



Avoiding and treating crush injuries

With farmers regularly working on complex machinery, tools and equipment, crush injuries can and do happen. Prevention and getting the procedures right for first aid is essential to properly treat any injuries. **Jessica Strauss** looks at how to prevent and treat crush injuries.

AT A GLANCE

- ▶ A crush injury occurs when the body or body part is trapped, pinched or jammed between objects.
- ▶ On Victorian farms, the most commonly injured body parts are the hands and fingers.
- ▶ Simple safety measures can dramatically reduce the risk of crush injuries to yourself, your family and other farm workers.
- ▶ A health and safety officer from the WorkSafe Victoria (or equivalent in your state or territory) can offer information and advice on how to improve safety practices on your farm.

WHAT ARE CRUSH INJURIES?

A crush injury occurs when the body or a body part is trapped, pinched or jammed under or between objects. The pressure can harm skin, muscles, nerves or bone, depending on the degree of force. Traumatic amputation occurs if enough force is applied. According to Better Health Victoria, on Victorian farms, the most commonly injured body parts are the hands and fingers.

Most injuries occur during cropping or farm maintenance in workshops. While anyone of any age who works, visits or lives on a farm may get injured, older people and inexperienced people are at increased risk. The effects of ageing – such as slower reaction times, poor eyesight and reduced strength and agility – make crush injuries more likely.

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SERIOUS INJURIES CAN OCCUR

The National Centre for Farm Health said crush injuries could also cause compartment syndrome or crush injury syndrome. Both potentially have serious consequences.

Compartment syndrome

Compartment syndrome can occur when muscles inside a ‘compartment’ of a limb swell so much that blood flow is blocked. The fascia, which covers the muscles, is not very elastic and does not stretch, forcing the pressure from the swelling inwards, compressing nerves and blood vessels. It can be caused by many instances, including being crushed under a heavy object.

Crush injury syndrome

Crush injury syndrome occurs when a large area of muscle is compressed and starved of blood flow over a several hours. This causes the muscle cells to break down,

releasing acids and other chemicals. When the pressure is removed these chemicals are released and can cause serious damage as they travel to the heart and kidneys.

CAUSES OF CRUSH INJURIES

The causes of crush injuries on farms include:

- Vehicle rollover – rollovers can pin the driver underneath the vehicle and may cause serious injury or death
- Vehicle run-over – a passenger can fall from a tractor or other farm vehicle and be crushed beneath the wheel
- Machinery such as grain augers – fingers, hands and arms may be pulled into the moving parts; and
- Impact with livestock – cattle may crush a farmer against stockyard rails.

PREVENTING CRUSH INJURIES

Crush injuries on farms can be prevented by taking simple safety precautions. Each type of crush injury hazard requires specific precautions, but some general tips apply. Injuries can occur at any time when using machinery. Most injuries involve crush injury or amputation of the fingers or hands.

General safety suggestions for machinery include:

- Read the manual and pay particular attention to the safety instructions
- Make sure that all workers on a particular piece of equipment understand how to operate it safely
- Don't remove or modify safety features. Lack of safety guards is a major factor in crush injuries. If necessary, fit safety shields to cover all moving parts, such as belts and pulleys
- Regularly maintain and check your machinery. Accidents, including crush injuries, are more common if the equipment is old. You may need to buy new machinery
- Make sure that clothes such as sleeves and pant legs are not loose or flapping and cannot get caught in the moving parts of a machine. Hair should also be tied up
- Fit safety signs
- Do not take shortcuts. For example, take the time to switch off machinery before you make any adjustments; and
- Avoid working alone. If this isn't possible, then tell someone when to expect you so they can come looking for you if necessary. Make this a safety rule for everyone who works on the farm.

Tractors cause around 11% of workplace deaths in Victoria. Human error is a major factor.

Studies of tractor accidents show that, in most cases, at least one person performed an action that led directly to the injury or death.

Safety suggestions for preventing crush injuries from tractors include:

- Make sure your tractor conforms to current Australian Safety Standards
- Buy a tractor with safety features such as a seatbelt, reversing beepers and dead man's seat brake (also known as an operator presence sensing system or OPSS). An OPSS turns power sources off and brakes the tractor when the operator leaves the seat with the engine on and the tractor in gear
- Install a certified rollover protective structure (ROPS) if your tractor does not have an enclosed cabin
- Keep the tractor properly maintained and check it regularly
- Make sure that children and visitors are kept well away from the tractor when it is operational
- Only start the tractor when you are safely seated. Deaths have occurred when farm workers start the tractor from outside the vehicle
- Always wear the seatbelt
- Ban passengers if the tractor does not have a purpose-built seat with a seatbelt. Passengers riding on the mudguard may fall and get crushed by the rear wheel
- Do not leave the motor running when you are off the tractor making adjustments; and
- To avoid crush injuries to the hands, be particularly careful when adding attachments to the tractor and follow all recommended safety precautions.

All-terrain vehicle safety suggestions:

All-terrain vehicles (ATVs or quad bikes) are the number one cause of death on Victorian farms. Most injuries and deaths involve the bike rolling over the rider. Nationally, there were 15 deaths from quad bike accidents last year. There were 15 deaths in 2014, with none in WA.

A total of 213 deaths have been reported in Australia between January 2001 and July 2015 during both recreational and work use.

Safety suggestions include:

- Take a quad bike training course
- Use the quad bike strictly as instructed by the operator's manual
- Only ride on familiar and even tracks.
- Install an appropriate crush protection device
- Do not let children less than 16 years of age ride quad bikes; and
- Do not put passengers on quad bikes.

Grain auger safety suggestions:

- Do not remove the flight intake guard. While removing it may improve the flow of grain, it dramatically increases the risk of crush injuries.

- Use the grain auger strictly as directed. Inappropriate use increases your risk of harm.
- Make sure the emergency stop is near the grain auger inlet.

Livestock safety suggestions:

A common type of crush injury from livestock occurs when a body part, such as an arm, gets pinned between an animal and a fence. The bigger the animal is, the greater the risk of injury.

Safety suggestions include:

- Do not work alone
- Ensure the animals know you are approaching
- Minimise the time you spend in the same enclosure as farm animals
- Be aware that frightened mothers will protect their young if they perceive a threat. For example, alarmed cows may charge
- Always use appropriate equipment. For example, use head bails and crushes
- If you need to yard stock during mating, use separate yards for bulls whenever possible; and
- Install a vet gate into your cattle crush to make getting in and out safer.

FIRST AID KNOWLEDGE IS ESSENTIAL

Being well-prepared for incidents like crush injuries will ensure you know how to best respond in the unfortunate event yourself or someone working alongside you might need it.

The steps to follow are:

- Draw up an emergency plan
- Ensure easy access to a suitable and well-stocked first aid kit. Place first aid kits around the farm
- Ensure that at least one farm worker is trained in first aid
- Keep emergency contact numbers and a copy of your correct (official) address next to the telephone
- Plan routes to the nearest hospital emergency department
- Talk through your emergency plan with your family, other farm staff and visitors; and
- Make sure everyone knows what to do in an emergency.

WHERE TO GET HELP

In an emergency, call triple zero (000)

Your doctor

NURSE-ON-CALL Tel: 1300 60 60 24

Australian Centre for Agricultural Health and Safety Tel: (02) 6752 8210

Department of Environment and Primary Industries Tel: 136 186

Farmsafe Australia Tel: (02) 6752 8218

National Centre for Farmer Health

Tel: (03) 5551 8533