

Safe use of all-terrain vehicles (ATVs) in Agriculture and Forestry

Information Sheet

This information sheet gives advice on the safe use of sit-astride all-terrain vehicles (ATVs) often known as ATV Quad Bikes.

The most important safety issues with sit-astride ATVs are training, wearing personal protective equipment, maintenance and a good knowledge of the terrain.

Accidents

In recent years the number of serious work related accidents involving ATVs, in particular in agriculture and forestry, has given rise to great concern. Non-fatal accidents are not well reported but are estimated to amount to over 1000 serious injuries per year in the UK. The underlying causes are usually one or more of the following:

- ▲ Lack of structured training and/or experience;
- ▲ Excessive speed;
- ▲ Carrying a passenger or an unbalanced load;
- ▲ Tipping on a bank, ditch, rut or bump;
- ▲ A steep slope combined with other factors, e.g. ground or load conditions;
- ▲ Towing excessive loads with unbraked equipment.

Training

Professional training is vital. It is a legal requirement to provide adequate training under both the Safety, Health and Welfare at Work Act 2005.

Under the 2005 Act, an employer must provide such instruction, training and supervision as is necessary to the health and safety of their employees.

The employer must provide adequate training and ensure that ATVs are only ridden by employees who have received appropriate training in their safe use, including the use of any towed equipment or attachments. The same requirements apply to the self-employed.

In addition under the General Application Amendment Regulations 2001 employees must have at their disposal adequate information and written instruction.

Protective clothing

More than half of all ATV riders have been thrown off at some time. There is no cab or roll bar, so your only protection is what you wear.

- ▲ Head protection is vital. A certain percentage of serious injuries with ATVs involve head injuries. At present a motorcycle helmet to BS 6658: is recommended, but other helmets head protection which meets BSEN1384:1997 is also acceptable
- ▲ Wear clothing which is strong and covers your arms and legs. Gloves are useful for protection and to keep hands warm in cold weather for good control of the ATV. Wear boots or Wellingtons which are strong and have good grips (Complying with EN345-1)

- ▲ Protect your eyes from insects and branches with either a visor or safety goggles (Complying with EN166)
- ▲ High visibility clothing may also be appropriate.

Passengers

NEVER carry a passenger on a sit-astride ATV. The long seat is for operators to shift their body weight backwards and forwards for different slope conditions **NOT** for carrying passengers.

You should not carry a passenger in a trailer behind an ATV, as any movement will make the machine unstable.

Maintenance

Off-road riding is especially hard on an ATV so it is essential to carry out maintenance according to the manufacturer's recommendations. Check in particular:

- ▲ **Tyre pressures:** you should check these daily as only 1-psi (0.07 kg/cm²) difference in pressure can cause vehicle control problems. Use a gauge that is designed for measuring and displaying low pressures -usually supplied with your ATV.
- ▲ **Brakes and throttle:** check that the brakes give a safe straight stop and that the throttle operates smoothly in all steering positions. Brakes other than disc brakes can have a relatively short life in farm or forestry conditions unless regularly and effectively maintained.

Safe driving methods

The following advice is no substitute for formal training.

Most ATVs have no differential (i.e. they have a solid rear axle) and so do not handle in the same way as other machines. This means that when you turn, the ATV tries to keep going in a straight line.

When cornering on an ATV with no differential or with the differential engaged, where your body weight needs to be positioned depends on how sharp the corner is and on how fast you are going. For slow cornering you should put your body weight on the footrest on the outside of the turn while leaning your upper body into the turn. This will allow the inside driving wheel to skid slightly, allowing the ATV to make the turn properly. At faster turning speeds the need for weight transfer to the outside of the turn decreases:

- ▲ If your ATV has a differential and it is disengaged, then, when cornering, weight should be transferred to the inside of the turn;
- ▲ When riding across a slope, keep your weight on the uphill side of the ATV;
- ▲ When going downhill, slide your weight backwards and select a low gear, reducing the need to use the brakes;
- ▲ When going uphill, move your weight forwards and maintain a steady speed.

NB: The positions described above can be made more effective for rough ground and higher speeds by standing in a stooped position (called active riding). This increases the ability to shift weight quickly and maintain stability. It is important to keep both feet on the footrests at all times.

- ▲ Avoid sudden increases in speed, as this is a common cause of rearward overturning accidents, even from a standing start on flat ground where there is good grip
- ▲ Never put your foot onto the ground to stabilise an ATV when riding.

Route Planning

Over rough terrain get to know your own ground and stick to planned routes where possible. Walk new routes if necessary to check for hidden obstructions. When selecting routes allow for changes

to the surface and weather conditions and for any loads and attachments. These make a marked difference to the stability and abilities of the machine.

Trained equipment and loads

Ensure all riders know the manufacturers recommended towing capacity and drawbar loading limit. Always operate within these requirements. Remember that your ability to control the ATV by your body movements will be considerably reduced when carrying a load or towing a trailer.

- ▲ When selecting trained equipment look for:
 - over run brakes;
 - swivel hitch drawbar;
 - bead lock rims on wheels;
 - a low centre of gravity and a wide wheel track;
 - a long drawbar;
 - attachment points for securing a load.
- ▲ Check the weight ratio between your ATV and its trailed load. This needs to be assessed for each operation. As a general guide, on level ground braked trailed equipment can be a maximum of four times the unladen weight of the ATV. For unbraked trailed equipment the maximum should be twice the unladen weight. These loads should be reduced when working on slopes, uneven ground or poor surface conditions. Follow the manufacturer's advice for your particular machine.
- ▲ Weight transfer is also important. Stability and resistance to jack knifing is improved if some load is transferred onto the ATV's drawbar. Approximately 10% of the gross weight of the loaded trailer is recommended, but this should not exceed the manufacturer's drawbar loading limit. Remember that weight transfer can change dramatically when you start going up or downhill.
- ▲ When selecting mounted equipment, make sure it is within the Manufacturer's approved weight limit, with a low centre of gravity, and controls which are easy to operate but do not create a hazard. Where equipment is added to one end of the machine, add ballast at the other end to maintain stability.
- ▲ Loads carried on racks must be well secured, e.g. with ratchet straps, and be evenly balanced between the front and rear, except where they are deliberately altered to aid stability when going up or down a slope. Only tow a load from the hitch point. Loads towed from other points such as the rear rack have caused sudden rear overturning even on slight slopes or with slight acceleration. Ropes or chains should not be used to drag a load where they can become caught on a wheel. This may lead to entanglement with the brake cable, causing unexpected braking.

Using sprayers

You are more likely to be exposed to spray drift on an ATV than on a tractor with a cab, so a tractor should be used whenever possible. Where an ATV is used, then attention to safety features is especially important when buying a sprayer and when spraying, particularly with mounted sprayers where the boom is close to you and contamination more likely.

- ▲ Consider techniques and equipment which contain spray within the target area and reduce drift potential, such as a drift hood or canopy, low drift nozzles etc.
- ▲ When buying a sprayer look for a low centre of gravity and internal baffles to reduce liquid surge which will improve stability when turning on slopes. Consider the distance of the boom from your seat as a boom in front of the ATV or close behind your seat could increase the risk of exposure to pesticides.
- ▲ The sprayer should have an induction bowl or closed transfer system, or, where the manufacturer has been unable to fit one, the filling point should be no more than 1.5 m above the ground and 0.3 m from the edge of the sprayer. The EC standard BS EN 907

requires a clean water container of at least 15 litres. Choose booms that can be operated as low to the ground as possible and tanks that are easy to flush.

- ▲ Spray operators must be trained and where appropriate hold a certificate for the type of equipment used. Wear the personal protective equipment specified for the equipment and pesticide in use. Select the pesticide of least risk.
- ▲ Work at right angles to the wind and turn into the wind to reduce contamination to yourself and the machine, Spray only in ideal wind conditions.
- ▲ Do not hold a spraying lance while riding your ATV.
- ▲ After spraying, clean contamination from your ATV, particularly your controls and seat. You should be aware of environmental regulations if bulk volumes of water are used for this purpose.

Children

- ▲ Never carry a child as a passenger. It is illegal and will reduce your ability to control the ATV.
- ▲ Check the manufacturer's minimum age recommendations for your ATV. The ratio of a child's weight to that of the ATV is significant, as weight transfer is the key to safe handling.

In addition, the use of self-propelled machines on farms is included in the Code of Practice on Preventing Accidents to Children and Young Persons in Agriculture. This code indicates that children under the age of 14 should not be allowed to drive or operate a self-propelled vehicle including ATV's on a farm. Children over 14 should only be allowed operate an ATV on the farm where certain conditions are met (see Appendix 1 following).

Roll bars, lap straps and weather cabs

- ▲ Roll bars are not required in ATVs where they would increase the overall risk. Research has shown that they are more likely to increase injuries by obstructing the rider either when thrown off or when jumping off during an overturn. This causes the rider to fall to the ground alongside the ATV and increases the likelihood of injury.
- ▲ Lap straps should not be fitted. They prevent active riding and would be lethal without a full cab or roll cage.
- ▲ Weather cabs restrict a rider's ability to jump clear in an overturn. The rider is likely to be crushed within the cab unless it is strong enough to withstand the forces involved. Carefully assess the risks for your particular conditions of use before fitting any such structure and consult the manufacturer for information.

Road use

Manufacturers of certain ATVs may indicate that their ATVs are not suitable for use on the public roadway. You should therefore establish that your ATV is suitable for road use before taking it out onto the public road.

Should an ATV go onto a public roadway, it will be deemed to be a non-agricultural tractor and subject to road tax. It will also have to comply with the structural requirements of a non-agricultural tractor, i.e. rollover protection, tractor mudguards, horn, braking and lighting requirements. Further information should be obtained from the Department of the Environment, Vehicle Standard Section.

Enforcing of the Department of Environment legal requirements for ATVs on the public roads is a matter for the Gardai.

Appendix 1

Extract from "Operating Tractors" in the Code of Practice on Preventing Accidents to Children and Young Persons in Agriculture.

OPERATING TRACTORS

Children under the age of 14 should not be allowed to drive or operate tractors or self-propelled machines.

In addition to this, a child or young person aged 14 or over should only be permitted to drive a tractor or self-propelled machine on the farm, if:

- ▲ They have attended a formal training course run by a competent training provider, and have received adequate instruction in the safe operation of the particular tractor they are driving and fully understand the purpose of all the controls and the effect of their improper use;
- ▲ They are closely supervised by a responsible adult;
- ▲ They have the ability to operate the controls with ease;
- ▲ All the controls are conveniently accessible for safe operation by the operator when seated in the driver's seat;
- ▲ The controls which operate the power take off (PTO) devices, hydraulic devices and engine cut-off are clearly marked to show the effect of their operation;
- ▲ The tractor is maintained so that it is safe for them to operate;
- ▲ The ground over which the tractor is driven is free from hazards such as steep slopes or excavations, river banks, lake or pond edges, deep ditches and similar areas.

You must also ensure that:

- ▲ No other child or young person is present on the tractor other than for the purposes of supervision or instruction;
- ▲ No other person is on any trailer or other equipment being towed;
- ▲ No members of the public are in the immediate vicinity.

OPERATING MACHINERY

There are certain types of machine which have a high level of risk due to the components involved, complex control systems, the substances used in them or the specialist knowledge required to operate them safely. Because of this, minors should be prohibited from driving, or operating, the following:

- ▲ Towed self-propelled harvesters and processing machines (except those machines designed for operation by people in addition to the driver, and the young person is on the operating platform and under the supervision of an adult);
- ▲ Trailers and towed machinery with built-in conveying, loading, or spreading mechanisms;
- ▲ Power-driven machines incorporating cutting, splitting, grinding or crushing mechanisms (including chainsaws);
- ▲ Chemical applicators of any sort, including hand-held equipment;
- ▲ Machines incorporating power-driven soil engaging parts;
- ▲ Ditching and drainage machinery;
- ▲ Material handlers including skid steer loaders, lift trucks and track-laying vehicles;
- ▲ Slurry tankers;
- ▲ Powered feed-preparation equipment.

NB: The list above is not exhaustive.

In addition, minors should not be allowed to help in maintenance or cleaning operations on such machines.

Riding on tractors and machinery:

Children under the age of 14 should be prohibited from riding on agricultural machines including agricultural trailers unless the risk assessment shows it to be safe to do so with the following exception: *Children between the ages of 7 and 16 may ride on a tractor provided the tractor is fitted with a properly designed and fitted passenger seat, [with seat belts] inside a safety cab or frame.*

CONTACT WITH MACHINERY AND MOVING VEHICLES

- ▲ Machine operators should ensure that minors are kept away from the machines and the area they are working in. If a minor enters an area from which they should be excluded, operators should stop work until it is safe to continue and report the incident to the employer or parent if appropriate.
- ▲ Contact with machinery and moving vehicles is a major cause of accidents to minors on farms. To reduce the risk of accidents, you need to assess the risks and apply the appropriate control measures.
- ▲ Where vehicles are moving around the farm and the risk of contact with minors is high, you should make arrangements to prevent them having access to that part of the farm.

Where this is not practicable children must be closely supervised.

DURING MOVEMENT/OPERATION

Consider the following options:

- ▲ Check that children and young persons are not in the area before getting into the vehicle;
- ▲ Reduce vehicle movements;
- ▲ Reduce the speed at which vehicles move to a safe level;
- ▲ Put up signs reminding drivers that children may be in the vicinity and that they should drive with extra care;
- ▲ Avoid blind reversing by using another person as a guide.

Where practicable, drivers of vehicles also need to be made aware of, and follow, the following simple precautions:

- ▲ Ensure they can stop within the distance they can see to be clear (especially important around corners or when approaching obstructions);
- ▲ Apply the parking brake;
- ▲ Lower mounted equipment to the ground;
- ▲ Stop the engine;
- ▲ Remove the starting key and lock or otherwise secure the tractor.

Minors living or working on the farm need to be told the hazardous areas from which they are excluded, the hazards from moving vehicles and other dangers they need to look out for. Children visiting the farm, and, if appropriate, their parents also, need the hazards and precautions explained to them.