

FARM SAFETY FOCUS ON: **MACHINERY**

This guide highlights key risks involving farm machinery and provides practical advice on how you can **make your farm a safer place for you, your family, your employees and visitors.**



THE LAW

The Provision and Use of Work Equipment Regulations 1998 (PUWER) apply to any equipment and machinery that you use at work. They state that equipment must be suitable for the task, properly maintained and guarded and that adequate training and information about the equipment is available for employees.

The Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 also apply to any lifting equipment, for example, a telehandler. They state that equipment must be strong and stable enough for its proposed use, marked to indicate safe working loads, positioned and installed to minimise any risks, used as part of a planned operation and subjected to ongoing thorough examination at suitable intervals by a competent person. It is mandatory to have equipment used to lift people inspected by a competent person every 6 months.

CASE STUDY

A 23 year old farmer got off his tractor to check the vacuum tanker he was using was working, as no water was being drawn through.

As he leaned over the tractor to put his hand against the pump exhaust, the PTO shaft on the machine caught his safety vest, ripping his shirt, jumper and left arm completely off. Unfortunately, surgeons could not save his arm and it had to be amputated.

Introduction

Machinery related accidents account for nearly 1 in 10 deaths in farming every year, with balers and power take-off (PTO) shafts causing the most fatalities. Machines must be properly maintained, guarded and functioning, and operators must be trained how to use them.

Over the past two years more than 300 people have been injured after coming into contact with farm machinery. Many of these incidents occurred when a machine was left running, not stopped fully or was restarted while someone was in contact with moving parts.

These may have been prevented by following the Safe Stop procedure:

Safe Stop

1. Handbrake on
2. Controls in neutral
3. Engine off
4. Key out

Safe purchase

When hiring machinery or buying new equipment, check:

- the machine is UKCA conformity marked or CE marked (up to 31 December 2021) and supplied with a Certificate of Conformity; and
- is fitted with roll-over protection; and
- will clear under any overhead power lines; and
- that operators have been trained to use the new machine safely; and
- that any second-hand equipment complies with PUWER requirements and has guards in place when buying. If not, you must bring it up to a safe standard and replace or repair guards before you use it.

CASE STUDY

A worker reached across an unguarded section of a potato harvester, to clear some potatoes. His arm was drawn into the harvester and was caught up to the elbow, breaking his fingers and forearm bones and removing muscle from the top of his forearm. The farmer was prosecuted, fined and required to pay costs for failing to properly guard machinery.



CASE STUDY

A 13 year old farmer's son became entangled on an unguarded PTO shaft while milling grain and shovelling it into bags. Fortunately, he survived but lost his left hand and lower leg below the knee, as well as receiving torso and head injuries.

CASE STUDY

A fleece winding machine was being used to wind up lengths of rope on a polytunnel when the tractor driver left the cab without turning the engine off. Several hours later, the bodies of two farm workers were found entangled between the rope and a rotating shaft.

The farming partnership was fined and required to pay costs. The company contracted to dismantle the polytunnels was also fined because the machine was not suitable for the job it was carrying out it didn't have an automatic cut off in the event of entanglement, and the employees had not been adequately trained.

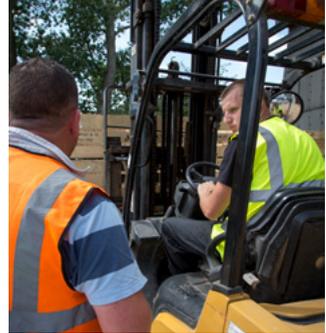
Safe use

Before using a machine, you should check it is suitable for the task, safe to use and has been set up correctly.

Inspect equipment regularly for deterioration and keep records of all inspections.

To remain safe:

- keep guards in place; and
- switch machinery off when not in use and remove the key; and
- train staff how to use the equipment efficiently and safely.



PTO shafts

Power take-off (PTO) shafts must be guarded at all times. Guards should be made to a recognised standard (such as BS EN ISO 5674:2009), must be the correct size and length for the shaft, and not rotate.

If you need regular access to a guarded dangerous part of a machine, check that interlocking safeguards are in position and that the machine cannot run when a guard is open.

Pressurised equipment

Any plant or equipment under pressure, such as slurry tankers, boilers, compressors and even tyres can burst open violently. Equipment with a rating greater than 250 bar litres require a written scheme of examination and regular inspection under the Pressure Systems Safety Regulations 2000

To remain safe:

- make sure equipment is fit for purpose, used properly and maintained;
- know the safe working pressures and temperatures for equipment;
- fit safety valves to relieve excess pressure;
- pressure test pipes and tanks hydraulically rather than with air;
- use a tyre cage when inflating large tyres;
- never weld or heat wheel rims unless you have removed the tyres.



CASE STUDY

A 50 year old farm worker was trying to transfer high pressure oxygen using a home-made hydraulic hose connected to two cylinders. As he opened the valve on the small cylinder, a spark ignited and exploded, causing part of the hose to strike his head, fatally injuring him.

CASE STUDY

An agricultural engineer was unblocking a forage harvester on a farm near Bolton. He found some waste material needed clearing so switched off the machine and went to the inspection chamber. He removed the inspection plate and cleared the blockage before turning on the blower to blow out the soft earth, then switched the blower and machine off.

After talking to the farmer for a few minutes he returned to the inspection chamber, thinking the mechanism had stopped. However, a tractor was running alongside, masking the sound of the still rotating forage harvester mechanism. As he put his hand in, the blades grabbed hold of his fingers and part of his arm below the elbow.

He underwent two operations and took 12 months to return to work.



Safe maintenance

Follow the Safe Stop procedure before attempting any maintenance work on a machine.

To remain safe:

- chock the wheels and apply the brakes;
- disconnect the battery before starting work;
- prop raised bodies properly – do not rely on hydraulic systems alone for support;
- use axle stands and never work under vehicles supported on jacks alone;
- wear appropriate protective clothing and equipment if necessary.

When cleaning dust off brakes, always use a vacuum or other dust-free method as older brake linings may contain asbestos. Don't blow on them. Asbestos brake linings should not be used as a replacement.



CASE STUDY

A 55 year old farmer from Buxton was carrying out maintenance on a loader. He had chocked the back wheels and rested the loader arm on a wall. After disconnecting a number of hydraulic pipes, the unpropped loader arm pushed the machine backwards and crushed him underneath.

Before working on stationary machines such as generators, dryers or mill-mix plants, isolate the power from the main isolator.

If the machine is at some distance from the isolator, or if other people will not be able to obviously see you working on the machine:

- remove the fuses from the isolator box;
- lock the isolator box;
- keep the key with you.

Some equipment such as:

- lifting machinery including chains and ropes; and
- pressurised equipment including steam boilers; and
- air receivers on compressors **should be regularly examined or tested.**

This should be carried out by a competent person, who has the necessary qualifications and experience to identify potential faults.

For specialist assistance you may want to talk to your insurer, local agricultural engineer or machinery dealer.

Tidy farm workshops create safer working environments for your employees. Consider how simple improvements to lighting, ventilation and heating could enhance the working environment.



FURTHER INFORMATION

Visit <https://www.nfuonline.com/cross-sector/farm-business/health-safety-and-wellbeing/> for the latest news, guidance and information on health, safety and wellbeing for those working on the farm.

We have a range of useful leaflets on many areas including:

- **slips and trips;**
- **working at height;**
- **trailers;**
- **farm vehicle health check;**
- **farm transport;**
- **farm machinery;**
- **electricity; and**
- **children on farm.**

HSE can be contacted for specific health and safety information at <http://www.hse.gov.uk/agriculture>

NFU CallFirst:

0370 845 8458 can also provide guidance on health and safety matters.

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