

# Using Tractors Safely

## A Step-by-Step Safety Guide



**STOP AND THINK**

**SAFE**

SLURRY ANIMALS FALLS EQUIPMENT

# Contents

<b>Introduction</b>	.....	1
<b>Step 1</b>	Before starting and Safe Stop.....	2
<b>Step 2</b>	In position.....	4
<b>Step 3</b>	Under power .....	6
<b>Step 4</b>	Driving .....	7
<b>Step 5</b>	Other people .....	8
<b>Step 6</b>	Hitching .....	9
<b>Step 7</b>	Other machines and trailers.....	10
<b>Step 8</b>	Overturning .....	12
<b>Step 9</b>	Overhead power lines (OHPL).....	14
<b>Tractor Safety Checklist</b>	.....	15
<b>Further information</b>	.....	16



# A Step-by-Step Safety Guide

## Introduction

Every year across Northern Ireland people are seriously injured and killed in tractor accidents and there are many other accidents and near misses involving tractors which HSENI never hears about. Simple but essential safety measures would have prevented most of these accidents.

This step-by-step guide to tractor safety is for everyone who uses a tractor, or tractor-operated machinery. It applies to those working in farming, forestry, horticulture, amenity horticulture and the sports turf industry.

Whether you are a student, a regular tractor driver, or an employer, you need to learn about tractor safety.

Any person operating a tractor, maintaining a tractor or training a person to operate a tractor must be competent to do so. Being competent means having the necessary knowledge, training and experience to carry out a task successfully and safely.

This leaflet explains the steps required to operate a tractor safely and following them could save your life!



# Step 1 Before starting and safe stop

Before you start a tractor, you must know the basic safety procedures.

## Pre-start and SAFE STOP.

### Pre-start safety checks

- » Familiarise yourself with the operator's manual.
- » Ensure the tractor has been checked and maintained by a competent person to make sure it is safe to use.
- » Make sure you understand the tractor controls.
- » Plan the work and allow adequate time.
- » Carry out pre-start safety checks - see page 15 'Tractor Safety Checklist'.



### SAFE STOP

1. Bring the tractor to a complete stop in a safe place.
2. Ensure controls are in neutral.
3. Apply the handbrake.
4. Ensure all implements attached are made safe.
5. Stop the engine.
6. Remove the key.



### ALWAYS USE SAFE STOP:

- » Before leaving your seat; or
- » When anyone else approaches; or
- » When anyone else is working on the machine.

## Key points

- » Never use a tractor unless you are trained and know how to use it safely.
- » Make use of relevant approved training courses such as those run by training providers, agricultural colleges and manufacturers/dealers.
- » Never use a tractor unless it is properly maintained by a competent person.
- » Keep away from moving machinery – remember that some machine components will continue to rotate or move even after the engine has stopped.
- » Wear footwear with a good grip – safety boots are best.
- » Wear clothes that will not catch on machinery – preferably overalls.
- » Keep long hair tied back.
- » Remove any jewellery that might snag – don't forget watches and rings.
- » Find and read the operator's manual – keep it handy.

## This accident could happen to you...

A farmer was loading fertiliser into a sower attached to a tractor. The fertiliser bag was suspended using forks attached to another tractor above the hopper of the sower. When the farmer slit the fertiliser bag the tractor holding the fertiliser bag moved forward pinning the farmer between the sower and the tractor. The brakes were found to be defective on the tractor which was holding the suspended fertiliser bag.

Good tractor maintenance is essential. All tractors must have adequate braking systems in place which operate correctly.

### DO NOT FORGET SAFE STOP

It is the most important safety action of all and many lives could be saved by using it.



## Step 2 In position

A tractor can only be safely operated from the driving seat. You must know how to get in and get out safely, how to adjust seats and mirrors and how to recognise the controls so you can operate the tractor safely.

Some tractors have controls mounted externally to aid hitching (normally on the rear mudguard) – you will need to take different precautions when operating these.

### Key points

#### Getting in and out

- » Always use access steps and handrails. Don't jump from the cab.
- » Keep floors, doors, pedals and your boots clean and mud-free.
- » Do not keep tools, drawbar pins or top links on the cab floor.
- » Before leaving the seat follow **SAFE STOP**.
- » Get out of the tractor facing inwards so that you have a good grip.
- » Never get on or off a moving tractor.

#### Visibility and seat adjustment

- » Carry out any adjustments before you start the tractor.
- » Check the seat position – can you operate all the controls comfortably?
- » Adjust the seat suspension to your weight.
- » Ensure mirrors are properly adjusted. When wearing a seat belt, double-check that you can still see clearly.
- » Make sure mirrors and windows are undamaged, clean and give **full** visibility.

#### Seat belts

- » Seat belts are a legal requirement on all tractors where there is a risk of overturning and it is reasonably practicable to fit one.
- » A seatbelt will keep you in your seat in the event of an overturn or road accident, preventing you from being thrown out of the cab and being seriously injured or killed.
- » Wear a seat belt when driving on slopes, silage clamps, working on ditch sides and when on public roads.



## Controls

- » Never use a tractor that you have not been taught how to use.
- » Don't forget that different tractors have different controls.
- » Look in the operator's manual to find out what each control does.
- » Make sure you know how the controls are operated.
- » Never use any control unless you are correctly seated in the cab.
- » Know what position the controls should be in before you start the tractor.

## External controls

- » Look in the operator's manual, to find out where to stand when using external controls.
- » Only use external controls to hitch equipment in accordance with the operator's manuals.
- » Do not place any part of your body in between the tractor and any mounted implement when operating these controls.

## This accident could happen to you...

The driver of a tractor and loaded grain trailer broke his ribs after being trapped beneath a wheel. He had been standing alongside the tractor to start the engine so that he could tip the trailer. He then reached in to operate the tip control. The handbrake was not fully on and as the grain started to come out of the trailer, the tractor moved forward, trapping him beneath the wheel.

**ALWAYS** start a tractor from the seat. **ALWAYS** operate controls from the correct position.



## Step 3 Under power

This step is about getting the engine started and making sure it is safe to begin work. This is the time to check the brakes, the steering and other controls and also check that no one else is in danger from your tractor.

### Key points

- » Never drive a tractor or other machinery unless you have been trained to do so.
- » Make sure you understand the controls before you operate the tractor.
- » Before moving off, always check whether independent brakes are locked together. They should always be locked together for road and transport use.
- » Ensure no one else is near before you start the engine.
- » Check the brakes and steering operate correctly.
- » Fix or report any faults as soon as possible.

## This accident could happen to you...

A tractor and potato harvester were being used to harvest early potatoes. Casual workers were employed to work on the harvester. At the end of each row, one of the workers would climb off to pick up fallen potatoes while the harvester turned. As the worker was about to climb back on the harvester, the driver moved forwards without warning, and without checking behind him. The tractor had mirrors, but these were folded against the cab window. The worker was knocked to the ground and crushed to death by the harvester.

**ALWAYS** check the area around the tractor before moving off.





## Step 4 Driving

You need to be a competent driver before you can operate tractors and other machinery safely.

Above all, watch out for other people and keep within the legal speed limits.

### Key points

- » Agree safe routes for tractors and machines to avoid accidents.
- » Don't drive tractors unless they are properly maintained and safe.
- » Take your time and never rush when operating tractors.
- » Watch out for obstacles and blind spots.
- » Take care with projections such as bale spikes. Remove them or carry them in a safe position both on and off the road.
- » Comply with warning signs.
- » Remember, other people and children may be around, even if you're not expecting them.
- » Equipment, loads, bad weather or bright sunshine make it harder to see, so take care.
- » Get help if visibility is reduced, especially when reversing.
- » When reversing, use mirrors, horns and any other reversing aids fitted to the tractor.
- » Remember, confined or dark buildings and small farmyards impair visibility and make avoiding dangers difficult.
- » Watch for rear-end swing when travelling with long implements such as ploughs.
- » Using a handheld mobile phone device while operating a tractor is highly dangerous to yourself and to others working nearby. Tractors are large, powerful and dangerous machines that require your full concentration when operating.

### This accident could happen to you...

Two brothers were working in a field near their farm yard gathering up silage bales. During a reversing operation one of the farmers was struck and tragically killed. There was a bale handler and round bale on the back of the tractor at the time of the incident.

**ALWAYS** watch out for other people when driving.

## Step 5 Other people

Every time you use a tractor, look out for other people, wherever you are, as there are often pedestrians nearby. **ALWAYS** keep a look out for children.

### Key points

#### Tractor operator

- » Check for bystanders before starting tractors or machines.
- » Check where co-workers are working and make sure you can see them.
- » Agree a way to work safely and make sure everyone follows it.
- » Communicate clearly, and ensure instructions can be heard and understood.
- » Only carry passengers according to the operators manual.
- » Use the horn to warn assistants that you are going to start.
- » Using a handheld mobile phone device while operating a tractor is highly dangerous to yourself and to others working nearby. Tractors are large, powerful and dangerous machines that require your full concentration when operating.

#### Helping a tractor operator:

- » Agree a way to work safely and follow it.
- » If you are using hand signals, agree their meaning beforehand.
- » Make sure the tractor operator can see you. Use hi-viz clothing to ensure better visibility.
- » Never stand in the line of travel of a tractor or machine.
- » Find out the safe places to work or stand when near machines.
- » Listen to and follow instructions.
- » Do not operate any external controls unless you have been instructed to do so.

## This accident could happen to you...

A farmer was harvesting grain when he stopped the harvester to take a sample of grain from the tank to check the moisture levels. The farmer did not stop the machine and when he leaned over to take a sample his clothing became caught in the machine and he was killed as a result.

**ALWAYS** follow **SAFE STOP** before maintaining machinery or clearing blockages.

#### Children and young people

- » NEVER allow children and young people to drive or ride on a tractor – REMEMBER, it is illegal to have a child under 13 years old on a tractor, even if a passenger seat is fitted.
- » All children and young people must be adequately supervised by an adult at all times when in the farmyard.
- » To help with visibility it is recommended children and young people are encouraged to wear bright clothing.
- » Keep children away from working tractors and other machinery.
- » Always be aware of places where children may be, use visibility aids such as convex/concave mirrors to improve visibility.
- » If you see any children, stop work and make sure they move to a safe place.

## Step 6 Hitching

Accidents are common when hitching or unhitching tractor-mounted machines. To prevent these accidents, remember:

- » Always use 'SAFE STOP';
- » Communicate clearly with co-workers if you get help with hitching;
- » Operate controls from the correct position;
- » Never forget your co-workers could also be at risk;
- » Always refer to the implement's operating manual to ensure the recommended system is used for hitching.

### Key points

- » Only use controls from the correct operating position.
- » Take extra care when using external controls.
- » Never stand between or behind the tractor and other machines during hitching operations.
- » Never stand with your feet under, on or near drawbars.
- » Ensure that jacks, skids and other supports are used and maintained.

## This accident could happen to you...

A tractor driver was crushed to death while taking a fertiliser spreader off a tractor. He had not left the spreader high enough to place pallets beneath the machine to support it at the right height. He climbed onto the lower link arm and reached through the cab window to operate the lift control. The empty spreader lifted quickly, and trapped him between the machine and the tractor.

**ALWAYS** use controls from the correct operating position.



# Step 7 Other machines and trailers

Many accidents occur when people work with inadequately guarded machinery or during maintenance activities when not following safe procedures.

Correct guarding is essential and you must always remember to follow **SAFE STOP**, especially when clearing blockages and maintaining machinery. This is a **CRITICAL STEP** in the safe operation of other machines.

## Key points

### PTO shafts

- » Always use safe start & **SAFE STOP** procedures when required.
- » Ensure all parts of the guards are in place – check they are properly chained, lubricated and free from defects.
- » Do not use a machine with a damaged PTO shaft guard.
- » Report or repair any damage immediately.
- » Take care when using a PTO driven machine in a stationary position e.g. a slurry tanker.
- » Ensure the tractor is chocked or that there is a mechanical connection between the tractor and a stationary PTO-driven machine to ensure the tractor or machine does not move, causing the PTO shaft to separate.

### Trailers

- » Ensure tractors and trailers have an adequate braking system in place.
- » Tractors and trailers used on or off the road need to stop safely within a reasonable distance under all conditions.
- » If trailer brakes are not correctly adjusted (i.e. are not doing their share of the braking) the tractor braking system can be subjected to excessive wear.
- » Safe towing requires the use of a large enough tractor and selecting the most suitable gear to stop the combination within a safe distance.
- » Always ensure the failsafe trailer breaking system is in place and fully connected.

### Maintaining trailer brakes

- » Always ensure trailer brakes are disengaged before driving to avoid wear and damage.
- » Properly maintain and adjust braking systems for tractor-trailer combinations to ensure efficiency and safety. Testing on the move may be necessary after maintenance, this must be done in a safe manner.
- » Keep hydraulic and air brake couplings maintained, clean and avoid contamination.
- » Make sure linkages are properly lubricated, operate freely and keep them maintained.
- » Check the parking brake works properly – they are prone to seizing if neglected.
- » After use, clean mud and contamination from brakes (including parking brakes). Make sure the cleaning method does not lead to deterioration of the brakes (e.g. rusting caused by pressure washing).
- » All maintenance and inspections must be carried out in accordance with the machinery manual.
- » Some older brake linings may contain asbestos. Take appropriate precautions to avoid breathing dust and when disposing of waste material.
- » Make sure operators are familiar with the operation of air brake systems (if fitted) so they know how to attach and detach trailers safely.

### Other machinery

- » Check the machine is properly guarded and the guards have no defects.
- » Check the machine for defects.
- » Check the brakes are connected.
- » Make sure you are trained and competent to use the machine.
- » Always use '**SAFE STOP**'.
- » Don't use the machine unless it is properly maintained.
- » Always lower machines to a safe position before leaving the seat.

## This accident could happen to you...

A tractor driver was travelling along a road with a trailer. He was carrying a passenger who decided to travel on the drawbar of the trailer. He lost his balance and fell from the drawbar. The driver could not stop in time and the trailer wheels ran over his passenger. He died from severe head injuries.

**NEVER** carry a passenger on a drawbar or on the back of a tractor. Only carry a passenger in the cab if a seat and seat belt has been provided for them and they are 13 years old or over.



# Step 8 Overturning

A tractor can overturn anywhere – on silage clamps, near field drains and even on the flat. Most overturns happen on slopes. You must know and recognise the dangers of slopes.

Accidents happen because drivers misjudge slopes, ignore changing ground conditions and forget the effect of loads on stability – do not drive on slopes until you are competent to do so.

## Key points

- » Overturning can happen on flat ground as well as on slopes.
- » Although a tractor can be driven up a slope with a hard surface, it may not necessarily come down the same slope safely.
- » Always couple and use trailer and trailed equipment brakes.
- » Use seat belts if they are fitted. If they are not, get them fitted. You are at risk even if you have a cab.
- » Make sure the safety cab is rust free and in good condition with no structural defects.
- » Older tractors without safety cabs must have an anti-roll bar fitted together with a seat belt which should always be worn.
- » In the event of an overturn stay in the cab – do not attempt to jump out.
- » If in doubt, walk the ground before driving over it to check for hollows, hidden logs, tree stumps, rock outcrops, rabbit holes etc.

## A safe working system

- » Always plan work in advance so that the work methods are safe at all stages.
- » Drive slowly where the ground surface is not easily seen, e.g. in long grass, bracken etc.
- » Ensure you use a large enough tractor for the machine or trailer you are using, taking account of the weight of the machine, trailer and any load.

## Driving across and turning on slopes

- » Always descend straight down the gentlest possible gradient of a slope, rather than driving diagonally across it.
- » Avoid turning down a slope – this is especially hazardous.
- » Plan work across slopes so that turns are made uphill rather than downhill.
- » Use the widest practicable wheel track setting to reduce the likelihood of the tractor overturning.

## Turning with rear-mounted equipment on a slope

- » Add enough front ballast to counterbalance rear-mounted equipment, particularly when working on slopes. But remember, using such ballast may reduce safety when travelling downhill.
- » When using rear-mounted fertiliser spreaders or sprayers the tractor rear-wheel grip reduces as the load is discharged.
- » Remember, the steady weight reduction reduces traction and increases the possibility of sliding, especially when coming down the slope.
- » The higher the mounted equipment is on the tractor's rear linkage, the less stable the tractor becomes. Keep mounted equipment as low as possible (within the guidelines of the operators manuals).
- » Select the correct gear for the ground conditions and turn slowly, so that the tractor is under complete control during the manoeuvre.

### Tractor with raised load on the front end

- » Ensure enough ballast weight is fitted to the rear if required.
- » Make sure the loader is not overloaded (consult the operators manual).
- » Whenever possible, lower the loader for travel.
- » Do not drive at speed, make abrupt turns, or suddenly stop with the loader raised.
- » Plan fore-end loader work to minimise travel with the loader raised.

## This accident could happen to you...

A farmer was spreading fertiliser with a mounted distributor on fairly steep land that he was familiar with. He was travelling uphill when the tractor overturned rearwards and he was thrown from the cab and crushed. The tractor had been fitted with dual wheels to prevent sideways overturn, but had no ballast on the front, which would have reduced the risk of rearwards overturn when travelling uphill.

Make sure you use ballast to provide traction and stability where necessary and are aware of the effects of changes in weight distribution.



## Step 9 Overhead power lines (OHPL)

Overhead power lines (OHPL) exist on many farms. This step is about dealing with the dangers they present.

### Key points

- » Contact with any OHPL can kill, so plan to **avoid** working near them if possible.
- » Be aware of minimum line heights and the maximum height/reach of tractors and machines passing below or near OHPL. **REMEMBER** electricity can arc.
- » Get OHPLs checked by your distribution network operator if you have doubts about their height and ensure you know the voltages of power lines.
- » Check that lines are marked on the farm map and pass on this information to contractors and other visitors that need to know where the lines are.
- » Consider the height and reach of machinery when buying or hiring replacements.
- » Use alternative access points and routes to avoid the lines.
- » Look out for warning signs, barriers, posts and warning tapes.
- » Always provide and use safe tipping areas away from OHPL.

## This accident could happen to you...

A tractor driver was electrocuted after his tipping trailer touched an 11,000 volt overhead power line. He had been carting manure to a heap which was near the power line. He tipped the trailer and pulled forward to empty the load. The 6.75m trailer touched the 6.5m high power line. He was electrocuted when he got out of the tractor.

Keep clamps, manure heaps and bale stacks away from power lines.





# Tractor Safety Checklist

## Before starting the tractor undertake a visual inspection:

- Are all windows, doors, mirrors in good condition?
- Are tyres inflated and in good condition?
- Are wipers, light casings and reflectors in place?
- Are all implements and guards attached and in good working order i.e. U guard on tractor, O guard on machine/implement, PTO shaft guards and chains?
- Are there any leaks or puddles visible around the tractor?
- Are steps and handrail accessible?
- Are there any other obvious defects?

## After entering the tractor check all internal components:

- Is the seat, steering wheel etc. in good condition?
- Are all brakes working - check hand and foot brake?
- Are all electrical components working i.e. lights, indicators, flashing beacon, wipers?
- Is the seat belt in good condition and working?
- Is the floor area free from debris?
- Is the seat properly adjusted to ensure safe operation of controls and good visibility?
- Are there any other obvious defects internally before starting the tractor?

## Once in the operator seat:

### Follow the Pre Start Safety Check.

- After starting the tractor, observe oil pressure gauge to ensure foot brake is functioning.
- Turn on the lights and flashers to see if they are functioning correctly.
- Check if the surrounding area is free from obstruction, there are no children present and the ground conditions are reasonable.
- Carefully check brakes again and put the tractor in the lowest gear to take off slowly.

## Further information

For information about health and safety, visit [www.hseni.gov.uk](http://www.hseni.gov.uk)

This guidance is issued by the Health and Safety Executive for Northern Ireland. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. However by following the guidance you will normally be doing enough to comply with the law.





CONTROLLING RISK TOGETHER

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HSE NI wish to acknowledge the Health and Safety Executive (GB) for the source material in this publication.

HSE NI 12/21