

AgriKids Farm Safety Ambassador

Theme 2: Tractor & Machinery Safety

Level: 3rd – 4th Class



Objective

Learn about the various types of farm machinery and equipment that are commonly used on a farm and how and why a farmer must be responsible and safe when using tractors, quad bikes and Power Take Off, (P.T.O.), equipment. We also learn how we can help remind farmers by learning key safety tips which can be shared.

Learning outcome topics

1. What kind of machines do farmers use
2. Where do they use them
3. Do you know the tractor blind spots – know the tractor blind spots
4. Learn the tractor safety checklist
5. What is S.T.O.P.I.T?
6. Quad bikes
7. What are PTO's?

Tip: You can use the Farm Safety Workbook in conjunction with this discussion.

Topics

1. What machines the farmers use.

Ask the children to name different types of farm machinery and what each piece of machinery does use the below table as a prompt guide. Ask them to pick their favourite one to do as an individual or group project later on.

Write their answers on the board. If the following are mentioned underline them:

Tractors, Quad Bikes, Power Take Off (P.T.O.).

If they are not mentioned add them as we will be discussing these in greater detail below.

2. Where do they use them?

Do they know the difference between a farm vehicle and machine (equipment used by the farmer).

1. Vehicles – ie. driven by the farmer
2. Machinery – ie. powered or pulled by a tractor
3. Where these vehicles or machines will be mostly used. Some might be used in more than one location.

If there are children with access to a farm this is a great opportunity for them to tell their classmates about life on their farm and the machines used.

Farm Machinery

Tractors – Vehicles

Used on farms to pull equipment such as ploughs, harrows, slurry agitators, etc.



Plough

Digs up the earth to loosen the soil or before the farmer sows the next crop in their field



Trailers

Normally pulled by a tractor and used to carry a variety of products around the farm, such as grain and food crops.



Combine Harvester – Vehicles

Cuts and harvests grain and cereal crops.

**Slurry / Muck spreader**

Spreads slurry across the farmer's fields

**Cultivator / Tillers**

Used after ploughing to break down the soil and prepare it for sowing seed.

**Slurry agitator**

A slurry agitator is used to mix (agitate) slurry which is kept in the slurry tank / pit.

**Mowers**

Cuts grass when making hay, silage, haylage. Can also be used to keep fields tidy

**Topper**

Used to keep fields tidy by cutting weeds and long grasses, rushes, etc.

**Sprayer**

Sprays fertilisers or pesticides on crops to keep them healthy

**Diet Feeder**

A diet feeder weighs, mixes, and shares out animal feed. Mostly used for cattle feeding and in particular dairy cattle.

**Quad Bike- Vehicles**

4 wheel motorised bike used to drive across fields. They are only suitable for passengers and safety equipment must be worn.

**Hay Turner**

When grass has been cut, the turner is used to turn the grass so it can dry in the sun and be baled for hay.

**Baler**

Used to bale hay and straw. Bales can be round, small rectangle or larger rectangle.

**Sower**

Used to sow crop seeds such as barley, oats and wheat

**Gator – Vehicle**

Gators are an off road vehicle used on farms and many industries where all-terrain ability and versatility is required. designed to help property owners haul material and travel across terrain ranging from smooth, to very rough.

3. Tractor Safety

How many brands of tractors can the children name? Here is a list to help the discussion.

Have we missed any?

- John Deere
- New Holland
- Massey Ferguson
- Deutz
- McCormick
- Fendt
- Claas
- Ford
- Case
- David Brown
- Landini
- Zetor
- Fiat
- Valtra
- International

Why do we measure tractor speed in horsepower?

In olden times before mechanised machines, horses were used to 'power' the various tools. Which is why today we still talk about the speed of a tractor as its 'horse power'.

Trailers, ploughs (pictured) and the earliest combine harvesters were horse drawn. Horses were also used to transport the farmer and their family, farm produce such as milk and eggs and to clear areas of the farm of scrub and overgrowth. It would be a huge status symbol to own a horse and much of the time neighbouring farms shared their horses, this practice was known as 'Comhar', the Irish for partnership.



Over time as mechanisation came about and the safety of tractors improved, the use of horses began to decline from the mid 1940's and throughout the end of the 20th century.

Safety concerns moved from been bitten, kicked or stamped on by a horse to entanglement by machinery. Today machinery remains the most common cause of a farming accident.

Blind spots – You cannot be seen

Visibility can be limited for farmers when sitting high up in tractors, combine harvesters, etc. Never play near a moving tractor or any other type of farm machinery as you may not be visible. Look at the pictures below and note where the blind spots are located.

FRONT

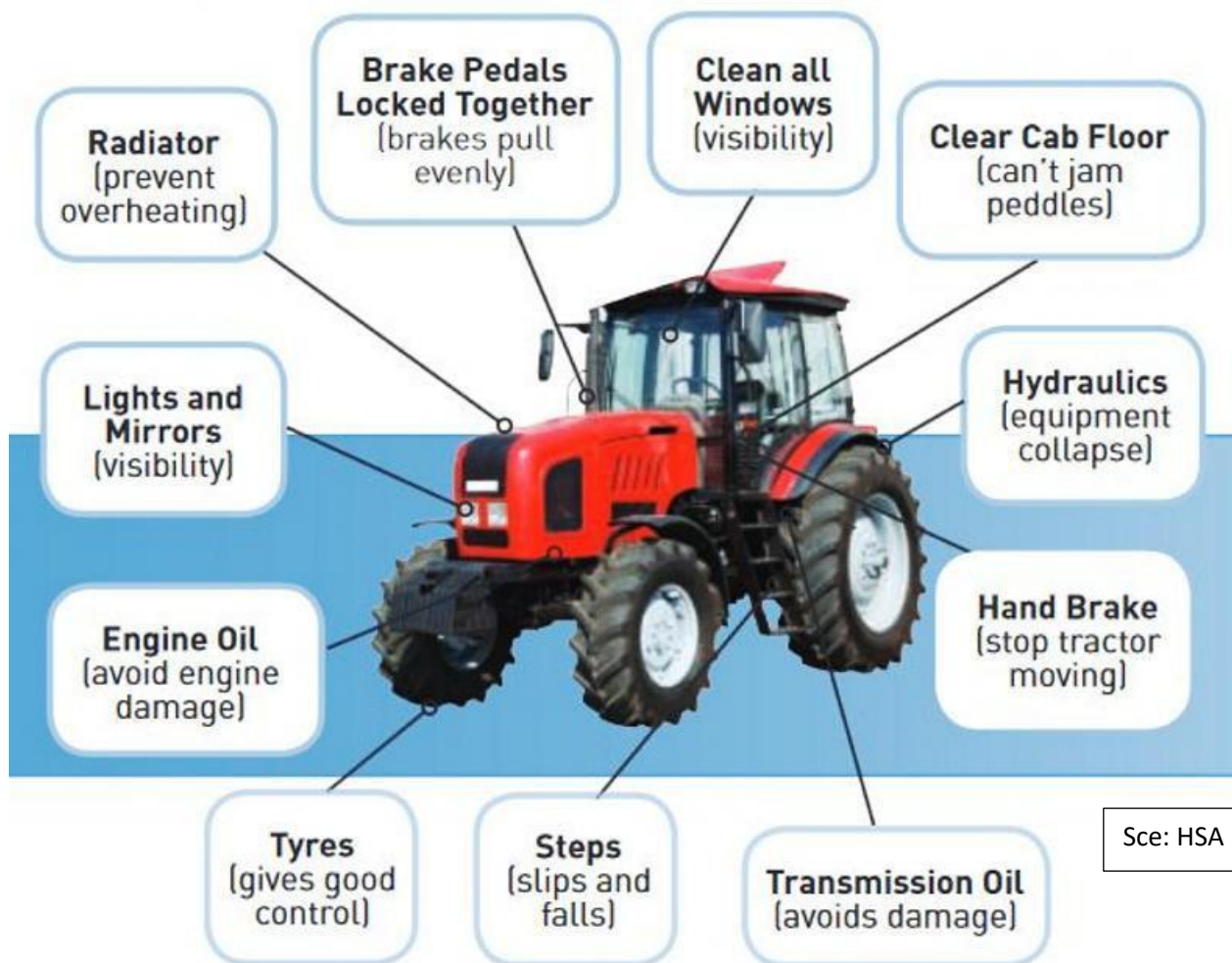
BEHIND



4. Tractor Checklist

Ahead of busy times when they will be relying on their tractors to get the job done, farmers must take extra care of their tractor. As a class discuss what the fallout would be in the event some of the below checks did not happen. Discuss how prevention and forward planning can assist in doing a better job, a safer job and a more efficient job.

All farmers should check the following before using their tractor.



- Engine oil – avoid engine damage;
- Tyres – good tyres give good control;
- Clear steps into the cab of mud to prevent slips and falls;
- Handbrake – prevent tractor rolling when on an incline;
- Hydraulics – to eliminate the risk of equipment collapse;
- Clear cab floor – to avoid the risk of pedals jamming;
- Clean all windows for good visibility;
- Brake pedals locked together to ensure that the brakes pull evenly;
- Check lights and mirrors for visibility;
- PTO protected – the PTO must have a guard and the shaft must be covered.



What age are you?

Do you know the rules about being a passenger or driving a tractor?

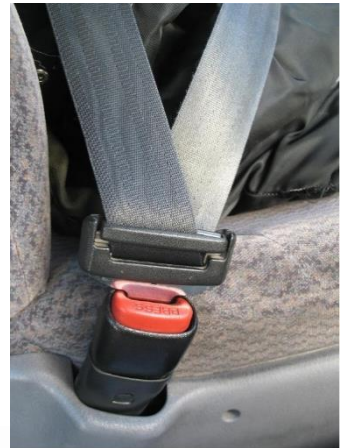
- Under 7 Years: you are not permitted in Ireland to be a passenger in a tractor*.
- 7 years: The age you are permitted in Ireland to be a passenger in a tractor as long as there is a passenger seat and seat belt.
- 14 years: You may drive a tractor on the farm only and only after completing one day's safety training
- 16 years: You may drive a tractor on the road but only after completing one day's safety training.

**In the UK, no child under the age of 13 is permitted to ride in a tractor as a passenger*

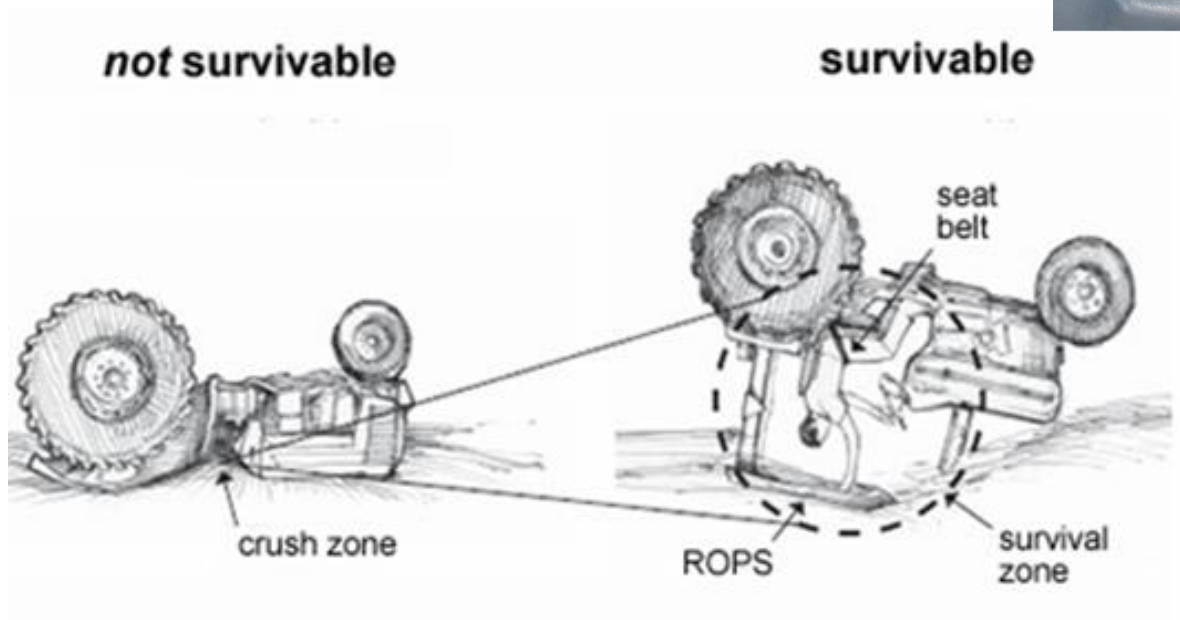
What to wear:

Seat belts – The Safety Zone

Most tractor cabs have Roll Over Protective Systems (ROPS) in place. These ROPS create a 'Safety Zone' inside the tractor cab. By wearing their seat belt farmers are kept inside the 'Safety Zone' and have greater protection from being thrown from the tractor cab in the event the tractor over turns.



All passengers should wear a seat belt to prevent them from falling from the tractor.



Remind the children about why they wear a seat belt in a car?



5. Do you know how to S.T.O.P.I.T?

Also known as the 'Safe Stop', S.T.O.P.I.T, is handy acronym which makes it easy to remember how farmers correctly stop and park a tractor after a long day's work:



S – Stop the tractor in a Safe place. Farmers should park the tractor facing forward. This means they don't have to reverse it out when using it again.



T – Take up the hand break and prevent the tractor from rolling.



O – Take the tractor Out of gear and feet Off the pedals



P – Put the bucket or fork down.



I – Turn off the Ignition



T – Take out the keys. Leaving keys in the tractor means the farmers is at risk of it being stolen or driven by someone with no permission to do so.



6. Quad Bikes

A quad bike is also known as an All-Terrain Vehicle (ATV). When it comes to safety, we always say to:

Remember your ATV'S

A – Age: Are you old enough to use a quad bike. To use quad bikes typical to farms, you must be 16+.

T – Training: Before using a quad, all farmers should be trained in how to operate the vehicle.

V – Visual Inspections. Like their tractor, farmers should check their quad is not damaged, has oil, lights, good tyres and fuel before using.

S – Safety equipment. Farmers must make sure they are wearing the correct clothing and PPE (Personal Protective Equipment). **See pic below**



PPE (Personal Protective Equipment)

What PPE should be worn on a quad bike?

- Head protection, eg. a motorcycle or a horse riding helmet.
- Clothing which is strong and covers arms and legs
- Gloves for protection and to keep hands warm in cold weather & for good control of the ATV.
- Boots or wellingtons which are strong and have good grips
- Goggles to protect eyes from insects and branches
- High visibility clothing



Remember: No passengers should ever be on a quad bike. You can unbalance the quad and cause it to turnover

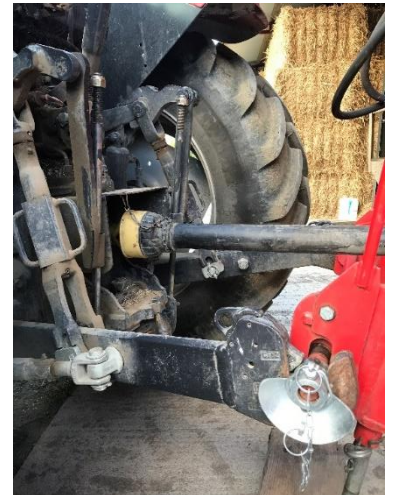


7. Power Take Off (PTO)

Power Take Off (PTO), transfers the power from a running tractor engine to power an implement attached to the tractor. Eg. A slurry spreader, a mower or a hay turner.

The PTO can rotate between 9 & 16 times per second.

To prevent injury by entanglement, farmers ensure all PTO's are covered with a guard and safety chains.



You can be in danger of entanglement with an uncovered PTO



Peter lost his leg in a PTO accident

Follow up activities & projects

- Complete the activities in the workbook
- Try the Lesson Plan for this Theme.
- Check out our white board and PC games: Farm Yard Safety, Off to Work and Follow the Signs on agrikids.ie
- Download and fill in our 'Spot the Dangers' worksheets.
- Sign up for an AgriKids webinar
- Ask the children to pick their favourite farm machinery to do as an individual or group project.
- Invite a farmer or farm representative such as IFA or Teagasc to show the children more about tractor safety.
- Why not learn more about farming back in the olden days. Compile a project, invite a local historian to class or visit a museum or vintage park.
- As a class carry out research into the machinery and equipment that use a PTO
- Invite a machinery expert to class to talk about PTO, quad bike and farm machinery safety.
- Watch Peter Gohery tell his PTO survivor story on www.embracefarm.com