

Safe loading and unloading of hay bales

Workers can be at risk of serious injury when loading or unloading hay bales from trucks or trailers.

The main risk areas are:

- falling or collapsing hay bales
- stack configuration
- bystander safety
- electrocution from contact with overhead powerlines
- falling from heights.

A concise risk management process should be completed and safe systems of work should be in place before any work with hay bales is started.

Hay bales can be small rectangular, large rectangular or large round and consist of grass, lucerne, straw, stubble or other herbaceous plant material that has been compressed or tightly bound or baled together (including wrapped round silage bales).

Falling or collapsing hay bales

Workers and bystanders are exposed to the risk of sustaining fatal or serious injuries if bales fall or collapse while loading or unloading trucks or trailers. Large round or rectangular bales can weigh up to 800 kilograms.

Bales may fall when:

- they have moved, compressed or collapsed whilst in transit
- they are stacked incorrectly (e.g. round bales stacked on their sides and not on their ends, which is the safest method)
- inappropriate lashings or ropes or inadequate securing methods have been used

- workers have not been trained to perform the task safely
- bale handling equipment is not properly designed, constructed and maintained.



Photograph 1: Hay bales can fall from a truck during unloading, fatally injuring workers or by-standers.



Photograph 2: Bales transported on their sides or inadequately secured can move while being transported

Solutions

The risk can be eliminated or reduced by ensuring that:

- people loading or unloading hay bales are trained, competent and correctly supervised
- a safe system of work has been developed and implemented
- bales are stacked according to Australian Fodder Industry Association guidelines
- a load and unload sequence is used to prevent the load becoming unstable
- the bale stack has not collapsed, moved or become unstable during transportation
- side gates will not spring open when unlatched before the lashing, side gates or tarpaulins are removed
- the placement or removal of tarpaulins does not disturb or dislodge bales
- loading or unloading occurs on level ground to minimise the potential for bale dislodgement or vehicle tip over
- mobile plant and equipment has been designed for the task (e.g. the use of 'telehandlers' or other purpose-designed plant including hay bale clamps, grabs and spikes)
- people loading or unloading big square bales always stand clear of the trailer, where the loader driver can see them
- tractors are fitted with a well-maintained falling object protective structure (FOPS) that meets the requirements of Australian Standard 2294.1-1997: Earthmoving machinery - Protective structures
- a self-levelling front-end loader attachment is used to prevent the bale falling
- a backboard is used to prevent the bale falling backwards onto the operator.



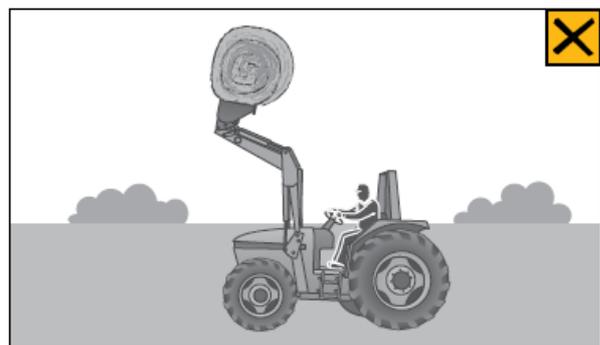
Photograph 3: Bale spikes



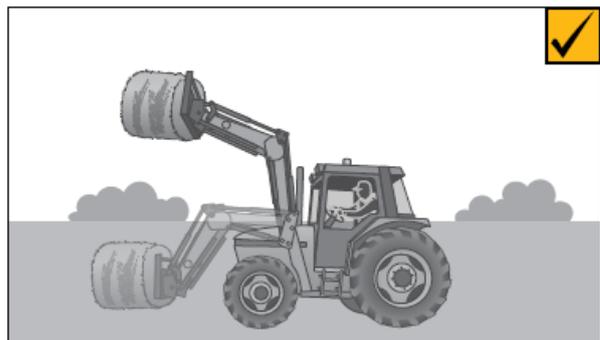
Photograph 4: Big bales grabs attached to a telehandler



Photograph 5: Front end loader with large square bale



A tractor without FOPS puts workers at risk of injury from a falling hay bale.



A self-levelling attachment will help balance the hay bale to prevent it falling. A back board will prevent the bale falling backwards onto the operator.

Diagrams courtesy of WorkSafe Victoria.

Stack configuration and safety

Inappropriate bale stack configuration can lead to instability, stack collapse and injury.

A bale stack may become unstable because of:

- an inappropriate stack configuration
- bales not being of sound construction or density

- bales being of different dimensions
- bales being loaded or unloaded with inappropriate equipment
- bales being stacked outside the dimensions of the truck or trailer.

Solutions

The risk can be eliminated or reduced by ensuring that:

- people loading or unloading hay bales are trained, competent and correctly supervised
- specifically designed bale handling equipment is used instead of the bales being manually handled
- bales are of equal size and density prior to stack formation
- lower bales are sound and able to provide stability for upper layers
- the truck or trailer is positioned on a flat even surface
- the load does not exceed the truck or trailer dimensions nor the maximum permitted axle and gross weights
- bales are never strapped or unstrapped while the trailer is still being loaded or unloaded.
- workers never climb up on top of the load to place straps or tarps—use an appropriate lifting cage.

Bystander safety

Truck drivers, workers, farmers and family members (including children) are exposed to risks from mobile plant and falling bales during loading and unloading. The risks include being:

- struck or run over by mobile plant
- struck by the bale while it is being moved
- struck by a falling bale.

Solution

A concise risk management process should be completed and safe systems of work should be in place before hay bales are stacked on trucks or trailers.

The risk can be eliminated or reduced by ensuring that:

- plant operators are appropriately trained, competent (including the appropriate high risk work licence) and correctly supervised
- exclusion zones are established to segregate bystanders (including truck drivers) from the loading zone
- no-one is on the opposite side of the truck or trailer during loading or unloading
- a 'spotter' (who has communication to the mobile plant operator) is used to prevent people entering the loading zone area

- there are well defined driving routes
- workers are never transported on loads or loading equipment
- mobile plant is maintained to manufacturer specifications
- signs or barriers are used to keep members of the public or anyone not involved with the loading or unloading operation away.

Electrocution from contact with overhead powerlines

Workers are at risk of being electrocuted through contact with overhead powerlines while loading and unloading hay bales.

You do not need to come into direct contact with powerlines to receive an electric shock as electricity can jump or arc across air gaps.

There is a risk of workers coming into contact with overhead powerlines when they:

- load or unload under or near overhead powerlines
- stand on truck or trailer beds
- climb onto loaded hay bales to securing tarping, ropes and lashing
- throw ropes, lashing or other securing mechanism over the load
- operate mobile plant under or near overhead powerlines
- do not lower booms, telescopic arms, front end load attachments or other items of equipment
- do not comply with legislated exclusion zones for powerlines.

Solutions

A concise risk management process should be completed and safe systems of work should be in place before hay bales are loaded or unloaded.

Electrocution risks can be eliminated or reduced by ensuring that:

- workers are aware of where overhead powerlines are, specified exclusion zones and the height and reach of equipment being used
- workers are aware of the clearances that must be maintained from powerlines, poles and stay wires
- loading or unloading is not conducted near overhead powerlines
- workers do not stand on trucks or trailers while loading or unloading near to overhead powerlines
- loading equipment, such as telescopic booms, masts of forklifts, front end loader attachments are lowered when passing near or under overhead powerlines

- there are exclusion zones in place as outlined in the [Electrical Safety Act 2002](#).

For more information about electrical safety and exclusion zones refer to:

- [Electricity in the rural industry - Using it safely](#)
- [Electrical Safety Code of Practice 2010 Working Near Exposed Live Parts](#)

The following are examples of the clearances that people, machinery and plant must maintain from powerlines.

Powerline voltage (1 kV = 1000 volts)	Examples	Exclusion zone*
Up to 132 kV	Low voltage and high voltage powerlines – usually on poles	3 metres
Between 132 kV and 330 kV	Powerlines usually on poles and towers	6 metres
Over 330 kV	Powerlines usually on towers	8 metres

Falling from heights

Workers are at risk of falling from the stack or the bed of the truck or trailer while loading and unloading hay bales. Workers may climb onto the stack to assist in the tarping process or install or remove lashes, ropes or other securing equipment.

Solutions

The risk can be eliminated or reduced by:

- ensuring that workers stacking the bales are trained, competent and correctly supervised
- using mechanical equipment or aids to load or remove bales
- using mechanical equipment to assist in the placing or removal of lashings, tarps or other securing devices
- ensuring a safe means of access to and from work positions which are above ground level (e.g. working platforms)
- providing access and egress from the truck or trailer beds to the ground, to eliminate the need to jump from heights.

For more information

Visit www.worksafe.qld.gov.au or call the WHS Infoline on 1300 369 915.

For information about electrical safety visit www.electricalsafety.qld.gov.au or call the Electrical Safety Infoline on 1300 650 662.

Download the fact sheet [Forklift licensing in the rural industry](#).

