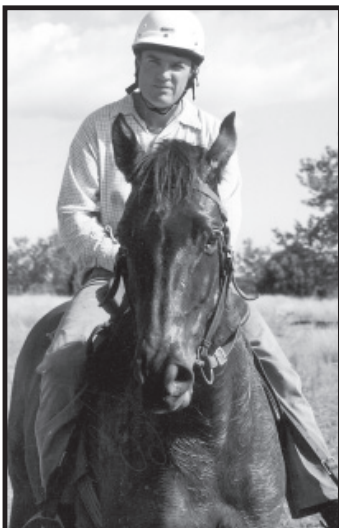
- How common is horse-related injury on the farm ?
- How severe is the likely resulting injury from horses ?
- How often and for how long is a person exposed to horse-related hazards?

How common is horse-related injury on the farm?

Horse-related injury is very common on farms. Death is not uncommon. If it occurs, it is usually during mustering. Factors which influence the likelihood of injury include:

Features of the Rider/Handler:

- Young children quite often do not have the strength to control a horse in a riding or handling situation. Because they are not old enough to have developed their skills and knowledge relating to horses, they are at increased risk. On the ground, they are at increased risk from horses because they may get into situations which are likely to end in being kicked or trampled by a horse. As children become older, if they are over-confident and behave in an unsafe way, they are more likely to be injured.
- Older riders often have the advantage of more experience. However, as people age, their bodies tend to sustain more damage from a fall. Bones are more likely to break and heal more slowly, often with complications.
- People who have not had instruction on effective safe techniques in handling and riding horses are at increased risk of injury. Training might be formal riding lessons or merely a knowledgeable horseperson giving advice. There are acknowledged techniques in horse husbandry and riding which will improve horse-rider interaction and improve safety.



³Pounder, D. "The Grave Yawns for the Horseman". The Medical Journal of Australia. November 1984

- Experienced riders/handlers are less at risk of injury than inexperienced ones. Nervous riders may also be at increased risk if the horse senses it and becomes nervous as well. A nervous rider makes a nervous horse as horses look to their rider for leadership. If this is lacking, they will lose confidence and be more inclined to take fright. However, experience does not necessarily mean that a person is at less risk. If knowledge has not been acquired on correct techniques, people who have been around horses for years may still be using unsafe techniques while at the same time, having become complacent due to their familiarity with horses. People who respect a horse's potential to injure and therefore think ahead and remain alert are less likely to be injured by a horse.

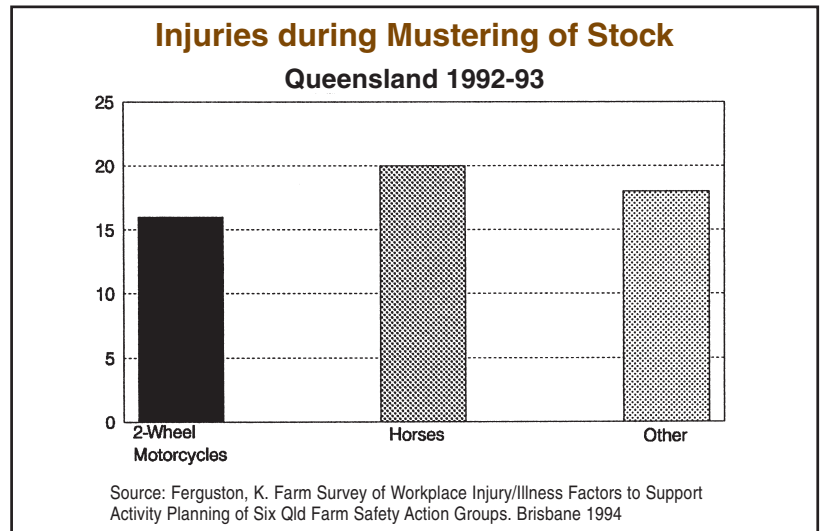
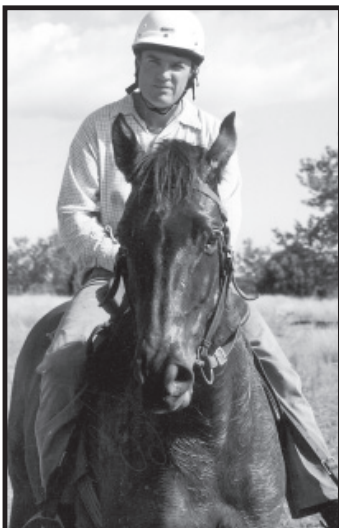
Features of the Horse:

- In general, older horses are quieter and are best used for inexperienced riders. The combination of a young horse with an inexperienced rider is an undesirable one increases the risk of injury.
- The breed of the horse will affect its temperament to a certain extent as some breeds are known to be more placid or excitable than others. For instance, Thoroughbreds are often more flighty than Quarter Horses. The horse's subconscious flight reaction has kept them from being caught and eaten by predators for thousands of years. Therefore, all horses are unpredictable and even the quietest horse may become dangerous if it's frightened.
- Horses which have been well-educated are easier to ride and less likely to have bad habits which may injure the rider or handler. A well-educated horse will teach the rider whereas a young, green horse needs schooling and guidance from a more experienced rider.

Features of the Environment:

- This includes the terrain over which the horse is ridden as well as the immediate area in which the horse is handled. Where a farm has steep slopes or lots of holes, rocks, gullies or waterways, the risk of injury or death will be higher as the horse can easily stumble and throw the rider or even fall, crushing the rider. As many horses are uncertain of going through water, the risk of being thrown while going past or through a creek, puddle, or irrigation channel may be high. Horses, like all animals are not fond of moving through rain. They can also become difficult to control in windy conditions. Wet, slippery ground in these conditions adds to the risk of injury.
- Where the horse is caught or kept in yards and stable, the risk may be increased due to the design of these areas. Narrow gateways or doorways increase the risk of being crushed as horse and rider walk through. Gate caps in stock yards may be too low for horse and rider to pass under safely.

- Environment includes the setting in which the horse is used. For instance, any activity which involves speed or height results in greater risk. This includes fast stock work, show jumping, eventing, polocrosse and some campdrafting work. If riders are inexperienced and are unsupervised, the risk will be greater. Similarly, small children who are allowed to wander around amongst horses as they are handled are at greater risk. Supervision affects the degree of risk. Where fast work is undertaken over rough terrain, the risk of the horse stumbling or falling increases the risk of injury to the rider. The Table below shows that horse-related injury during mustering in Queensland over 1992-93 rated more highly than any other mustering injury.



How severe is the likely resulting injury?

Injury consequences range from First Aid treatment or several days off work (or school, in the case of children) through to death or permanent disability. As previously mentioned, horse-related death in the work situation is not uncommon.

How often and for how long are people exposed to horse-related hazards?

The more often a horse is ridden or handled, the more chance there is for injury to occur. The length of time the horse is ridden or handled also affects the level of risk. If the horse is used for leisure as well as work purposes, the risk will probably be higher due to increased exposure time. The flip-side of this is that the more an individual rides a horse, the more experienced they become and the more familiar with that horse they become. The horse is also more likely to be better behaved. Therefore, frequency of exposure and length of exposure time to horse-related hazards can influence the level of risk in both directions.

- **As horse-related injury is common and the injury severity is likely to be high, the level of risk associated with horses should be assessed as high and action should be taken as soon as possible.**

- The following control measures will not be suitable for everybody. They are presented as options which are available to reduce the risk of injury or death while not interfering with farm productivity. In fact, well-designed control measures should increase productivity by decreasing human physical demands and reducing the cost of injury. An option which may seem impractical to one person in their particular situation may well be possible for somebody else in their circumstances. Where an option may not be practical at present, it may become so in the future; for instance, when planning the purchase of new horses or their gear.

1. *Elimination of the hazard*

- Elimination of horse-related hazards can only be achieved through not having any horses on the farm. As most injuries occur during recreational activities, this would mean choosing a new leisure-time activity. Injury also occurs during the course of work so a different method of mustering or farm transport would have to be used.

2. *Substitution for a lesser hazard*

- When considering substitution of horses with motorcycles or vehicles, decisions must be made about which is more suited to the task, the terrain and the rider or operator. It needs to be kept in mind that a horse is better for mustering scrub paddocks because of the height it allows and the audible detection of stock. These advantages need to be balanced against the age, skills and experience of the rider or operator, the terrain as well as the age, temperament and education of the horse.
- This option might involve substituting a horse which matches a rider's ability more closely. If a horse is flighty or has bad habits such as bucking, rearing, kicking or biting, it is relatively easy to substitute another. That horse would need to be sold or reschooled.
- The use of other means of transport such as a 4WD vehicle or agbike instead of a horse is an example of substituting a means of transport with less risk than a horse.

3. *Engineering/design options*

- Ensuring that small children are physically separated by fencing off the farm house/yard from areas where horses are being groomed/saddled etc will reduce the risk.

- The safety release stirrup is an engineering design which will reduce the risk of being entangled in the stirrup and dragged along the ground. If a child is riding, the safety bar should be completely open because their minimal weight may not cause the stirrup to separate from the saddle. Safety stirrup irons are designed to come off the leathers and may, therefore, reduce this problem. Ox-bow stirrups reduce the risk of crushing of the foot within the stirrup. Sometimes, they are partly composed of wood which breaks before the foot can be crushed. The most effective ones are made of metal alloy, of a squat-bell shape and big enough that the foot will come out easily when wearing boots.
- A surcingle keeps the saddle in place if the girth is loose or it breaks.
- Reins made of webbing or plaited leather give a better grip in wet weather.



4. *Safer work practices and procedures*

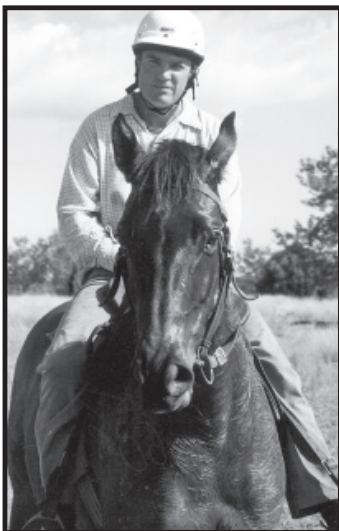
Safe practice around horses involves more than the scope of this paper as horse handling and riding is an art and a science in itself. However, some general guidelines can be followed:

Horse Gear

- ✓ Tack should fit the horse properly so that it is comfortable and functions properly. Uncomfortable tack will lead to the horse being difficult to control due to pain and loss of concentration. Tack should also be maintained and checked regularly for signs of wear. In particular, stirrup leathers, girths and reins need regular oiling and checking for signs of wear. Stirrups should be of an appropriate length for the leg so that the rider is able to sit deep in the saddle. The stirrup irons need to be 2.5 cm wider than the boot so that the foot does not become caught and yet it will not slip through the stirrup.

Handling a Horse

- ✓ When approaching a horse, remember that a horse sees quite poorly and there are blind spots immediately in front of and behind itself. A frightened horse can be a dangerous horse.
- ✓ When handling or riding a horse, avoid having small children, vehicles or other animals such as dogs around which can cause distraction.
- ✓ When leading a horse, never wrap the lead rope around your hand or fingers. Fingers have been amputated by this practice. If leading a horse through a narrow gate or doorway, stop the horse and quickly squeeze through first, then stand to one side while the horse comes through.
- ✓ Avoid walking behind a horse and if it is unavoidable, walk as close to the hind legs as possible as the horse's kick has less force from that position. Keeping a hand on the horse's rump while moving around it will increase awareness of your presence and the horse is less likely to be frightened and kick.



Riding the Horse

- ✓ Before mounting the horse, check the condition and correct fit of the gear. In particular, check the tightness of the girth. If in doubt about how a horse will react to being ridden, lunge the horse first and ride in a yard to begin with.
- ✓ When riding up and down hills, keep to a slow pace. If riding through terrain hazards such as rocks, potholes or water, ride slowly or get off and walk the horse. If leading a horse through water or rough terrain, take great care with your footing. Never ride very close to a barbed-wire fence.
- ✓ When riding behind other horses, always keep at least a horse's length behind the closest horse.
- ✓ When riding in the presence of dogs or vehicles, be aware that these could frighten a horse and take appropriate precautions. Only dogs which are familiar with horses should be taken out when riding.
- ✓ Training in horse-handling and riding skills should be a priority. Knowledge about how a horse thinks will help to predict how a horse will react to certain situations. However, always be aware of the unpredictability of a horse.

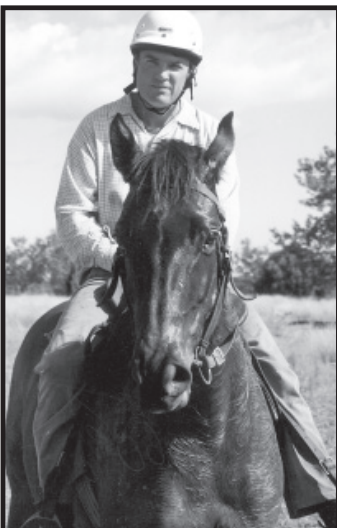
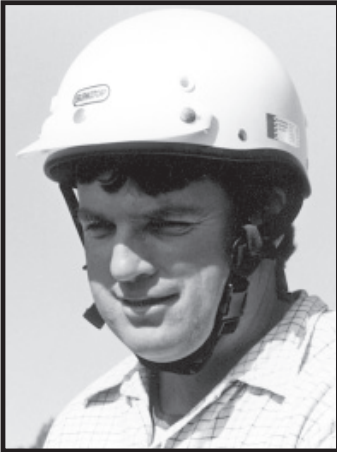
5. Personal protective equipment and clothing

- The most important piece of equipment while riding is a helmet which complies with the Australian Standard. These helmets afford the greatest protection in the event of a fall. Studies have shown that the rate of head injury, face injury and concussion decreases dramatically where an approved helmet is worn.⁴
- Some equestrian organisations have made helmets compulsory when horses are ridden on their grounds and in certain competitions on show grounds. Wearing helmets which comply with Australian Standard AS2063.3 needs to be encouraged at all times, especially when working stock or even when just going for a short ride on the farm.
- Helmets need to be strapped on securely and fit properly to be effective. This means that they must not be able to slip forward, backward or wobble when worn. Glues and solvents should never be used on helmets as they weaken the shell. If a helmet is involved in a fall, it will need replacing. Soft felt hats are now made which fit over the top of a helmet. Hat brims which fit around a helmet and so offer sun protection are also available. Sunscreen and a shirt with a collar will offer protection from the sun.
- Clothes should be fitted so that nothing can be caught on objects or flap and frighten the horse. Boots with a smooth sole and a heel are the safest when riding. The smooth sole reduces the chance of the boot being stuck on the stirrup and the heel prevents the boot from slipping straight through the stirrup. When handling horses, boots with a non-slip sole will reduce the risk of slipping and reduce the severity of foot injuries if trodden on by the horse.

⁴Bixby-Hammett D. *USPC completes ten-year accident study*. US Pony Club News. 1992. 54:1

6. First Aid

- An effective rescue and First Aid technique can dramatically improve a person's chance of survival or improve the injury outcome.
- Develop a plan for every recognised crisis situation.
- At least two individuals on each farm need to be trained in First Aid.
- First aid kits should be in handy locations on the farm. The size of the kit will vary according to the number of workers on the farm. The legal requirements vary from state to state and should be checked with your local Occupational Health & Safety Authority.



RELEVANT LEGISLATION AND STANDARDS

- There is no legislation regarding horses on farms. However, there is a “duty of care” imposed by the Occupational Health & Safety Act of each state/territory which means that the employer is responsible for the safety of all employees and visitors to the farm.
- **Australian Standard 2063.3** Equestrian Helmet

USEFUL REFERENCES

1. *Hazard* (Victorian Injury Surveillance System) Edition No. 23. June. 1995
2. Wolfenden, Dr K. Lower, T. & Clarke, Dr L. *Final report. Horse-Related Injury*. Australian Agricultural Health Unit. Moree. 1994.
3. Heselton, B. *On the Safe Side: Horse Management for Owners and Riders*. Council of Adult Education. Melbourne. 1994

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State/Territory Occupational Health & Safety organisations as listed below:

- * WorkCover New South Wales: Ph 131 050
- * Victorian WorkCover Authority: Ph (03) 9628 8188
- * Queensland Division of Workplace Health & Safety:
Ph (1800) 177 717 or (07) 3247 4711
- * South Australian WorkCover Corporation: Ph (08) 8226 3120
- * WorkSafe Western Australia: Ph (08) 9327 8777
- * Tasmanian Workplace Standards Authority: Ph (03) 6233 7657
- * Northern Territory Work Health Authority: Ph (08) 8999 5010
- * Australian Capital Territory WorkCover: Ph (02) 6205 0200

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