HEALTH AND SAFETY AUTHORITY

Code of Practice for

PREVENTING INJURY AND OCCUPATIONAL ILL HEALTH IN AGRICULTURE

www.hsa.ie

For Farms with Three or Less Employees

Our Vision ›

healthy, safe and productive lives

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HEALTH AND SAFETY AUTHORITY

Foreword

The Health and Safety Authority (by virtue of section 60 of the Safety, Health and Welfare at Work Act 2005), following consultation with the statutory advisory committee on safety and health in agriculture, referred to as the Farm Safety Partnership with the consent of Pat Breen, Minister for Employment and Small Business, has issued this revised Code of Practice for Preventing Injury and Occupational Ill Health in Agriculture. The Code of Practice incorporates this general guidance document and a Risk Assessment Document.

The aim of this Code of Practice is to improve the level of safety and health among all people engaged in the agriculture sector by providing practical guidance with respect to the observance of the Safety, Health and Welfare at Work Act 2005, including the provisions of sections 19 and 20 of the Act. This code of practice comes into operation on 1 July 2017. Notice of its issue was published in the Iris Oifigiúil of Friday 2 June, 2017.

Regarding the use of codes of practice in criminal proceedings, section 61 of the Safety, Health and Welfare at Work Act 2005 provides as follows:

"61.—(1) Where in proceedings for an offence under this Act relating to an alleged contravention of any requirement or prohibition imposed by or under a relevant statutory provision being a provision for which a code of practice had been published or approved by the Authority under section 60 at the time of the alleged contravention, subsection (2) shall have effect with respect to that code of practice in relation to those proceedings.

(2) (a) Where a code of practice referred to in subsection (1) appears to the court to give practical guidance as to the observance of the requirement or prohibition alleged to have been contravened, the code of practice shall be admissible in evidence.

(b) Where it is proved that any act or omission of the defendant alleged to constitute the contravention—

(i) is a failure to observe a code of practice referred to in subsection (1), or

(ii) is a compliance with that code of practice,

then such failure or compliance is admissible in evidence.

(3) A document bearing the seal of the Authority and purporting to be a code of practice or part of a code of practice published or approved of by the Authority under this section shall be admissible as evidence in any proceedings under this Act."

DR. MARIE DALTON
Secretary to the Board

Acknowledgements

This Code of Practice for Preventing Injury and Occupational Ill Health in Agriculture was drawn up and approved by members of the Farm Safety Partnership an Advisory Committee to the Health and Safety Authority. Subsequently, it was officially adopted by the Board of the Health and Safety Authority.

Members of the Farm Safety Partnership Advisory Committee an advisory committee to the Health and Safety Authority.

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1.0 Introduction

1.1. Background

This code of practice is the result of a joint initiative between the Health and Safety Authority and the Farm Safety Partnership Advisory Committee to the Health and Safety Authority.

The aim of the code is to improve the level of safety and health in the agriculture sector. In particular, the code:

- examines the data available on fatalities, injuries and ill health in farming; and
- shows how such occurrences can be reduced.

Priority is given to issues that lead to the most numerous and serious causes of injury and ill health. References to further sources of information are provided.

This code cannot be definitive for every circumstance that may arise. To address specific issues and supplement the information provided here, you are advised where necessary to seek further information and competent advice.

1.2. Status and scope of the code of practice

THIS code is issued by the Health and Safety Authority under section 60 of the Safety, Health and Welfare at Work Act 2005, and with the consent of Pat Breen, Minister for Employment and Small Business.

The code is intended to provide practical guidance to:

- Farmers
- Farm family members
- Employees
- Service providers
- Advisers
- Trainers
- People with a role related to safety and health in agriculture

Failure to observe any part of this code will not in itself render a person liable to civil or criminal proceedings. However, where the code gives practical guidance on observing any of the relevant statutory provisions, compliance or non-compliance with those provisions may be admissible as evidence in criminal proceedings.

Where the Health and Safety Authority takes any actions, including prosecutions, it will rely generally on legal duties rather than specifically on this code of practice.

The "Risk Assessment" associated with this Code of Practice may be competed in writing in the accompanying document or alternatively on-line at www.farmsafely.com (Note that the Authority cannot access your on-line risk assessment remotely.)

This code gives recommendations and practical guidance on securing safety and health in agriculture. It does not cover other activities on the farm such as construction, forestry, manufacturing, retail, etc.

For safety and health information, guidance and risk assessments of these activities persons are referred to the agribusiness section of BeSmart, at www.BeSmart.ie

2.0 Managing safety and health on your farm

Safety and health, like any other aspect of farm management, needs active management. This greatly reduces the risk of injury and ill health.

2.1. Completing a farm-safety risk assessment or safety statement

The Safety, Health and Welfare at Work Act 2005 places a legal duty on all farmers to prepare and implement a safety statement. However, farmers with three or fewer employees may instead follow the guidance in this code and complete a risk assessment within this code of practice.

Preparing and implementing a safety statement or code-of-practice risk assessment in a comprehensive and effective manner has two main benefits:

- it is likely to reduce the risk of accidents and ill health on your farm, and
- it may also reduce insurance costs or protect against any compensation claims. It would help to convince a judge that you, as an employer or person in charge of a place of work, had taken all reasonably practicable measures to ensure safety.

Who has access to a safety statement or risk assessment?

All people who work on your farm (including family members) must be made aware of the relevant contents of the safety statement or risk assessment. These must also be brought to the attention of any other people who need to be aware of the safety and health controls on the farm.

These include casual/relief workers, contractors and people supplying goods and services to the farm.

An inspector of the Health and Safety Authority may examine your safety statement or risk assessment. The inspector will also examine how the safety and health measures are being implemented on your farm. If the safety statement or risk assessment is found to be inadequate, the inspector can direct you to revise it within 30 days.

2.2. Preparing a safety statement or risk assessment for your farm

The following are broad guidelines to help you complete the safety statement or risk assessment.

Step 1: Make a commitment to manage safety and health

Your commitment to complete your safety statement or risk assessment and implement it on an ongoing basis is an important step in preventing accidents and ill health. When you have written your safety statement or alternatively carefully considered and completed all aspects of the Code of Practice Risk Assessment document, sign and date it.

2.0 Managing safety and health on your farm

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Step 2: Carry out a risk assessment for your farm

The safety statement or risk assessment identifies the key farm hazards known to cause death, serious injury and ill health. Follow these directions for completing the documents:

- **You will be familiar with many of the hazards. An accident or a number of near misses may have occurred on your farm in the past. Identify the hazards and prevent a reoccurrence.**
- **Walk around your farm and examine all aspects of it from a safety and health point of view. Consider work activities at different times of the year, since the workplace and work systems are likely to change from season to season. Include 'out-farms' and any other place of work over which you have control.**
- **Have regard for stress & worry from both farm and non-farm sources.**
- **Consider the work organisation of your farm. Work overload, rushing, poor machinery, poor farm maintenance, untidy farmyards and inadequate supervision are a major cause of accidents.**
- **Prioritise significant hazards that are more likely to cause harm.**

Where your risk assessment shows that control measures are inadequate or are not in place, mark an 'x' on the "Risk Assessment Document". Then list it on your "Farm Safety Action List" and the control measures you plan to put in place.

Step 3: Decide on prevention/control measures

When you are devising safety and health-control measures, consider them in the following order:

1. Elimination

Elimination means putting a control in place to remove the hazard. For example, consider using Artificial Insemination (AI) instead of keeping a bull; demolish unstable structures.

2. Reduction

If a hazard cannot be eliminated, the next best option is to reduce the danger as much as possible. For example, use contractors to spread slurry; use less dangerous chemicals; and reduce contact with livestock by improving cattle-handling facilities.

2.0 Managing safety and health on your farm

3. Provide information, training and supervision

Ensure that every person on the farm has all the information and skills necessary to secure safety and health.

Information can be provided verbally or in writing. Ensure family members, employees, contractors and service providers read and understand the contents of your safety statement or risk assessment. Information can also be provided by putting up hazard-warning signs.

Training may be formal or informal. A person may undertake an appropriate safety and health course, or be shown the correct way of doing a job.

Supervision and co-operation: Make sure that everyone who works on your farm knows and accepts their role regarding safety and health. It is your responsibility to ensure that the controls are implemented. If safety and health measures are not being implemented, stop the work or activity and insist on controls being followed.

4. Provide and use personal protective equipment (PPE) or clothing

PPE should be used as a last resort, after all other ways of eliminating or controlling the hazard have been considered. PPE should meet a high standard and be maintained and stored correctly. Examples include earmuffs, eye goggles, pesticide gloves and face shield.

Step 4: Review and update your safety statement or risk assessment

Farming hazards change constantly. Work practices change; new equipment or chemicals may be introduced. Review your safety statement or risk assessment during the year, and revise it at least annually.

Prevent death and injury on your farm

3.0 Preventing injuries and ill health in agriculture

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3.1. Overview

Workers in agriculture (family and non-family) suffer a high proportion of fatal workplace accidents in Ireland:

- On average in recent years, 35% of all fatal workplace accidents generally occur in agriculture, even though just 6% of the workforce is employed in farming.

The level of farm accidents is not decreasing. Similar accidents occur each year. This suggests that many farmers take risks rather than putting things right. In general, farmers' attitudes to safety often only changes after serious injury occurs to them or others on the farm.

The aim of this code is to change this behaviour and to offer practical solutions to prevent injury and ill health.

Information on fatal accidents in farming and forestry, and from the national surveys of farm safety and health, has been used to develop the guidance in this code. A review of fatal accidents in farming over 10 years (2006 to 2015) revealed the major causes of death and where solutions can be found (see statistics in Appendix 1).

Farm accidents and ill health can cause tragedy, pain and suffering to farm families and farm workers and jeopardise their livelihood.

3.2. The challenge of reducing levels of accidents

The key to improving safety and health in farming is to put practical measures in place to prevent accidents and ill health.

Farmers, along with their families and any farm workers, must make safety and health their first priority. This is the only way to reduce the amount of pain, suffering, disability and loss caused by farm accidents and ill health.

To manage farm safety and health effectively, do the following:

3.3. Prepare a safety statement or risk assessment

Farmers are legally obliged to prepare and work to a safety statement based on risk assessment. However, farms where three or fewer workers are employed may follow the risk assessment and guidance material in this code, instead of writing a safety statement.

Once you have completed a risk assessment or safety statement, make sure you put the controls in place and maintain good standards of safety and health. Never take short-cuts or chances with your life, your family and your livelihood.

Keep your risk assessment up to date. Review your Risk Assessment Document or safety statement at least annually or whenever you introduce new machinery, equipment or facilities on your farm.

3.4. Assess the work organisation of your farm

Work organisation is an important issue of farm management and is strongly related to safety and health management. Rushing, taking short-cuts, poor preparation and poor maintenance are the root causes of many accidents. Skilled labour is now scarce and expensive, and off-farm employment among farm family members is increasing making work organization and planning even more critical.

Research shows there is room to improve the effectiveness of labour use on many farms. Options include:

- changing work practices;
- modifying buildings and facilities; changing farming systems; and
- using a competent contractor.

Having adequate time for farm management will result in a well organised farm. This in turn will lead to improved safety and health standards. Having a satisfactory work/life balance allows adequate time for work, rest and leisure. This is crucial for long- term contentment and health.

3.5 Lone working

Farmers/employers have a duty to assess risks to lone workers and take steps to avoid or control risks where necessary. This may include:

- A farming lone worker should tell someone where he/she is going before starting a job away from the home.
- Carrying a charged mobile phone containing names and numbers for contact in case of emergency including next of kin, neighbours, etc.
- Being aware that some tasks may be too difficult or dangerous to be carried out by an unaccompanied worker.
- When a risk assessment shows it is not possible for the work to be conducted safely by a lone worker, addressing that risk by making arrangements to provide help or back-up.

4.0 Child safety on farms

4.1. Risk assessment

Farms are a high-risk area for children.

- Children and young persons aged under 18 suffered 12% (24) of all fatal farm accidents between 2006 and 2015.
- Tractors and machinery caused most child fatalities (75%).
- Drowning accounted for 8% of child deaths.
- Half of the fatal accidents to children and young persons happened to children under 7 years of age.

Adults have a huge responsibility to make sure that the risks posed to children on a farm are assessed and controls put in place to prevent death and injury. The following charts highlight the main risks to children on farms.

Provide a secure and safe play area for young children

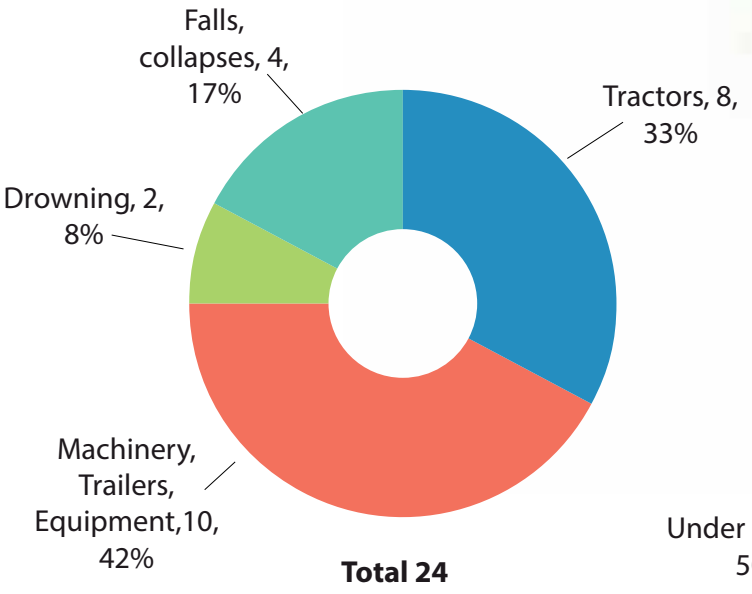


Figure 1: Deaths to children and young persons (2006-2015)

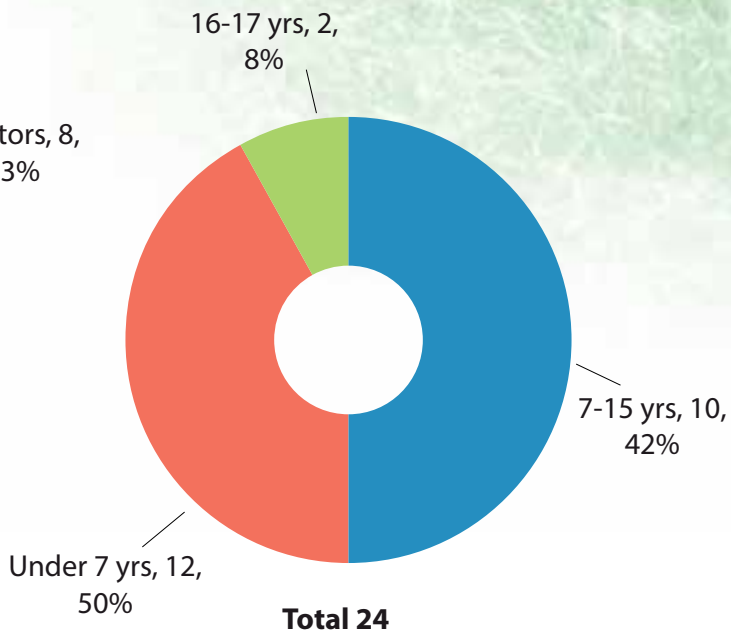


Figure 2: Age of victims of fatal accidents to children and young persons (2006-2015)

4.0 Child safety on farms

4.2 Preventing child injury and death from machinery

Children die on farms mainly because they are struck or crushed by tractors, agricultural machines or tractor-drawn equipment.

Young children must not be allowed unsupervised access to the farmyard or farm machinery. Provide a safe play area in sight of your dwelling house and inform all children of the dangers and safety rules on the farm.

Under no circumstances should a child under 7 years of age be carried inside the cab of a tractor, harvester or farm vehicle, irrespective of whether a passenger seat is provided or not. The head of a child under 7 is not fully developed and is at greater risk of injury from any impact within the cab when the tractor or farm vehicle is traversing uneven ground. A child under 7 years may also inadvertently operate a control causing serious injury or death even if instructed not to touch any controls.

Giving children under 7 years of age spins on tractors or other farm machinery creating an expectation of getting more spins, encourages them to approach tractors and machinery and may eventually lead to serious injury or death.

Children under 14 should not be allowed to drive or operate tractors or machinery. Children over 14 should be allowed to operate tractors only after they have received formal training (see section 18 on competence and training for people at work in agriculture).

Under no circumstances should a child under 7 years of age be carried inside the cab of a tractor, harvester or farm vehicle, irrespective of whether a passenger seat is provided or not

No unauthorised access to machinery by children

4.0 Child safety on farms

Children over 14 operating a suitable tractor should be closely supervised by a responsible adult and they should be properly instructed on the safe use of the model of tractor used. No other child should be on or in the vicinity of the tractor.

Some farm machines are high-risk due to the components involved, complex control systems, substances used or the specialist knowledge required to operate them safely. Because of this, no person under 18 should be allowed to drive or operate such machinery. This includes towed or self-propelled harvesters, power- driven machines, sprayers, slurry spreaders and chainsaws.

Having young children in a tractor cab is unsafe, as they can:

- fall from the doorway or rear window;
- interfere with the operator's control of the vehicle;
- distract the operator; and
- unintentionally operate controls (for example, parking brake) when the operator leaves the cab.

When children over 7 years of age are to be carried in the cab, it must be fitted with a properly designed and fitted passenger seat with seatbelts.

Instructing children & young people is crucial for their safety

Children over 7 years should not be allowed to ride on other agricultural machines, including trailers, unless it is safe for them to do so.

Children should never operate, maintain or clean dangerous machines, such as self-propelled harvesters and power-driven machines.

Children and young people should be excluded from areas where chain-sawing or tree-felling is taking place.

4.3. Workplace risks to children

Children are naturally curious. They will often seem to appear out of nowhere or get into seemingly inaccessible places. They must be kept away from dangerous areas, such as slurry pits, slurry storage areas, water tanks, grain stores and machinery.

Provide an age appropriate safe play area, with child-proof fencing, in sight of your dwelling house. A safe play area should have high unclimbable perimeter fencing or walls. The access gate to the safe play area should have a high level latch or lock. Above all, control hazards that could pose a risk to children. For example, make sure that slurry pits are surrounded by secure fencing.

Provide a safe play area

Children may be tempted to climb on gates or wheels, particularly large tractor wheels. Gates and pillars should be properly erected or secured so they cannot fall over. Tractor wheels should be stored on the flat or, if upright, should be firmly secured.

Children are attracted to stacks of bales, pallets or timber. Stacks should be built carefully, so that they do not collapse. Fencing should be erected to prevent children gaining access to hazardous areas or risks from falls from heights.

Children are attracted to stacks of bales-control

4.0 Child safety on farms

4.4. The risks that animals pose to children

Children should not be allowed near dangerous animals such as female animals with new-born young, bulls, stallions, rams, and stags. Particular care should be taken to ensure that children are not present when animals are released from buildings after being housed.

4.5. Legal provisions related to children and young persons

In addition to the duties under the Safety, Health and Welfare at Work Act 2005, further legal requirements apply to the safety and health of children and young people.

The Safety, Health and Welfare at Work (General Applications) Regulations 2007, Chapter 1 of Part 6 require farmers to identify what work is suitable for children and what work is not suitable. The regulations cover children and young people employed by farmers, as well as other children (for example, family members, visitors).

4.6. Parental and adult responsibility

The main responsibility for securing the safety and health of children and young people rests with adults. All family members and people working on farms are required by law to do everything reasonably practicable to ensure the safety and health of children and young people on farms. Research shows that an adult is usually present when a child is seriously injured or killed in a farm accident. The adult who is present could prevent most deaths to children on farms.

Where is the adult supervision?

Research also shows that:

- children who get instruction on safety remember and follow the safety rules; and
- parents who know how to prevent childhood injuries are far more likely to have adequate control measures in place than those with limited safety knowledge.

Childhood injuries are likely to be serious in nature. A major study carried out in the United States and Canada showed that emergency hospital treatment would not have prevented 95% of childhood deaths. The only way to prevent childhood deaths on the farm is to prevent accidents from happening.

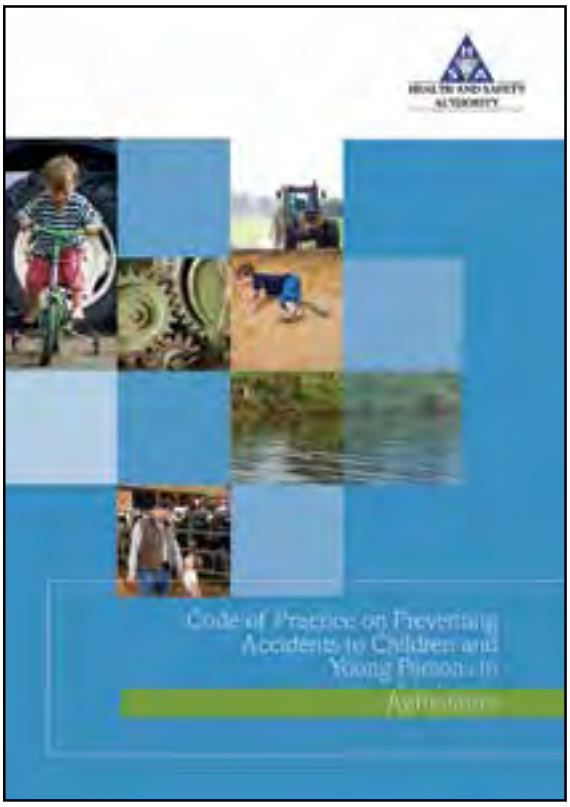
4.7. eLearning

The HSA provides a number of short free online health and safety courses on farm safety and other topics. These courses provide an opportunity for farmers, parents and schoolchildren to increase their awareness of the dangers on the farm and how to prevent accidents occurring to themselves and others. Use the e-learning resources which can be found at www.hsalearning.ie

4.7. Code of practice on preventing accidents to children and young people in agriculture

The Health and Safety Authority has issued a comprehensive statutory code of practice (Code of Practice for Prevention of Accidents to Children and Young Persons in Agriculture, 2010) which gives guidance on ensuring the safety and health of children and young people in agriculture. It is a complimentary document to this Code of Practice and relates specifically to the safety, health and welfare of children and young persons, as defined, on farms whether or not engaged in work there.

You should check this code when considering what work children and young people should and should not do on your farm.



Code of Practice on preventing accidents to children and young people in agriculture

5.0 Safety of farmers aged 65 and older

5.1. Risk assessment

- farmers aged 65 or more suffered 35% (57) of all farm deaths between 2006 and 2015,
- in the last five years, 37% of all farm deaths involved farmers aged 65 or over,
- the vast majority of accidents were associated with use of tractors and machinery, and
- a significant number of deaths were due to livestock and falling from heights.

These major trends in fatal accidents have emerged in recent years. When attempting to prevent fatal accidents on your farm, you need to pay particular attention to these risks.

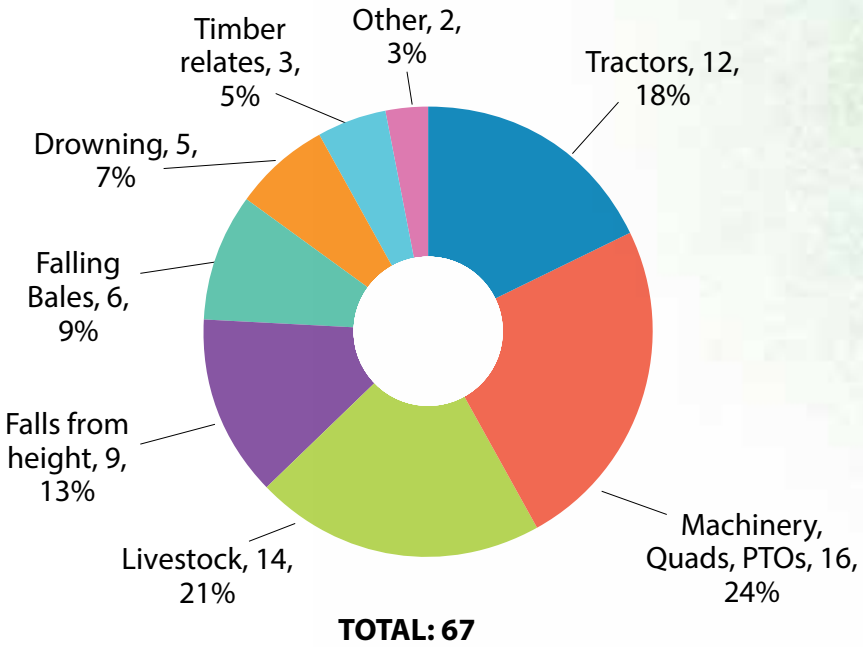


Figure 3: Fatal farm accidents involving farmers aged 65 and older (2006-2015)

5.0 Safety of farmers aged 65 and older

5.2. Preventing injury and ill health to older farmers

Fatal and serious injury and ill health among those aged 65 and older can be avoided if they and their families identify the health and safety hazards that most affect them. The 10-year review of fatal accidents indicates that most deaths are associated with the use of tractors and machinery; livestock (particularly cows/heifers after calving & bulls), and falling from heights. Many of these deaths are associated with reduced speed of movement and reduced agility.

Precautions for older farmers:

- Examine work practices and fully consider limitations brought on by aging. For instance, a relatively high number of accidents occur when two people work in a farmyard at the same time. Examples include tractor & machinery operation and livestock-handling where the older farmer gets crushed.

Older farmers need to consider their limitations

- Consider the risks due to slower movement, loss of agility, hearing loss, poor vision or taking prescribed medication. Identify and remove hazards or identify work that should in fact be completely avoided such as working at height or herding/loading bulls.

5.0 Safety of farmers aged 65 and older

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5.3 Safety of the Elderly

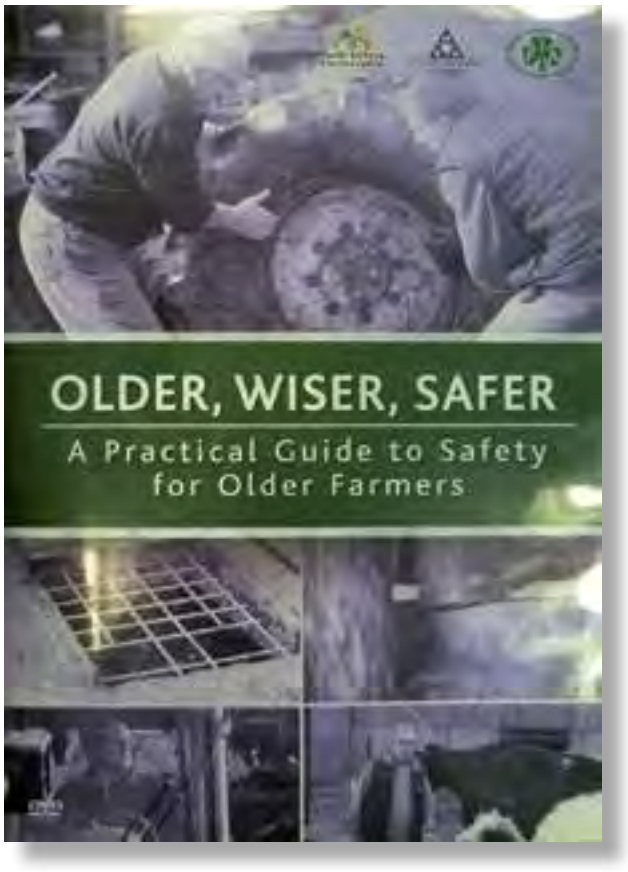
The physical capabilities of older farmers vary greatly by individual. While some maintain good strength, mobility, flexibility, eyesight, and hearing well beyond age 65, others do not. Factors which reduce physical capabilities can individually or collectively contribute to the likelihood of somebody not being able to react quick enough to avoid injury.

It is important to note that most fatalities involving older farmers have been caused by reversing machinery and attacks by animals and this would suggest that lack of mobility and flexibility plays a major part in older farmers being unable to avoid these accidents. Because of this, machine operators must always be aware of where older farmers are standing and extra precautions must also be taken to ensure their safety when handling livestock.

The key to ensuring the safety of older persons on farms is based on their ability to continue farming and their family's ability to recognise age and health related risk factors, as well as the willingness to modify expectations, working procedures and physical activity accordingly. For example an older farmer may still be capable of fixing a damaged roof if a Mobile Elevated Work Platform (MEWP) was used in place of ladders and crawling boards.

Further information and advice on general safety and health, and issues associated with ageing, can be obtained from viewing the HSA/IFA video "Older, Wiser, Safer" on www.hsa.ie

Information on other issues related to ageing and older people can also be obtained from Age Action Ireland. This is a national organisation for ageing and older people. It acts as a network of organisations and individuals, including older people and their carers. It is a development agency and promotes better policies and services for older people in an ageing society. (See website: www.ageaction.ie.)



View and learn from DVD

6.0 Vehicles and machinery

6.1. Types

There is no doubt that modern agriculture is absolutely reliant on the efficiencies that come with the use of tractors and machinery. They create labour saving efficiencies that are at the very core of modern farming systems. Because of their large size, speed, weight and immense power they also create a huge danger to the operators and those people who are close by.

- Farm vehicles includes Tractors, Harvesters, Loaders, Telehandlers, Quad bikes, etc.
- Farm machinery refers to all other machinery whether trailed or coupled. Equipment used on the farm is also included in this category, for example, portable tools, power washer, etc.

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6.2. Risk assessment

- Farm vehicles and machinery combined account for the highest proportion of farm deaths (just under 50% between 2006 and 2015) and accidents.
- 94 people, including 12 children under 7 years, died as a result of vehicle and machinery use between 2006 and 2015.
- People at risk include the vehicle or machine operators, passengers and anyone in the vicinity of its operation.

6.3. Risk assessment: Farm vehicles

Of all deaths involving vehicles and farm machinery

- being crushed accounts for 67%;
- being pinned or thrown from vehicle (overturning) 14% ;
- being struck 12% ; and
- falling from the vehicle 7%.

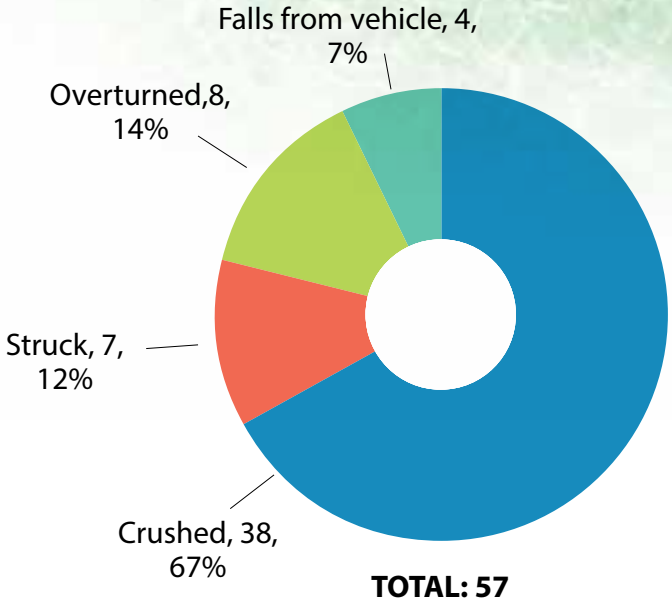


Figure 4: Tractor and vehicle fatalities 2006- 2015

6.0 Vehicles and machinery

6.4. Safety-control measures when operating vehicles

Driver awareness is crucial for safety

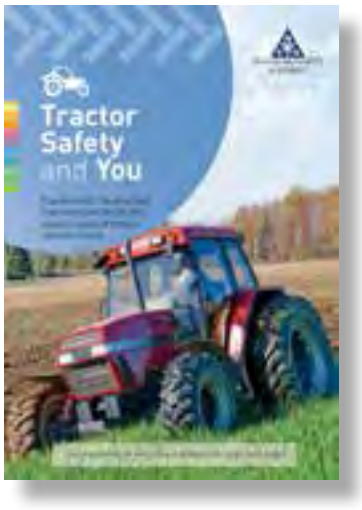
Drivers and machinery operators need to be competent, particularly in identifying potentially dangerous situations. Training should emphasise the need for care and concentration when working with vehicles. The operator's handbook gives a comprehensive guide to vehicle operation. Use the handbook to be totally familiar with the operation and maintenance of the vehicle. The following situations cause the majority of fatalities with farm vehicles:

- driving errors due to loss of control or speeding;
- falls from the vehicle;
- being run over by a moving vehicle;
- reversing vehicles;
- crushing due to being trapped under a collapsing vehicle;
- overturning the vehicle; and
- being crushed between hydraulically mounted machine and the vehicle.

Do not carry passengers anywhere on the tractor/machinery or inside cabs unless it is fitted with a passenger seat approved by the manufacturer. Know and follow the restrictions on carrying children or young persons on tractors and farm machinery.

Tractor maintenance

Always ensure that the vehicle is in a safe working condition before use. If a tractor needs repair, do not use it until it has been fixed.



http://www.hsa.ie/eng/Publications_and_Forms/Publications/Agriculture_and_Forestry/Tractor_Safety_and_You.pdf

The following are the main safety items requiring attention:

- Carry out a pre-start check using the "Essential Tractor Checks" sheet available through the HSA website www.hsa.ie.
- A cab or safety frame to OECD (Organisation for Economic Co-Operation and Development) standards must be fitted. Look for corrosion on frames of older tractors.
- Always ensure that the tractor can be started by the key and that the engine-stop control is effective.

6.0 Vehicles and machinery

- The vehicle controls should all be in working order and clearly marked. A tidy cab allows safe and easy use of the controls.
- Ensure that the cab floor is kept clear to allow safe use of brakes and clutch.
- Brakes should be in good working order, balanced and interlocked, except when being used for field work. A properly functioning handbrake or parking brake is essential.
- Ensure that the power take-off (PTO) can be turned on and off correctly, and that the PTO shield (U- guard) is kept in place at all times.
- Ensure that hydraulics are functioning correctly.
- The hitch points of both tractor and trailer must not be excessively worn.
- Do not leave the tractor seat while the engine is running.
- Apply the SAFE STOP procedure if parking up or handing over a tractor or machine.

http://www.hsa.ie/eng/Publications_and_Forms/Publications/Agriculture_and_Forestry/Essential_Tractor_Safety_Checks.pdf

Check that all vehicle components are in safe working order, particularly the brakes and handbrake

6.0 Vehicles and machinery

Hydraulic systems

Accidents involving injection of pressurised hydraulic oil can easily lead to the loss of a hand or limb due to gangrene. If a high-pressure oil leak comes into contact with the skin, the pressure of the oil (2000-2500 psi) can be so great that it penetrates the skin and enters the blood stream.

- Examine hydraulic pipes before using hydraulic equipment. Repair or replace damaged pipes or couplings before use.
- If you suspect that there is a leak, use paper or a cloth to identify its location.
- Never place a finger near any leak in a hydraulic hose pipe, no matter how small the leak. This is likely to cause infection and possibly the loss of a limb.
- Seek immediate medical assistance if even the smallest amount of oil is forced under the skin.

Using vehicles on public roads

Ensure that your licence and insurance are appropriate for the particular road use. Ensure that mirrors, indicators, lights and wipers are in working order and clean for good visibility, as required by the Road Traffic Acts. Further information on the use of and marking of Agricultural machinery on public roads is available on www.rsa.ie.

Follow the Safe Stop Procedure

Vehicle parking

As vehicles vary in operating procedures, always follow the instructions in the operator's handbook. When parking a vehicle, follow these general SAFE STOP guidelines:

- Reverse park all vehicles where possible & when safe to do so. This reduces risks when starting the vehicle when next in use.
- Park on level ground where possible. If parking on a slope is unavoidable, it is recommended that wheel chocks be used on both sides of the vehicle in addition to applying the normal handbrake or parking brake. Use wheel stops if necessary to prevent a vehicle rolling from its parked position.
- Apply the appropriate braking system, hand brake or parking brake securely and put controls in neutral.

6.0 Vehicles and machinery

- Lower all attachments, hydraulic implements and loaders to the ground.
- Stop the engine and leave the fuel-control stop in the shut-off position.
- Remove the key and lock the vehicle.

Many accidents happen when a person is getting on or off a tractor. Get up in the forward position, gripping a handle with both hands. Get down in the reverse direction, also gripping a handle with both hands. In this way, three points of contact (feet and two hands) with the vehicle are made at all times. Make sure that steps and boots are clean and in good condition.

Get up and down safely

Do not carry a passenger unless it is safe to do so

General safety precautions

The doors and roofs of safety cabs must be kept in place both for comfort and to prevent ejection of the driver should the tractor overturn.

All drivers should wear suitable clothing. Avoid wearing long flapping coats or loose belts which may catch on moving parts or controls. Sound, non-slip footwear should be worn.

Do not carry passengers in any vehicle unless there is an authorised passenger seat for each passenger. Seatbelts must be worn when fitted.

Loose tools, bottles, rope or anything that might interfere with the tractor controls or cause injury in an accident, should not be carried in the safety cab.

When moving off, always make sure that nobody risks being crushed or run over, particularly when reversing.

6.0 Vehicles and machinery

Prevent vehicle from overturning

The following factors cause overturning: operator's lack of ability and experience, gradient, excess speed, unstable loads, whether towed or mounted, the mechanical condition of the vehicle.

- Always take extreme care to ensure that a vehicle does not overturn.
- Always assess the slope and ground conditions before carrying out machinery work on slopes.
- Consider the risk over the necessity of operating on sloping ground,
- Avoid quick, sharp turns.
- If a tractor is about to overturn, do not attempt to jump clear. Stay in the cab and hold on to the steering wheel.

Consider risks of overturning on slopes

Precautions when driving on slopes

If using tractors or equipment on slopes, carefully assess the risk of overturning.

Checklist of actions

- consider land-use options and don't use a tractor or vehicle on severe slopes if it can be avoided,
- familiarise yourself with the slope. Walk the slope before driving on it,
- check the ground can support the weight of the machine, that is, the soil is stable and not recently worked,
- use a four-wheel-drive tractor,
- drive slowly and adjust application equipment beforehand if necessary,
- select the correct gear and speed before approaching the slope, to avoid gear change on the slope,
- use engine braking when you drive down a slope,
- keep as much weight uphill as possible, and
- turn uphill if working across a slope.

Checklist of what not to do

- don't drive on a slope that is too steep for a vehicle/machine,
- don't assume that you can drive down a slope just because you drove up it as the distribution of weight changes,
- don't change gear or stop on a slope,
- don't turn downhill when working across a slope,
- don't drive close to banks, ditches or water courses,
- don't use the brakes when going downhill, and
- don't drive too fast on slopes.

Further information on operating vehicles and equipment on slopes is available from safety and health training providers in the agricultural sector.

Trailer braking

Tractors are now pulling increasingly heavy trailer loads; gross weights of 10-20 tonnes are being hauled, both on the field and by road. Effective trailer brakes can dramatically reduce both the distance required for stopping and the possibility of jack-knifing.

The most satisfactory system is using powered brakes worked off the tractor hydraulic or air assisted system. The trailer's brake valve, which controls the trailer brakes, is operated by the tractor brake pedal.

This control system should be on all tractors used for drawing heavy loads. Further information on the braking requirements of agricultural vehicles is available on the road safety website (www.rsa.ie)

6.5. Quad bikes or All-terrain vehicles (ATVs)

ATVs or sit astride quad bikes are increasingly used in farming and forestry. Small utility vehicles also referred to as side-by-side ATVs, in which the driver and passenger sit alongside each other in conventional seats are also in use in some farms. Such ATVs have four wheels together with a cargo area at the rear.

Fatal and very serious accidents have occurred involving Quad Bikes, ATVs, whether sit-astride or side-by-side. The causes of accidents include:

- the driver's lack of training or experience;
- carrying a passenger or an unbalanced load;
- excessive speed when turning;
- excessive speed and impact with objects in the field;
- overturning on a bank, ditch, rut or bump;

6.0 Vehicles and machinery

- a steep slope combined with other factors such as ground or load conditions; and
- towing excessive loads with un-braked equipment.

It is essential that professional training is received before using a Quad Bike or ATV. This can be provided by the Quad Bike or ATV suppliers, or training agencies.

Children under 14 should not be permitted to drive Quad Bikes or ATVs. Also a passenger should never be carried on a Quad Bike or sit astride ATV. This is to ensure that the operator can move body weight to control the Quad/ATV as necessary. Also, most Quad Bike or ATV manufacturer's instructions (which must be followed) specify that children under 16 must not operate this equipment.

Wear personal protective equipment (PPE), including a helmet.

Quad Bikes and ATVs require on-going maintenance as specified by the manufacturer.

Check, in particular, that:

- tyre pressures are correct. (typical tyre pressures range from 2.5 -7 psi, so that a deviation of 1 psi to the rated pressure can significantly influence the stability and control of the ATV),
- brakes give a straight stop, and
- the throttle operates smoothly in all steering positions.

Due to their design, vehicle speed and body weight placement is crucial for safe operating and cornering.

The Quad or ATV may overturn rearwards if there is a sudden increase in speed or incorrect body weight placement when driving on a slope, that is, if you suddenly increase speed or place your body weight and loads incorrectly.

An information sheet and a detailed DVD on the safe use of Quad bikes/ATVs in agriculture and forestry is available on the HSA website.

An ATV must be operated with extreme care

6.6. Risk assessment: farm machinery and equipment

Farm machinery accounted for 19% (37) of farm deaths between 2006 and 2015. Accidents involved the following:

- crushed by machine part (38%);
- struck by part of machine (35%);
- entanglement in rotating part of machine, for example, Power Take Off or PTO (11%);
- caught in machine mechanism (11%); and
- fall from machine (5%).

About 270 incidents involving tractors, machinery and equipment cause serious injury each year. People at risk include those operating and maintaining the equipment and anyone in the vicinity.

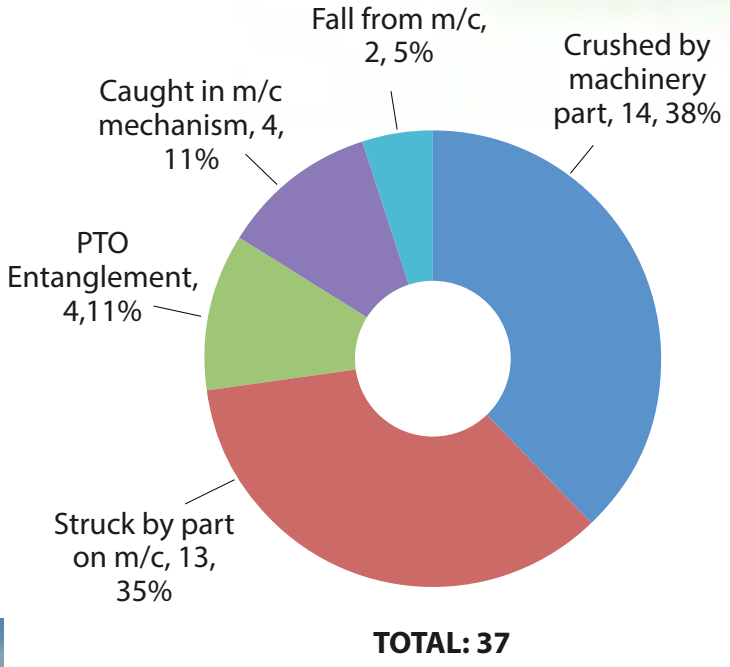


Figure 5: Fatal accidents involving machinery and equipment (2006 – 2015)

Machinery operation

Operator competence is crucial in preventing injury. All operators must receive appropriate training. Use the operator's handbook to become totally familiar with all controls and the operating procedures for a machine.

Do not carry passengers and watch out for people who are at risk of being struck by the machine. Operate the equipment from the correct position. Avoid the 'crush zone' between a hydraulically operated machine or machine part and a tractor.

6.0 Vehicles and machinery

Maintenance and adjustments

Ensure that the machine is in a safe operating condition before use. All guards and safety devices must be in place and functioning correctly.

Ensure that machines and trailed equipment are correctly attached to the tractor or vehicle before use. When attaching a machine, take precautions in order to avoid getting crushed.

Always turn off the PTO (Power Take Off) and the tractor before attempting to free a blockage or adjust a machine

Always stop the machine and the tractor before attempting to carry out maintenance work or to free a blockage.

Make sure that the machine is adequately supported before working under any machine part to avoid serious impacts or crushing.

Fixed guards

Fixed guards supplied with machines must always be kept in place. These have been identified as necessary by the manufacturers to prevent entanglement in drive shafts, chains, sprockets, v-belt and pulley drives.

Fixed guards are made from sheet metal, mesh or polypropylene. An appropriate guard ensures that no body part can reach the danger zone. Fixed guarding of older machines should be upgraded in line with the guarding on newer models.

Fixed guards can prevent death or serious injuries when:

- they are well designed and kept in place, and
- maintained in good condition and refitted after maintenance work.

Never use a machine unless all guards are in place.

Maintain all fixed guards on machinery

6.0 Vehicles and machinery

Power take-off guarding

Entanglement in power take-off (PTO) drive shafts causes 11% of all fatal machinery accidents. Guarding to the correct standard would prevent these deaths. A power shaft guard should comply with the requirements of European Standard EN 12965 and bear the CE mark.

Follow this checklist when using PTO shafts:

- Rotating PTO shafts must be totally enclosed by the guard. Make sure that the guard is undamaged and matches the shaft both in length and size.
- The machine end, o-guard and the tractor-end u- guard must also be in place. There should be a 5cm overlap between the PTO guard and the u- and o- guards.
- The PTO guard should be greased regularly and should rotate on its bearings. It should not rotate with the power drive shaft. The chain or rope at both ends of the PTO guard should be securely clipped to the guard and securely clipped to the tractor or machine to prevent it turning.
- Ensure that the hydraulic arms, drawbar pins or tyres of the tractor do not damage the guard during tight turns.
- A stand should be provided to support the PTO and guard when not in use.

Particular priority should be given to PTOs and their guarding when used in stationary situations including slurry tankers and grain rollers. Most deaths involving PTOs occur when used in such stationary positions.

Maintain all tractor components, including hydraulics, u-guard and hitches

6.0 Vehicles and machinery

Hydraulic drives

Use of hydraulic motors is an alternative to power drives in modern machinery. Consider this alternative, especially when purchasing new equipment.

Take care checking hydraulic hoses

Examination and Testing of Lifting Equipment

Maintenance of lifting components of equipment used to lift loads such as a forklift truck, telehandler or tractor loader is crucial to prevent accidents due to collapse.

It is a legal requirement to have such equipment examined at periodic intervals by a competent person. Equipment used to lift materials should be examined annually by a competent person, while equipment used to lift people and lifting accessories for lifting materials such as slings, hooks, etc, should be examined at 6-monthly intervals.

Fixed lifting equipment must be tested as part of a thorough examination before being used for the first time. All lifting equipment must be tested after any substantial alteration or repair affecting its strength or stability.

It is a requirement that hydraulically-operated machines used to lift more than 1,000 Kg be fitted with check valves on circuits to the lifting cylinders or some other suitable device to prevent collapse in the event of hydraulic failure.

Clothing

Loose or torn clothing which greatly increases the risk of entanglement should not be worn when you are working near machinery. It is best to wear well-fitting overalls with zipped pockets and safety boots with steel toe-caps.

Power-shaft guarding is crucial, especially where the equipment is used in a stationary position

7.0 Safety with livestock

7.1. Risk assessment

- 26 deaths associated with livestock occurred between 2006 and 2015,
- freshly calved cows with new-born young pose a significant risk,
- bull attacks accounted for 27% (7) of livestock deaths. However, all livestock present a risk,
- being crushed or gored by animals (particularly bulls) that are being herded, moved, separated, released or loaded onto trailers presents the highest risk, and
- livestock caused 21% of the fatal accidents to older farmers.

People at risk include the farmer and others with access to farm animals.

7.2. Animal behaviour

Livestock farmers should be alert to factors likely to cause stress to animals that in turn will lead to unpredictable behaviour.

The following situations are likely to lead to aggressive behaviour in livestock:

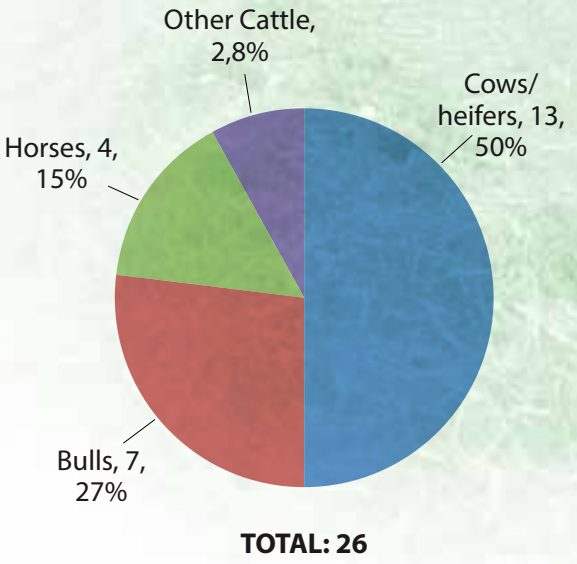


Figure 6: Livestock related fatalities (2006 – 2015)

- Animals react unpredictably when they are handled by an unfamiliar person, are in unfamiliar surroundings, and when they are separated from their familiar group.
- Animals unfamiliar with dogs can react unpredictably to the presence of dogs, especially when being moved etc.
- Animals respond to the way they are treated and draw upon past experiences when reacting to a situation. Animals that are chased, slapped, kicked, hit or frightened when young often fear being approached when they are older.
- As cattle are colour-blind and have poor depth perception, shadows, rapid changes in lighting and shouting frighten them. This makes their behaviour unpredictable.

7.0 Safety with livestock

Planning livestock work

Planning reduces the frequency of moving and handling livestock and thus the risk of injury. The following are examples of where planning can reduce risk:

- Carry out as many activities as possible each time animals are put through the crush, such as hoof pairing, checking identification tags and dosing.
- Planned activities allows for sufficient help and facilities to be available. It is safer than waiting for immediate curative treatments that may have to be carried out when help is unavailable. For example, routine hoof care rather than waiting to find individual animals going lame out in the field.
- Dehorning young calves with suitable equipment is a safer option than getting a vet to skull a mature animal.

7.3. Design and use of handling facilities

Handling facilities play a major role in preventing injury from livestock. Well-designed handling facilities allow you to control animals, giving easy and safe access to stock for veterinary and other tasks. When assessing your handling facilities, check the following:

Good handling facilities reduce risk

Location

The race and crush should be placed where stock can be assembled easily. Fencing and good placing of farm gates ensure that stock can be herded by the minimum number of people.

Having handling facilities at out-farms, leased or rented farms or locations remote from the farmyard reduces unnecessary movement of stock.

7.0 Safety with livestock

Design and layout

Examine the following aspects of the design of your livestock-handling facilities:

- Collecting pen
- Forcing pen
- Crush gate
- Race or chute
- Catwalk
- Dispersal pen

The Department of Agriculture, Food and the Marine standard S137 outlines specifications for cattle crush, race and enclosures. (www.agriculture.gov.ie)

Well-designed handling facilities reduce the risk of injury involving livestock

Work practices when assembling and treating stock

- Never enter a crush with livestock. Crushing injuries, particularly of the chest, can cause serious injury or death.
- When enclosing a herd in a collecting pen, stand aside while closing the restraining gate. This prevents crushing if an animal charges the gate.
- Wear boots with steel toe-caps to help prevent foot injuries.

Have an escape route

7.4. Safety with bulls

- Bulls cause 27% of all farm livestock deaths. They must always be treated with caution. Even seemingly placid bulls are unpredictable, so care is essential at all times.

7.0 Safety with livestock

- Most fatal accident investigations have found that the farmer's family generally felt that the bull involved was a quiet animal.
- Farm death figures show that older farmers are most at risk.

Who should handle a bull?

Bull handlers should be aged between 18 and 65, be fit, agile and properly trained in safe work methods.

How should a bull be handled?

- Serious consideration should be given to the use of AI rather than keeping a bull.
- Carefully plan all movement or handling of bulls.
- Avoid contact with bulls where possible.
- All bulls should be ringed when 10 months old, with a nose ring and the ring should be examined regularly.
- An aggressive bull should be slaughtered.
- When a bull is taken from a pen, he should be led using suitable equipment (head chains, bull poles and leading ropes).
- Two people should handle the bull every time. The handlers should walk at a slow steady pace, keeping the bull's head up.

How should bulls be kept in open fields?

- When grazing a bull with the herd, maximise use of fields where the public do not have access,
- Any field in which a bull is kept should be securely fenced and gates should be safely secured and maintained.
- Aggressive or difficult bulls should never be allowed to run with the herd,
- It is recommended that a strong chain which touches the ground should be fitted to the nose ring.
- When herding or moving the herd, be prepared to counter the bull's natural tendency to protect the herd. A tractor or suitable farm vehicle should always be used as a mobile sanctuary when having any contact with the herd.

7.0 Safety with livestock

- Young children must not be allowed into a field where a bull is kept or running with the herd.
- When separating a bull from the herd, it is essential to have two competent adults involved. Children should not be involved. This task should be carried out using good cattle-handling facilities.
- A safety sign warning of a bull's presence should be displayed adjacent to public places, particularly at access points.

A bull at pasture should have a chain attached to the ring.

It is good practice to keep a barrier between you and a bull.

Bull housing

A well-designed bull pen is essential for managing a bull when it is away from the herd. The design should allow the stockman to feed and bed the bull without entering the pen.

A bull pen should be located where the bull can see other animals, as this assists in keeping a bull placid. On dairy farms the pen should be located where the bull can see cows going to and from the milking parlour or paddocks. Walls should not block the bull's view.

Minimum specification for bull housing (S160) is available from the Department of Agriculture Food and the Marine.

7.5. Avoiding injuries at calving and weaning time

Many farmers suffer serious injuries during or after calving. Cows have attacked and killed 13 farmers or family members in the last decade. Serious injuries and fatalities occur when farmers, family members or vets are kicked, charged at, butted, crushed or knocked down.

Cows, and in particular heifers, can be unpredictable during or after calving. Shortly before and after calving, a cow may become very aggressive towards any intruder in her space.

Work practices such as taking a newborn calf from a cow, hand-milking or introducing a strange calf can provoke a sudden change of behaviour. Pre-calving warning signs can occur, such as nervousness and agitation. However, this is not always the case. Caution is always required around freshly calved animals. Always stay alert and have an escape route planned. Where possible, establish an adequate physical barrier between you and the freshly calved cow.

Calving facilities

The calving area should have adequate space and be well bedded to provide a non slip surface. It should be tidy and free from obstructions and have good lighting. Well-designed calving gates are essential.

Calving gates should have three features which will help to reduce risks of injury to both farmer and animal;

1) A quick-release head gate.
2) A hinged inner gate, which swings closed on the cow as she is driven into the head gate, and is then tied closed.
3) A small caesarean gate.

Specifications are outlined in S138 of Department of Agriculture, Food and the Marine website (www.agriculture.gov.ie).

When properly used, calving jacks can reduce the possibility of back injury and injury to the calf and cow. Calves weigh between 35 and 45 kg. Many farmers injure themselves while lifting and swinging new-born calves to revive them. Basic mechanical lifting aids, such as a pulley system in the calving pen, can prevent a back injury.

Good calving facilities reduce injury risk at calving time

7.0 Safety with livestock

Safe work practices at calving

Ensure there is a barrier between yourself and the newly calved cow. You are particularly at risk of an attack when you are handling a new-born calf, stomach tubing or dipping the navel.

As a minimum precaution be sure to keep the calf between you and the heifer or cow and have an escape route planned. Do not turn your back on the cow. Keep children away from the calving area. Keep dogs away as a dog in or near the calving area is likely to upset cows.

Weaning

Weaning is a stressful period for both cow and calf. Both cows and weanlings can become aggressive and unpredictable. Take extra care at this time to avoid injuries. Weaning should be planned in advance to dilute the bond that occurs between cow and weanling before weaning. This may involve activities such as introduction of concentrates or creep grazing pre weaning, or the gradual weaning of a herd over a period of time.

Even quiet cows can attack

Loading and unloading livestock

Animals being transported or moved can become stressed and may react unpredictably and cause injury. Loading and unloading facilities should be designed to streamline the process. This is best achieved by having a door or gate to the assembly area that matches the width of the livestock trailer. A crush or purpose built loading ramp which leads into the trailer can be used to load animals safely.

Make sure there are adequate ramp gates on a livestock trailer, otherwise livestock may charge the tail door and cause serious injury.

While stock are being unloaded from a trailer, stay in a safe position where you can't get injured by a bolting animal, or be crushed or hit by a gate struck by an animal.

Well-designed trailers and loading facilities reduce risks when livestock are being transported

7.0 Safety with livestock

7.6. Safety with horses

Safety with horses is achieved through safe work practices, experience, training and skill. Safe, functional facilities and well-maintained equipment are essential to minimise danger. In the recent ten year period, 15% of the fatal accidents related to animals were attributed to horses. The following information is for farmer breeders.

Experience and skill are necessary when working with horses

Handling and catching horses

Competence and skill are important for the safe handling of horses. Horses by their nature are unpredictable.

When catching, first let the horse know you are there. Never surprise a horse. Approach confidently, to the front of the horse. Then put on the tack. Use only head collars, bridles and lead ropes that are in good condition.

A suitable horse stock is an essential restraint to contain the horse and allow safe and easy access for treatment or veterinary attention.

Extra care is required when a mare has a new-born foal at foot.

Handling and herding young horses

Because young horses have received little handling, the risk of injury is higher. Take particular care when herding young horses, as the horses can surround a person and kick out. Wear an approved skull cap, gloves, trim-fitting clothes and leather steel toecap footwear.

Breeding and foaling

When a mare is being teased, a safe facility is required. Those holding both the mare and the 'teaser' should be alert and stand to one side. Both should wear a skull cap, gloves and protective footwear.

Those who hold the mare and stallion during covering or breeding must be experienced and be alert at all times. Wear a skull cap, gloves and leather footwear.

For injury prevention during foaling, an adequately sized box is crucial. Stay out of any 'trap zone' where you could get trapped by a mare.

7.0 Safety with livestock

Riding/ training

A person training young horses should have the necessary training and riding skills. Ensure that all tack is in safe condition. Wear approved riding gear, including skull cap, leather gloves and a back protector.

Loading and unloading horses

Two people are required to load and unload a horse to and from a horsebox. Young horses must be loaded and unloaded several times in order to train them. Feed the animal in the box after loading.

To load, a horse should be led straight up the ramp into the box, so that it does not step off the ramp and cause injury. The front ramp should be left down so the horse can see ahead and go straight up the ramp.

The back strap and ramp should be secured before the horse is tied up, to ensure that the horse doesn't back out. When tying the horse, use a rope with a quick-release knot. The horse should be untied and held before you let down the ramp and release the back strap.

When letting down the ramp, stand to one side to avoid injury from the ramp and in case the horse backs suddenly. To prevent injury, ensure that the horse is led straight back.

A DVD called Stable Safe, sponsored jointly by the Health and Safety Authority and the Health and Safety Executive of Northern Ireland, is available. A video entitled Working Safely with Horses has also been published by the International Equine Institute, University of Limerick. Further information on these products can be found in the references section.

Sheep

Sheep are generally low-risk, but rams can be aggressive during the breeding season. They can attack at speed and butt a person in the abdomen, causing injury such as kidney damage. Good handling facilities and equipment eliminate manual-handling injuries due to pulling, pushing or tossing sheep.

Older farmers in particular must be careful when entering a flock of sheep feeding concentrates for example. There is a risk of being pushed at the knees by sheep, which can cause damage to knees or cause a fall with potential trodding by the flock.

Well-designed handling facilities reduce the risk of injury.

Pigs

The main risk with pigs is being injured by boar tusks. After farrowing, sows can be aggressive and may bite. Safety considerations include providing adequate facilities for penning, restraining and movement of stock.

Make sure, in particular, that gates of boar pens have stock-proof latches fitted. Use pig 'driving boards' when moving stock. These should be made of 12mm plywood, polycarbonate or an equivalent material. If a dead animal has to be removed, use a suitable trolley to reduce the risk of a manual-handling injury.

8.0 Farmyards, buildings, maintenance

8.1. Risk assessment: farmyard, buildings and maintenance

- 17% (34) farm deaths between 2006 and 2015 were due to falls from height or collapse of buildings.
- Falls from a height are the major cause of accidents involving farm buildings. Of particular concern is falling through fragile roofs and from ladders.
- Collapsing walls or earthen drains also cause deaths.
- The National Farm Survey of Safety and Health shows that the vast majority of farm injuries take place in or close to farmyards (71% and farm buildings (19%).

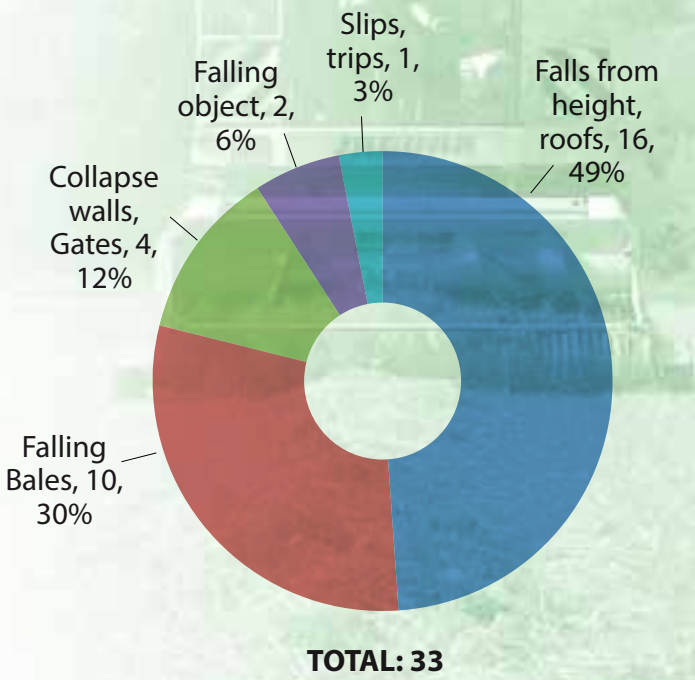


Figure 7: Fatal accidents associated with falls and collapses (2006 – 2015)

8.2. Farmyards and buildings

Pay particular attention to preventing accidents in farmyards and buildings because of the level of farm work undertaken in these areas and the high level of risk. Most farmyards and buildings have been developed over long periods and in different ways, depending on requirements and resources available at a particular time, so they may not be ideal for current activities. Assessing your farmyard and buildings for hazards, therefore, is vital to reduce the risk of injury. Many safety changes can be made cheaply and can improve the farm as a working environment. Changes to leased or rented farmyards can pose difficulties. It could be helpful to discuss changes in advance of taking on the lease with the yard owners.

8.3. Farmyard layout

A Good farmyard layout, in terms of health and safety, includes measures to control hazards associated with the following: movement within the farmyard, lighting, farmyard and building design, access to heights and safe storage and handling of slurry.

8.0 Farmyards, buildings, maintenance

Movement within the farmyard

- Make sure that the farmyard allows orderly movement of people, livestock, tractors & machinery and delivery/collection lorries. Facilities such as gates and fences should facilitate the orderly and safe movement of livestock between buildings.
- If possible establish one way systems for movement within the farmyard and/or minimise reversing manoeuvres which have led to many fatal and serious injuries.
- Leave adequate space between buildings to allow easy turning and movement of machinery. Identify blind spots or corners where an accident could occur, and put control measures in place such as barriers or mirrors.
- Ensure that passageways between buildings are at least 4.8 metres in width. Provide at least 12 metres of space at the front of silage pits to allow adequate room for turning large modern equipment.
- Make sure that areas used for parking vehicles and mobile equipment are level and in good condition. Rolling vehicles on even slight slopes are a major cause of farmyard accidents.
- Ensure a high level of tidiness and provide non-slip surfaces. This is essential to prevent injuries caused by slipping, tripping and falling. Cover manholes and eliminate unnecessary ledges and uneven surfaces, as these could cause a trip or fall.
- Provide properly hung gates throughout the farm to ensure easy access and use. Fitting a wheel to wide or heavy gates greatly reduces the effort and maintenance required. Having gates and styles in place greatly improves access. Avoid sheeted gates where possible as they can be blown by wind. Consider replacement with sliding or roller doors. Cattle grids should have an adjacent gate or alternative safe means of access.

A tidy farmyard cuts the risk of trips and falls

8.0 Farmyards, buildings, maintenance

HEALTH AND SAFETY AUTHORITY

Lighting

Good lighting in farm buildings and in the general farmyard is essential to ensure safe movement. Place adequate lighting in buildings and farmyards that ensures good visibility but minimizes glare to machine operators and to users of public roads nearby.

Consider what task lighting is needed in the yard or within buildings and sheds.

Access to heights

The protection of safety, health and welfare while working at height is covered by the Safety, Health and Welfare at Work (General Application) Regulations. 2007, Part 4.

Falls from heights accounted for the majority (47%) of farm deaths at farmyard buildings between 2006 and 2015. Take the following measures to prevent accidents related to falls from heights:

Safe use of ladders

- As far as possible avoid work at height and particularly the use of ladders, as it is high risk.,
- If you decide to use a ladder, it is best to work with someone capable of footing the ladder safely at the base.
- If you do use ladders for small-scale and short-duration maintenance work always secure the ladder and follow safe use guidelines, even for work that will last only a few minutes.
- The base of the ladder must always be placed on firm, level and secure ground. Ideally, the top of the ladder should be tied to a secure part of the building to stop it from slipping.
- The ladder needs to be 'footed' while being tied off at the top. A second person should foot it or alternatively a heavy object (for example, a sandbag) can be used to securely hold its base.

Mobile elevated work platforms should be used for maintenance of roofs

- Ladders must be in good condition. Makeshift, home-made or damaged ladders are dangerous and should never be used.
- A ladder must be placed against the side of a building at a safe angle - about 75 degrees to the horizontal (one metre out for every four metres in height).
- Never reach out sideways from a ladder as this will destabilise the ladder and cause it to slide sideways and down.
- Always maintain 3 points of contact with the ladder.
- Never carry heavy objects while climbing a ladder. You could fall and turn over the ladder. Loads are best lifted by means of a lifting appliance or pulley rope.

Scaffolds and platforms

- Extensive work at heights may require the use of scaffolds or properly designed work platforms.
- Scaffolds should only be erected by people with appropriate training and experience. Tower scaffolds can be useful but, because they are light and potentially unstable, they need to be used with care. A free-standing tower used out of doors should not be higher than three times its base.

Mobile elevated work platforms

- Mobile elevated work platforms (MEWPs) if used properly will always provide a much safer method of access for work at height on farm buildings, than using ladders or scaffolds.
- Operators of MEWPs must have adequate training and experience. Farmers who wish to hire and use an MEWP must check the training requirements from the MEWP supplier to ensure they are competent to operate the MEWP safely.
- It is strongly advised that a competent contractor be engaged for larger roof work and other work at height on the farm. Ensure that the contractor can provide certificates of training and has adequate insurance cover for the tasks.

It is also essential that:

- The person being lifted cannot contact dangerous parts of the machine, come close to overhead power lines or be put at risk of crushing against roof or beam structures.
- Loaders with buckets, pallets or other makeshift equipment are not used as a work platform.

8.0 Farmyards, buildings, maintenance

HEALTH AND SAFETY AUTHORITY

Roof work

Fatal and serious accidents often happen during short duration work and when roofs are being quickly repaired.

Many deaths are particularly linked to fragile roof sheeting and skylights. Weathered skylights become very brittle and indistinguishable from other roofing material.

Both skylights and glass, when painted over, are not recognisable from above as such and are highly dangerous.

Take precautions when doing roof work

Health and safety guidance on roof work is contained in the Information Sheet on Working at Height in Agriculture and in the Code of Practice in Roofwork published by HSA.

The Department of Agriculture, Food and the Marine standard S102 sets out the Minimum standards for roof cladding and side cladding.

Take the following precautions to prevent accidents with roof work:

- Appoint a competent construction contractor for all roof work and work at height.
- Treat all roofs as fragile and consider the use of MEWP's for all roof work. If you must go onto a fragile roof, use proper roofing ladders or crawling boards. Use roofing ladders on sloping roofs.
- Erect a suitable barrier to prevent falls while carrying out extensive work on roofs.
- Never walk on Skylights.
- Skylights should be specified to minimum fragility rating Class B.
- The safety of older skylights may be improved by retro fitting a safety mesh to prevent falls. Specification S101c from the Department of Agriculture Food and the Marine sets out standards for Retrofitting Roof Clear Sheets (Rooflights) with Safety Grid.

Accessing heights

To ensure safe stairs, working platforms and walkways:

- Stairs should not have an excessive pitch or angle. Each step should have an equal rise in height and width. The height and width should be suitably proportioned. A recognised rule of thumb is that the width plus twice the height is between 550 and 700mm.
- The sides of stairs should be protected by a wall or railing of sufficient strength, to a height of 0.9 to one metre above the pitch line. Where a railing is used, there should be at least two rails, with the lower rail positioned mid-way between the top rail and pitch line.
- To prevent falls, lofts, work platforms and walkways should have a protective barrier at the edge, of sufficient strength. Where rails are used, the top rail should be about one metre in height, with the lower rail located mid-way between the top rail and the platform. Where necessary, edge protection (a toe plate 0.15 metres high) should be provided to prevent items such as tools from falling over the edge.
- Overground slurry tanks and grain or meal bins should have a secure working platform with protective rails and a safe means of access, such as a caged ladder.
- Surfaces of stairs and walkways should be firmly fixed and should not become slippery while in use.
- Sighting rails should be installed on silage-pit walls. The purpose of these is to indicate the location of the walls to the machine operator loading the silage when the silage is above the walls. They are not intended to prevent a machine overturning. In addition, sighting rails provide protection against a person falling.

8.4 Farm building design

When planning the layout and fixtures of any new building, or modifying existing buildings, check the requirements related to safety and health.

The Farm Building and Structures Specifications (S101 and S123), issued by the Department of Agriculture, Food and the Marine, give authoritative guidance on safety and health features of buildings and facilities. These specifications are mandatory for obtaining grant aid and should be followed even if grant-aid is not being sought.

The Department of Agriculture, Food and the Marine permits grant-aiding of a wide range of safety- and health-related modifications to buildings and facilities on a farm. Thus, when preparing a grant application, consider other safety- and health-related improvements to farm buildings and facilities that could be included in the application.

8.0 Farmyards, buildings, maintenance

HEALTH AND SAFETY AUTHORITY

To maximise safety in relation to buildings:

- Ensure that livestock have adequate floor space. This allows easy movement of stock and the farmer when herding is taking place,
- Make sure that ventilation is adequate. Use sliding or roller doors where doors need to be more than 1.2 metres wide.
- Provide smaller personal-access doors.
- Ensure that gable-end walls are adequately tied into stanchions and have intermediate support. This reduces the risk of collapse in storms or if they are struck by a loader or vehicle.
- Provide adequate headroom.
- Ensure that there is ample natural light provided in the building. This will enable greater visibility for both operators and livestock.
- Provide adequate artificial lighting for all farm buildings.
- Provide good quality penning in animal housing, with suitable personnel gates or slip throughs to get in and out of pens.
- Ensure buildings are constructed to a good standard as set out in the Department of Agriculture, Food and the Marine specifications.

8.5 Fire

Fire on a farm can threaten life and cause serious injury. Plan to prevent fires, but prepare an emergency response. Consider the following fire-prevention measures:

- **Isolation:** Hay, straw and other flammable materials should be stored well away from a dwelling house and buildings housing stock. A minimum distance of 18 metres is recommended. Keep hay and straw storage in livestock buildings to a minimum. Store fuels and agrochemicals securely away from other combustible materials.
- **Fire Containment:** Materials such as solid concrete, solid concrete blocks, fibre cement sheeting and solid wood all have high fire-resistant qualities. Sub-dividing buildings into compartments can stop the spread of fire. However, the fire resistance of walls and roofs depends on their condition; even a small opening can completely remove the fire protection. Steel, in contrast, buckles and melts at about 500 degrees Centigrade, so keep combustible materials away from structural steel components of buildings.
- **Maintenance:** Good electrical and machinery maintenance reduces the risk of farm fires.

Electrical installations: Faulty electrical and faulty lighting installations are a major cause of farm fires. For instance, contact between dust or fodder and sub-standard electrical components or filament bulbs lead to many farm fires. Ensuring that electrical installations are done to ETCI (Electro Technical Council

of Ireland) standards means they are dustproof and waterproof. Make sure that the electrical system is checked regularly by a competent electrician.

Fires on tractors, combines and machinery can be caused by loose electrical connections, sparks from engine exhausts, dust build-up on an engine and atomised spray leaking onto hot surfaces within the engine. Regular maintenance minimises the risk of fire and makes equipment more efficient. Tractors, combines and machinery should always be stored well away from combustible materials, such as hay or straw, to minimise possible loss and injury.

- **Evacuation:** Examine your farm for potential fire traps. Ensure that there is an adequate means of escape from all work areas. In the event of a fire, once a building has been evacuated, make sure that everyone stays out. Farm fires can produce highly toxic fumes, including hydrogen cyanide.
- **Fire extinguishers:** A fire extinguisher should only be used where there is no danger to the user and a clear escape route is available. While fire extinguishers have limitations, if they are used quickly and efficiently when a fire starts they can prevent a major blaze. Professional advice should be sought on the correct type of extinguisher for a particular use.
- **Emergency services:** Know and provide your Eircode which will assist the emergency services. When calling the fire service, give clear instructions as to how to get to the fire location. Farm gateways should be at least three metres wide to allow the fire brigade to pass. Typically, a fire brigade has 2,000 litres of water aboard, so a farm supply of water is often necessary to fight a fire.

Fire Safety

8.6 Construction Regulations

The Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations 2013, place extensive duties on farmers who commission or procure the carrying out of construction and maintenance of buildings. Farmers who undertake construction work on their farms will have the duties of Client under these regulations. Farmers should also take into account other roles which may apply to them in relation to construction work, that is, Project Supervisors and Contractor. Every farmer should be aware of their legal duties under these regulations before any construction work is planned. Further information on the regulations can be obtained from the Health and Safety Authority.

You (Farmer/client) must appoint in writing a project supervisors if:

- there is more than one contractor involved in the work, or
- there is a particular risk (see below), or
- the work is going to last more than 30 days or more than 500 person days.

8.0 Farmyards, buildings, maintenance

HEALTH AND SAFETY AUTHORITY

What is a Particular Risk?

A Particular Risk includes:

- works that put a person at risk of falling from a height where the risk is aggrevated by other factors for example, roofwork where access is restricted,
- work that involves the risk of burial under an earth fall where the risk is aggrevated by other factors, for example, deep excavations in poor soil conditions,
- works near high voltage power lines, for example, building a structure on a site which has existing power lines crossing the site,
- works exposing a person to the risk of drowning, for example, construction of wall beside or near a pond or river,
- work involving the setting up or taking down of heavy parts, for example, installation of precast floors or assembly of steel beams, or
- work involving asbestos.

The list above is not exhaustive; projects may have particular risks which are not listed above. If you need further advice on what is a particular risk talk to your designer or contractor. They are competent and will be able to advice on what is or is not a particular risk for your project. Your Designer and Contractor are obliged by the regulations to inform you if the project you are engaged in requires Project Supervisors (that is, if there is a particular risk, more than one contractor or if it is scheduled to last greater than 30 days).

8.7 Building demolition

Demolition work needs careful planning and preparation. It is considered to be construction work and should only be undertaken by competent contractors.

When buildings are in a poor state of repair, they may need to be made safe with temporary supports before demolition can proceed.

In demolition, the main risks include working at height, collapsing structures and falling debris. Particular care should be taken with block walls, as these often lack structural strength and may collapse when subjected to force.

Specific regulations apply to dealing with any material containing asbestos. Asbestos, or suspected asbestos, should never be broken up, damaged, removed or handled without expert guidance. Information on the regulations is available from the Health and Safety Authority.

9.0 Slurry storage and gas poisoning with organic matter

Risk assessment

In Ireland, over 40 million tonnes of slurry are stored, handled and spread each year. This presents two particular safety and health problems. Gas poisoning and drowning in slurry and water caused 20 (10%) farm deaths between 2006 and 2015.

9.1. Drowning in slurry and water

- drowning is by far the most common stated cause of death involving slurry,
- in the period 2006-2015 there were two deaths where children/ young persons drowned on farms, and
- where possible, fence off water hazards and take a cautious approach when working near water tanks, ponds, rivers or lakes.

Protect against drowning in slurry by taking the following precautions:

- Open slurry tanks should be protected by an unclimbable fence or wall at least 1.8 metres high, with locked gates. When this type of storage tank has to be emptied, consider putting in place an adequately constructed access platform with safety rails.
- Covered or slatted tanks require access manholes that children cannot open easily. A safety grid should be fitted below the manhole cover to give secondary protection.

Inadequate protection for children at risk of drowning in external slurry

- Department of Agriculture, Food and the Marine specification S.123 gives full details on the protection and layout of slurry tanks.

9.0 Slurry storage and gas poisoning with organic matter

9.2. Slurry gas poisoning

Decay of slurry, dairy washing or any liquid containing organic matter produces a mixture of dangerous gases, including hydrogen sulphide, methane, carbon dioxide and ammonia. Some gases, like methane, are highly flammable. One slurry gas in particular, hydrogen sulphide, is extremely toxic and poisonous. All these gases are heavier than air, so they displace oxygen and will accumulate at the bottom of tanks. This can lead to suffocation when a person enters a tank even when empty.

When slurry is disturbed by agitation, the gases within the slurry are released. Gas release happens mainly in the first 30 minutes after agitation begins.

Gases can build up in partially emptied tanks above the slurry, so never enter a tank for any reason.

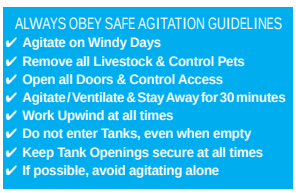
Smell is no indicator of the absence of gas, as many gases are odourless. Hydrogen sulphide has a 'rotten egg' smell at low levels, but cannot be smelt at higher levels. High levels can be released when slurry is agitated. One breath or lung-full at high level can cause INSTANT death.

Gas release from slurry is greatest in the following circumstances:

- within 30 minutes of agitation beginning, especially after the surface crust is broken;
- when effluent has been added, leading to acidification of the slurry;
- when slurry has been stored for a long period;
- when jetting is used rather than sub-surface agitation;
- when slurry is agitated in deep tanks; and
- when slurry is mixed with cold water.

Precautions

- check weather forecasts,
- only agitate where there is good air movement,



Evacuate and ventilate before agitation

9.0 Slurry storage and gas poisoning with organic matter

- evacuate all livestock and make sure no person or animal is in or near the building,
- open all doors and outlets to provide a draught,
- at least two people should be present and should stay up-wind,
- never stand over slats or near tank access points when agitation is in progress,
- avoid vigorous agitation in confined spaces,
- do not allow slurry to rise within 300mm of the slats or tank covers,
- keep all people away from the agitation point for 30 minutes after agitation,
- avoid naked flames, as the gas mixture can be highly flammable, and
- a slurry safety sign should be installed on the wall or shed near all agitation points.

Confined spaces

Never enter, or allow others to enter, any tank or confined space without breathing apparatus. Gas build-up due to decomposition of organic matter can lead to poisonous gases and lack of oxygen. Death can be instant. Rescue may be impossible as any rescuer must wear breathing apparatus. Rescue attempts have led to multiple deaths.

If you suspect someone has been overcome by slurry gas switch off the agitation, contact and inform the emergency services immediately and wait for assistance.

9.3. Slurry gas monitors

The use of slurry gas monitors and detectors as a means of protection against the risk of exposure to slurry gas is not recommended. The following advice in relation to such devices should be taken into account;

- Because of the potentially fatal consequences of exposure to slurry gases at relatively low concentrations, it cannot be guaranteed that the device will give adequate prior warning.
- The essential primary safety precautions set out in 9.2 above should be followed.
- Slurry gas monitors and detectors if used should only be regarded as a back up to the primary precautions and are generally of little or no benefit.

9.0 Slurry storage and gas poisoning with organic matter

9.4. Storage and handling of spent mushroom compost

Mushroom compost stored in bulk, especially when not turned for aeration, produces dangerous levels of hydrogen sulphide gas in the interior of the heap. Precautions when handling this material include:

- Never handle the spent mushroom compost in an enclosed space, such as sheds, tanks or trailers, where the toxic gas can build up. Make sure that there is good thorough ventilation when moving compost.
- Children should not have access to stored spent mushroom compost and particularly should be kept well away during any handling or removal.
- Compost should not be moved on a calm day. Only handle compost on a windy day when there is good air movement.
- Keep persons not directly involved in the work well away from the general work area.
- Persons using machinery to move spent mushroom compost should keep cab doors and windows closed and a hydrogen sulphide monitor should be used inside the cab.
- If it's possible that hydrogen sulphide is present, as indicated by the smell of rotten eggs, certified fresh-air breathing apparatus should be used, in addition to the controls listed previously.
- Never work alone when dealing with spent mushroom compost.
- Stores must be constructed in accordance with Department of Agriculture, Food and the Marine specification S.108.(available at www.agriculture.gov.ie).

HEALTH AND SAFETY AUTHORITY

10. Safety at Harvest Time

10.1 Risk Assessment

- Harvest is the peak time for injuries and deaths to farmers, other family members and contractors.
- Time pressure and making best use of good weather is often an issue.
- Pressure to get harvesting work completed often leads to long working days for farmers and workers.
- Tractors, farm vehicles and machinery are the main causes of fatalities at harvest time.
- Incorrect handling, transport and storage of bales are also a significant contributor to farm fatalities at harvest time.

10.2 Operating harvesting machinery

Harvesting is a potentially dangerous time, particularly as high-powered machinery is being operated at speed.

The following precautions should be taken into account;

- Plan all elements of harvesting, workers, machinery and work activity.
- Inspect and prepare all machinery before starting work.
- Ensure all safety guards are in place.
- Watch out for any machinery with exposed moving parts and crop intake points.
- Check for any hydraulic leaks.
- Ensure that any blockages are dealt with by following a safe stop procedure, that is, engine off, handbrake on.
- Driver fatigue resulting from excessive hours of work can be reduced by periodic breaks, good hydration & nutrition and also by changing operator roles or operators.

10. Safety at Harvest Time

HEALTH AND SAFETY AUTHORITY

Road safety

- There is a dramatic increase in the number of tractors, trailers and harvesters using the public road systems at harvest time. As a result there is an increased risk of collisions involving a road user and farm machinery.
- Farm machinery operators must be competent for their given roles,
- Do not carry passengers unless there is a suitable passenger seat provided and the operator is under instruction/training.
- Farm machinery must have proper working brakes and lights.
- Beware of overloading, electricity lines, uneven surfaces.
- Always watch out for pedestrian, cyclists and other road users particularly at harvest time.
- Regulations and standards exist regarding use of agricultural machinery on public roads, see (www.rsa.ie).

10.3 Silage making

Cutting and collecting silage

- All tractors and other equipment should be properly prepared, maintained and be in good condition.
- Breakdowns, due to poor maintenance can lead to delays, adding extra cost and pressure to an already busy schedule.
- Only competent operators should be allowed to operate machinery . The carrying of passengers should not be allowed.

10. Safety at Harvest Time

- All guards must be in place on all equipment and in particular PTO shafts must be properly guarded,
- Keep persons well away from operating mowers due to risk of projectile stones or objects emanating from the high velocity blades.
- During silage harvest, ensure there is good communication between all operators of silage harvesters, loaders and tractors.
- Watch for signs of fatigue and take appropriate precautions.

Electricity

- Particular care must be taken when harvesting near overhead power lines.
- Contractors should be informed of the location of any overhead lines which may impact on large machinery.
- Self-propelled harvesters need a lot of headroom, as do large trailers when tipping.
- If concerned about the height of overhead power lines and suitable clearance distances consult with ESB Networks on1850 372999. (Put this number into your mobile phone).
- Remember electricity can jump (arch) particularly in damp weather conditions.

Silage pit safety

- Silage pits must never be overfilled as this greatly increases the chance of a tractor or loading shovel overturning when filling or rolling a pit.
- Operators of machinery must be competent to carry out their role safely.
- Never go underneath a silage cover once it has been put in place. Fermenting grass uses up the available oxygen under the cover very quickly. There is a significant risk of death due to oxygen deficiency.
- On open silage pits, with earth embankments, the sides and ends of the silage should be sloped off at a safe angle (less than 45 degrees). On other pits where machines and their drivers can drop 600mm or more, strong front end barriers and guide rails are required.
- Silage pits with walls should never be filled above the top of the wall.
- Sighting rails should be provided on top of silage pit walls.
- Excessive filling will overload walls and increase the risk of overturning to the operators of machinery.
- Minimum specifications on silage pit design are available on Department of Agriculture, Food and the Marine website.

10.4 Bales

Bales made from hay, straw or silage can pose a significant risk while being made or handled on the farm.

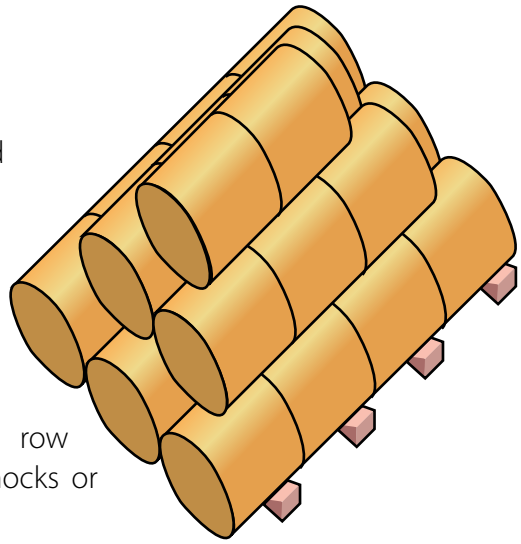
The most significant risks to control include;

- crushed by bales falling from a height;
- rolled over by a bale on sloping ground;
- crushed or spiked by bale handling equipment moving due to incorrect parking; and
- falling from trailers while tying down loads.

Safe stacking location

- Select an uncluttered storage site so bales can be conveniently and safely stacked and removed.
- Chose a level, smooth and hard surface or well drained area on which to store the bales, as soft or uneven ground increases the risk of machinery incidents and loss of feed.
- Stacks should be positioned well away from overhead power lines.

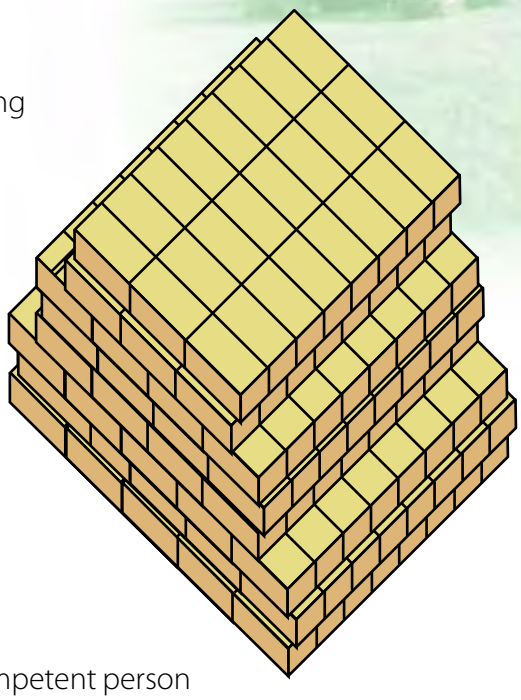
Round bales



- Where space permits it is best to store all round bales one high on their flat ends, however, this may not be practical.
- If round bales must be stacked the safest stacking method is on their curved sides in a pyramid stack.
- The bales on the outside of the bottom row should be prevented from moving by means of chocks or other supports.
- The maximum height of the stack should be 3 bales high.
- Where the bales are not very dense, the maximum height of two bales is advised.
- Stacking of round bales on their ends is not recommended as bales can have a tendency to shift due to the variable density of the material in the bale which has led to several serious and fatal accidents.

10. Safety at Harvest Time

Square bales



- Square bales should be stacked using an interlocking pattern to tie-in the bales with the row underneath.
- The maximum height of a stack of square bales should be one and a half times the width of the base.
- Avoid getting on top of the bale stack unless absolutely necessary.
- If it is really necessary to work on top of the stack of square bales the same precautions as outlined as per work at height are necessary.

Removing bales from the stack

- Use suitable bale handling equipment operated by a competent person to remove bales.
- Remove the bales from the upper row first.
- Do not remove bales from the bottom or middle of the stack as this may lead to instability, dislodgement and risk of being crushed by a falling bale.
- There may be some settlement of the remaining bales after removal from the stack.
- Keep all not involved in the operation, particularly children and elderly well away.

11.0 Maintenance and repair of machinery

HEALTH AND SAFETY AUTHORITY

11.1. Risk assessment.

- Maintenance and repair of machinery is high risk and has led to numerous serious and fatal accidents.
- Hazards during machinery repair include: crushing, entanglement, loss of limbs, electrocution, injuries to the eyes and feet, and noise-induced hearing loss. Repairing equipment may pose a risk due to heat, metal particles or sparks.
- The national farm survey shows that about 10% of all farm injuries are due to people being struck by tools or implements.

11.2. Organising machinery repair and maintenance

A well-organised workshop reduces injury risk

Most farms have a workshop. Before any repair/maintenance work is carried out, assess the available facilities and equipment and ensure competence. If in any doubt, serious consideration should be given to having repairs done by a competent service provider. How a workshop is arranged, equipped and managed and the competency of personnel carrying out the work is crucial in preventing accidents and ill health.

Workshop construction

Having sufficient space to carry out work is a crucial aspect of workshop design. To work safely, at least two meters of space is required around a machine. Doors must be high enough to allow access and egress of modern equipment.

Floors must be kept clear and not become slippery, even when damp. A 'wooden float' rough concrete finish is sufficient. Oil or grease spillages which will cause slippery conditions should be cleaned up immediately. Prevent slips, trips and falls by good housekeeping and cleaning of the workshop regularly.

Use only fireproof materials in workshop construction. These include concrete, steel and fibre cement sheeting. Ensure adequate and suitable fire-fighting equipment is readily available, particularly during any hot work.

Solid walls are required to support tool boards and shelves, and to anchor benches. Good lighting is essential. Extra task lighting may be necessary for using some machine tools.

11.0 Maintenance and repair of machinery

Injury occurs most frequently in under-heated workshops. Maintain a minimum temperature of 10 degrees Celsius.

Access to workshops should be limited to people who are working in it.

Lifting equipment

Lifting equipment should always be checked before use. The safe working load (SWL) in tonnes or kilograms must be clearly marked on equipment. Never exceed the SWL.

Any lifting equipment such as pulley blocks and slings must be tested by a competent person before use. A certificate of examination must be obtained. Equipment should be re-examined annually by a competent person. Slings and chains should be inspected before each use for damage or wear and examined every six months.

Adequately secure and support equipment

Always secure equipment before jacking. For example, before jacking up a tractor or a combine, park on a firm, dry level surface, place the transmission in gear and apply the handbrake.

Trolley or bottle-type jacks should only be used to lift an object. Before undertaking work, axle stands or solid wooden blocks should be put in place to support the weight of the machine.

Power tools

Power tools such as angle grinders, bench grinders and drills can cause serious injury. Before use, ensure that the power tool is in a safe operating condition, with all the guards in place and all electric cables and connections safe and fit for purpose. Use a vice to securely clamp the piece being worked on.

Before working with an angle grinder, ensure the correct disc for the operation is used and is correctly fitted. Never force the disc at the metal, or allow the disc to be trapped in the work piece - this will cause the disc to break and the grinder to 'kick back'.

11.0 Maintenance and repair of machinery

HEALTH AND SAFETY AUTHORITY

Welding

Significant levels of skill are required for welding. Ensure competence to perform a task before embarking on a welding operation. Welding courses are available through agencies such as Solas and the Education and Training Board Ireland (ETBI).

Make sure tools are safe and wear personal protective equipment

Compressed air

Air compressors can explode if not maintained. This can arise due to a crack in the compressor tank or a faulty safety valve. An inspection by a competent person is required every 24 months to identify any potential damage or weakness in the pressure vessel.

Tyre Maintenance

Tyres should be inspected on a regular basis and at least once per week. Where damage is suspected or identified it should be inspected by a competent person.

If tyres fail during deflation or inflation, an explosive force can be released at an angle of up to 45 degrees from the rupture (which is often, but not always, the face of the sidewall). This has resulted in numerous fatalities.

Safety during tyre inflation

It is crucial that a clip-on chuck is used to connect the compressor hose to the tyre and the airline hose between the clip-on chuck and the pressure gauge/control is long enough to allow the operator to stand outside the likely trajectory of any explosion during inflation. This is to ensure that inflation of tyres can be carried out from a position of safety. This will vary depending on the size of the tyre and its positioning. Where necessary a suitable tyre cage should be used and the sidewall of the tyre should be inspected prior to inflation.

Safe tyre inflation

11.0 Maintenance and repair of machinery

Tyre changing

Before embarking on the removal of a tractor or machine wheel, carefully assess the available equipment and facilities, the condition of the area where the wheel is to be removed and the competence to carry out the task. Serious consideration should be given to having the task carried out by a professional service provider. If a tractor or farm vehicle is to be raised to remove a wheel then the vehicle must be adequately supported to prevent any danger of collapse and the operation must be carried out on solid level ground to minimise risk of collapse. A suitable safe jacking point on the tractor or machine should be identified before commencing tyre changing. Adequate lifting equipment and restraining equipment must be available to allow the wheel to be removed and the wheel must never be left free standing where there is a danger of it falling and causing injury. After changing or refitting of a wheel the wheel nuts or clamping devices must be correctly installed and tensioned using appropriate tools and equipment. Further information on safe tyre removal is available on the HSA website www.hsa.ie

Personal protective equipment (PPE)

Suitable clothing includes well-fitting overalls with zipped pockets, leather footwear with non- slip soles and steel toe-capped boots. Wear nitrile or neoprene gloves when handling hazardous substances.

The PPE required will depend on the job, but the principal items are protective visors or goggles, ear defenders for noise, and respiratory protection where there is a risk of inhaling dust or fumes.

Hygiene

Good hygiene facilities are essential for any farm or farm workshop. These include washing, drying and toilet facilities. Before work, apply a barrier cream or put on gloves. Use hand cleanser to remove heavy oils or contamination, Never use solvent thinner as this degreases the skin and causes dermatitis.

Provide washing & first aid facilities

Further information on workshop equipment

Before using individual items of equipment, consult the operator's manual. A comprehensive booklet, Safety in the Farm Workshop, is available from Teagasc (www.teagasc.ie)

12.0 Working with timber

12.1. Risk assessment

- Using chainsaws and particularly felling trees is one of the most dangerous tasks carried out on farms.
- Seven timber-related deaths occurred on farms and forests between 2006 and 2015. Seven of these occurred when trees were being cut down.
- The national survey of farm safety and health indicates that about 3% of all injuries are chainsaw or wood-related. That amounts to about 75 serious injuries each year.
- Where possible use a bushman type saw in place of using a chainsaw.
- If a chainsaw is to be used operators must be competent before embarking on a task that involves a chainsaw.

12.2. Training in chainsaw use and tree felling

Tree felling and the use of a chainsaw is extremely hazardous. All persons, including farmers, should first be trained by a competent training provider before working a chainsaw or felling a tree. Alternatively, a competent person should be contracted to carry out the work.

Safe use of chainsaw

12.3. Safety features of the chainsaw

Every chainsaw should be fitted with the following safety and health devices:

- clearly marked, positive on/off switch;
- chain-brake device with a front hand-guard;
- safety throttle;
- chain catcher;
- rear hand-guard;
- anti-vibration system;
- exhaust system to direct fumes away from the operator;

- chain cover for transportation; and
- adequate tool kit for corrective and preventative maintenance.

12.4. Personal protective equipment for timber work

Modern chainsaw personal protective equipment (PPE) is easy to wear and long-lasting, and is designed to prevent death or serious injury. Select clothing and equipment that fits well, and will not catch in the chain or underbrush. Make sure a first-aid kit, including large wound dressings, is available.

The following equipment must be worn before using a chainsaw:

- safety Helmet (to conform to EN 397), suitable eye protection (Visor to EN 1731 or safety glasses to EN 166) and ear defenders (EN 352);
- chainsaw gloves with protective pad on the back of the left hand;
- leg protection incorporating clogging material (EN 381-7);
- safety boots with steel toecaps and with good thread for grip (EN 381/345);
- non-snag close-fitting outer clothing; and
- chainsaw trousers (EN 381-5).

12.5. Using the chainsaw

When using a chainsaw take the following precautions:

- Ensure that the chainsaw is properly maintained.
- Be familiar with where the controls are, and ensure that they are all in working order. This is to ensure that the chainsaw can be stopped quickly in an emergency.
- To start the engine, hold the saw firmly in position on level ground by putting the right foot on the handle and making sure the chain is clear.
- Only use a chainsaw in a right-handed manner, with the right hand on the throttle and the left hand holding the handle. The left thumb must be under this handle at all times.
- Apply the chain brake when the chainsaw is not in use. This is done by letting engine revs drop to idle and applying the chain brake with the back of the left hand.
- Shut off the engine before moving from one area to another.
- Never use the chainsaw above shoulder height or when off balance.

12.0 Working with timber

HEALTH AND SAFETY AUTHORITY

Avoiding chainsaw kickback

Kickback occurs when the tip of the guide bar comes into contact with a solid object at the upper half of the nose of the guide bar. Take great care to prevent this part of the chainsaw from touching any object. Kickback results in the guide bar of the chainsaw suddenly moving violently upwards. This can cause severe cuts to the head, face, neck, shoulder and arms. Kickback can occur on a horizontal plane also.

The following measures help to prevent kickback:

- Make sure that the chain and chainsaw are adequately maintained.
- Never begin cutting with the upper half of the nose of the blade. While cutting, watch out for branches, logs or other material that could come into contact with the upper half of the blade.
- Grip the saw properly, using both hands. The thumb of the left hand should be under the handle.
- Before cutting, ensure your left arm is straight. In the event of kickback, this will help to divert the saw over your body.
- Never run the engine slowly at the start or during cutting, as this can lead to kickback.

12.6. Working-area precautions

When cutting timber, such as firewood:

- Make sure the timber is securely supported off the ground, to allow room for the blade to cut.
- Before starting the task, assess what way the timber will fall after it is cut and ensure it will fall safely.
- Make sure that other people are at least two saw-lengths away from the operator when preparing to cut a tree or trim branches.
- Clear any undergrowth likely to interfere with the operator and the chainsaw, and remove any dead material that could catch fire.
- Prepare a path of safe retreat to the rear, diagonal to the line of the timber's fall.
- Make sure your foothold is firm and obstruction-free.
- If working on sloping ground, work from an uphill position.
- Lopping branches off trees and working on ditches is extremely dangerous. Use a platform such as a tractor trailer to provide a secure non-slip foothold.

12.7. Felling trees

Before felling any tree, ensure the operator has the necessary competence to complete the task in safety. The task of felling trees is very dangerous and requires significant training and experience to be completed safely.

- Farmers who have not undertaken the approved chainsaw training course for tree felling, should not attempt to carry out this work themselves and should engage the services of a competent chainsaw operator or tree services contractor.
- Ensure that the chainsaw operator has the necessary safety documentation, including certificates of training, insurance cover, risk assessment and safety statement.

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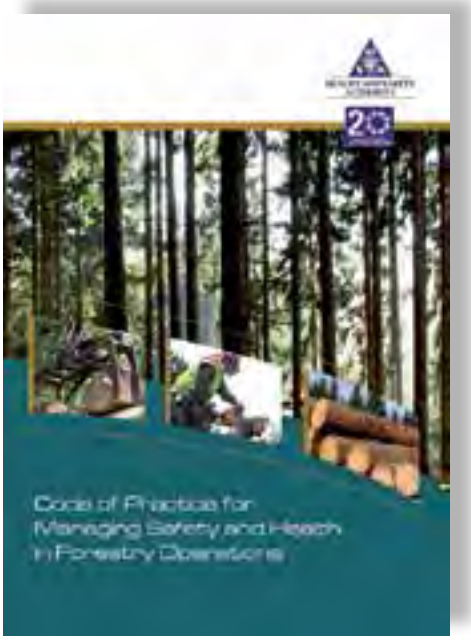
12.8. Code of practice for managing safety and health in forestry operations

The "Code of Practice for Managing Safety and Health in Forestry Operations" can be obtained from the Health and Safety Authority. It provides guidance on the safety, health and legal duties of all parties involved in forestry operations. It sets out the following four management roles related to forestry operations:

- Landowner role
- Forestry work manager role
- Contractor role
- Sub-contractor role

Identifying who takes these roles in a particular situation clarifies how communications and operational duties related to safety and health should be shared



Read and understand this Code

13.0 Safe use of electricity in agriculture

13.1. Risk assessment

- Electrocutions accounted for 2% (3) of all deaths in agriculture between 2006 and 2015.
- Two deaths were due to contact with the mains supply and one death was related to faulty installation.
- Considerable progress has been made in upgrading electrical installations on farms over the last decade. However, sub-standard electrical installations and equipment are still found on many farms.
- Poorly maintained installations, particularly those out of doors and in wet conditions, present a significant risk of electrocution.
- The mains supply, particularly overhead power lines, also presents a significant risk of electrocution.

13.2. Electrical standards

Electrical installations and equipment on the farm must comply with the Safety, Health and Welfare at Work (General Application) Regulations, 2007 (SI No. 229 of 2007) Part 3. These regulations are supplemented by the detailed specifications contained in National Rules for Electrical Installations issued by the Electro-Technical Council of Ireland (ETCI).

All electrical work must be carried out by a registered electrical contractor in accordance with ETCI rules.

13.3. Causes of electrical accidents

Due to the wet environment, yards, outhouses and fields are electrically high-hazard areas. The major causes of electricity-related deaths are portable equipment, extension cables and overhead power lines.

Electrical accidents occur mainly for the following reasons:

- Loose or 'floating' earth contained in the plug or socket.
- Equipment is connected without a plug top and/or socket.
- Use of unsuitable domestic-type plugs and other accessories.
- 'Temporary' joints, both taped and un-taped, on extension cables.
- Portable equipment, including infra-red lamps, connected to lighting circuits.
- Improvised maintenance and repairs carried out in an unprofessional fashion.
- Incorrectly rated or 'make do' fuses (including silver paper and nails).
- Faulty equipment and faulty installations.
- Frayed cable insulation causing galvanised roofs of outhouses and RSJ (rolled steel joist) pillars to become live.

- High voltages imposed on electric fences where the fence earth electrode is too near the farm installation earth electrode.
- Buildings, straw, hay or other materials placed under or near power lines.
- High machinery or equipment operated under or near overhead power lines.

13.4. Fuses and miniature circuit-breakers (MCBs)

Fuses and MCBs automatically disconnect circuits where a fault occurs or where the circuit is overloaded.

If correctly rated or 'tailored' to the circuit, the fuse or MCB will protect the circuit, as well as permanent wiring and the appliance or equipment used. It will not protect people or animals from electric shock. An RCD (residual current device) is required for this. Sensible precautions include:

Make sure that electrical installations are adequate

- Correct selection of MCBs or fuses can be a key factor in the prevention of electrical fires.
- Use the correct type and rating of MCB or fuse.
- Do not replace an MCB with one of a larger size. Find out the cause of the fuse blowing or MCB tripping.
- Use a main fuse or circuit breaker to protect the total electrical installation.
- Clearly label all MCB's, fuses and RCD's, for ease of identification.
- Use under voltage protection to prevent danger from machinery driven by electric motors starting up automatically at the end of a power cut.

Check with a competent electrician or electrical contractor to ensure the adequacy of your fuse board, MCB assembly or any other part of your electrical installation,.

13.5. Portable electrical equipment and RCDs

Portable (including transportable) electrical equipment has contributed to many on-farm electrocutions. Such equipment includes: electric welders, drills, angle grinders, milk coolers, dehorning equipment, sheep- shearing equipment, power washers and battery chargers.

To prevent electric shock from portable equipment:

- fit residual current devices (RCDs) with a 30 mA fault setting on all 220V and 380V socket circuits,

13.0 Safe use of electricity in agriculture

- test RCDs monthly or at least every 6 months, by pressing the test-trip button,
- use 110V supply for smaller items of portable equipment (up to 2KVA) in wet areas,
- keep cables, plugs, sockets and cable couplers in good condition and replace if damaged,
- join cables using cable couplers only, and
- use a maximum supply of 25 volts for portable hand lamps in confined or wet locations.

ETCI rules require all socket outlets rated above 32 Amps to be protected by an RCD device with a trip setting of 100m Amps or less. The ETCI rules also stipulate that all circuits in agricultural installations be protected by a RCD device with a trip setting of 300 mAmps or less.

13.6. Plugs and sockets

Domestic-type plugs and sockets are not suitable for on-farm use. Industrial type (IEC 309) are required. Industrial type sockets are colour coded as follows:

24v	–	mauve 220v - blue
110v	–	yellow 380v - red

Plugs and sockets must:

- have keyway coding to prevent voltagemismatch; for example, connecting a yellow plug to a blue ocket (keyways should not be tampered with),
- be appropriate to the voltage of the equipment used, and
- be of sufficient capacity.

The same criteria apply to cable couplers.

Electrical socket

13.7. Earthing

- All exposed metal parts (normally non-current-carrying) must be earthed.
- Protective conductors for earthing must be of sufficient size and properly installed, protected and maintained.
- Protective conductors, if broken or disconnected, must be immediately restored.
- Earth electrodes of base copper or hot-dipped galvanised rod or pipe must be at least 12 mm diameter and driven vertically into soil for a length of not less than 1.2 m.

Good earthing is essential if safety devices such as fuses and circuit breakers are to work properly. Earthing circuits should be regularly tested by a competent electrician.

13.8. Equipotential bonding

Equipotential bonding is defined as 'special electrical connections intended to bring exposed, conductive parts or extraneous conductive parts to the same or approximately the same potential, but not intended to carry current in normal service'.

Animals are extremely susceptible to even very low potential differences (less than one volt). These stray voltages seriously affect milk production and can cause mastitis. Equipotential bonding in milking parlours and other locations where animals are housed is very important.

The Electro-Technical Council of Ireland (ETCI) wiring rules recommend that:

- All extraneous and exposed conductive parts be bonded together and connected to protective conductors.
- A special bonding bar be installed as part of the bonding system and that each large metallic item be connected separately to this bar.
- A metallic equipotential grid be laid in the floor and connected to the equipotential bonding of the location (particular care should be taken to protect the connection point, both mechanically and against possible corrosion).
- Supplementary equipotential bonding conductors should have a cross-sectional area of at least 4 mm. This is both to provide additional strength and conductance for the bonding conductors.

13.9. Electric welders

- Electric welders should be supplied from separate circuits to the standard workshop sockets.
- Plugs and sockets should be of adequate capacity (32 amps).
- An RCD (30 mA fault setting) must be provided.
- Exposed conductive parts of the welder must be bonded together and connected to the welder protective conductor at a common terminal.
- The return conductor cable should be connected to the work piece using a proper clamp.
- User's eyes must be protected by a suitable filter lens contained in a welding helmet or hand-held shield, which protects face and neck against heat radiation.
- Hands and forearms should be protected by suitable gloves and by keeping sleeves pulled down.
- ESB Networks require notification before an electric welder is installed.

13.0 Safe use of electricity in agriculture

HEALTH AND SAFETY AUTHORITY

13.10. Generators

Portable generators:

- Generally are rated less than 20 KVA.
- Supply individual items of portable equipment.
- Should have industrial-type sockets (IEC 309) located on the generator frame for connection.

Generators supplying permanent wired installations:

- provide automatic or non-automatic general standby for fixed installations;
- should have mechanically interlocked switching facilities between ESB Networks and the generator; and
- generator should have a switch that clearly marks to show the ESB, generator on and off positions.

PTO shafts of tractor-driven generators should be suitably guarded. ESB Networks requires notification when a standby generator is to be installed. ESB personnel have been electrocuted where switching arrangements were not adequate. This may also put the general public at risk.

13.11. Overhead lines

- Do not operate or tip high machinery or equipment under or near power lines.
- Check for adequate clearance before passing underneath.
- Prevent danger by line diversion, use of barriers or 'goal posts'.
- Do not build, stack materials or site-fill under power lines.
- Do not burn stubble, bushes, etc, under or near power lines or support poles and masts.
- Do not undermine support poles or masts or damage stay wires.
- Never raise metal irrigation pipes under or near power lines.
- When spreading slurry, keep away from power lines and poles.
- Keep away and keep other people away from fallen lines.
- Keep animals away from fallen lines.
- Notify ESB Networks, Eircom, Gardai, etc, of fallen lines.

13.12. Electric fences

To prevent danger from contact with electric fences, the maximum discharged energy should be in accordance with the relevant Irish and European standard. (IS EN 60335-2-76:2005 Household and similar electrical appliances — Part 2-76: Particular requirements for electric fence energizers)

Control units for electric fencers

- should not be installed near flammable materials;
- should be protected from mechanical damage;
- should not be mounted on ESB or telephone poles; and
- must have a minimum of IPX4 electrical protection if located out of doors .

Take the following precautions:

- Do not run fences parallel to power lines. Dangerous induced voltages might result.
- Keep fence earth a minimum of 10 meters away from main installation earth.
- Never 'whip up' or 'twitch' fence wires under power lines.
- Never electrify barbed wire. Barbed wire can be difficult to break free from.

13.13. Cable reels

Cable reels can be dangerous if they supply an electrical load for a prolonged period. This is particularly the case if the reel is left uncoiled while in use. The cable in the reel can heat up and melt the protective insulation. This causes a risk of fire or risk of electrocution to persons operating equipment fed from the reel.

It is better to completely uncoil an electric cable before use.

13.14. Periodic Inspections

Electrical installations will deteriorate over time. To ensure that the installation remains in a safe condition, it should be inspected and tested by a competent person, usually a qualified electrician.

Following this inspection and test, the electrician should provide a report on the installation which should give details of any issues needing attention.

14.0 Safe use of chemicals in agriculture

Chemicals such as fertilisers, detergents, oils, disinfectants and plant protection products can play an important role in everyday life on the farm. However, if these chemicals are not used safely, then those on the farm could be at risk. The potential for chemicals to cause harm depends on a number of factors including how dangerous the chemicals are, as well as how long and how often people are exposed to them. It is also important to consider naturally occurring chemicals on the farm, such as slurry gases, chemicals generated by activities such as maintenance work, welding, engine exhausts, all of which can also be dangerous.

Chemical exposure can result in health effects such as cancer, birth defects, burns, skin rashes, and lung, liver or kidney disease. Therefore, when using chemicals on the farm, it is important to know how dangerous they are. It is also important to ensure that you have the necessary controls in place to keep you, your family and the environment safe. The hazard label and safety data sheet supplied with each chemical are essential in understanding the dangers involved in working with chemicals on your farm.

14.1 Risk Assessment

- On average just over 250 poisoning incidents involving Agrochemicals are reported to the National Poisons Information Centre (NPIC) each year. See Figure 8 below
- Every year about 100 Agrochemical poisoning incidents involve children under 10 years of age.

Year	Total Number of incidents relating to human poisoning reported to NPIC	Reported Incidents relating to human poisoning by Agrochemicals
2015	9356	274
2014	9159	250
2013	9520	249
2012	9563	244
2011	9219	267

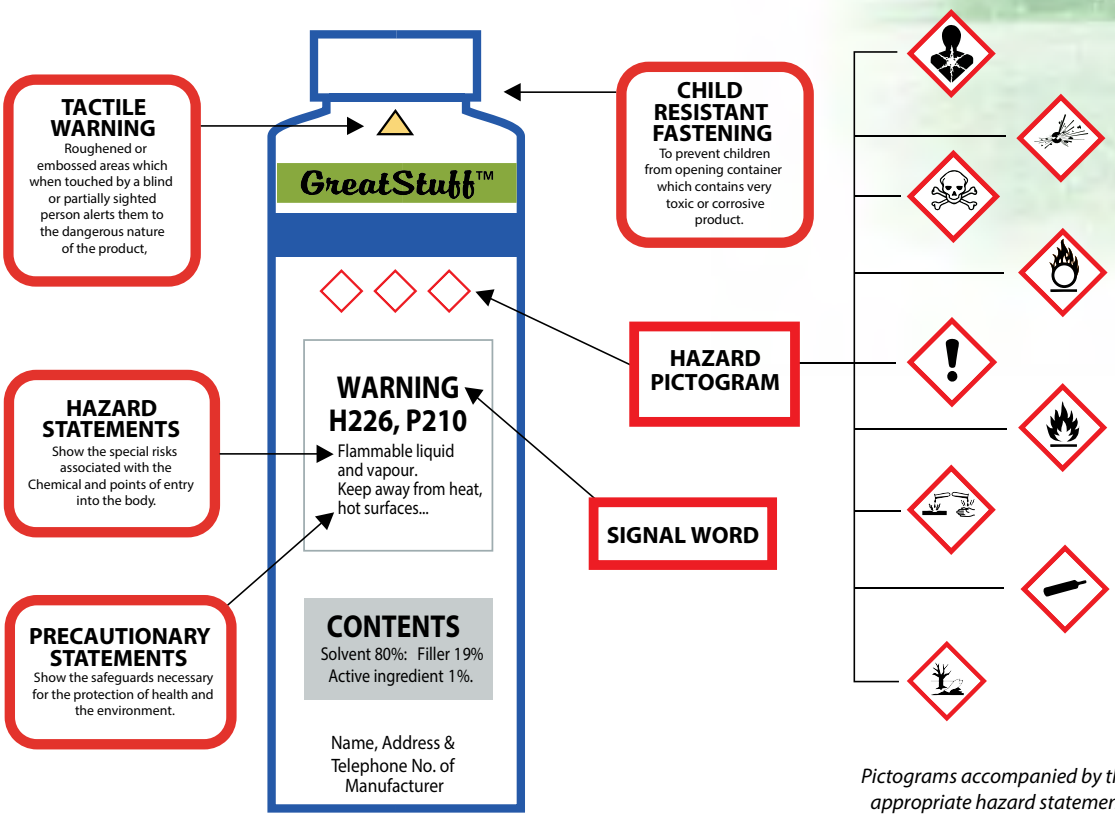
Figure 8 Human Poisoning incidents reported to NPIC over 5 years

14.2 Understanding the label and the safety data sheet

This section provides information on how to recognise if a chemical is dangerous by understanding the label and by using the safety data sheet (SDS) to get advice on safe use, storage and disposal.

The label and the safety data sheet are essential in understanding the dangers involved in working with the chemicals on your farm. The label on the chemical container provides information details of the supplier and identifies the hazardous properities of the chemical. Below is an example of a hazard label.

14.0 Safe use of chemicals in agriculture



Pictograms accompanied by the appropriate hazard statement

DANGER	Life threatening even in small amounts and brief exposure.	Handle with care!
	Causes very serious long-term health effects.	Never swallow or inhale!
	Causes skin and eye burns.	Avoid contact with skin!
WARNING	Destruction of metals.	Handle with care!
	Skin and eye irritation. Adverse health effects.	Don't swallow, touch or inhale!
	Damage to ozone layer.	Avoid release!

DANGER	Explosive- sensitive to fire, heat, vibration and friction.	Keep your distance!
	Highly flammable- serious fires if exposed to sparks, flames, heat.	Handle with care! No ignition sources!
	Causes or intensifies fire, increases fire risk.	Wear protective clothing!
WARNING	Container explodes if heated. Very cold liquid burns when touched.	Do not heat!
	Toxic to aquatic environment.	Do not pour down drain!

14.0 Safe use of chemicals in agriculture

Additional information to that on the label can be found in the safety data sheet (SDS), whch is supplied with the chemical. If you don't receive a SDS, then ask your supplier for one. The SDS describes the hazards that the chemicals pose, and provides information on safe handling, storage and emergency measures in the case of accidents.

The key sections to review are:

- identity of chemical and supplier details
- dangers of the chemical,
- first aid measures,
- how to fight a fire involving that chemical,
- accidental release measures,
- how to handle and store the chemical safely,
- exposure controls, personal protective equipment (PPE), and
- disposal information.

SAFETY DATA SHEET

CleanIt

1. Identification of the substance/mixture and of the company/undertaking

2. Hazard identification

3. Composition/information on ingredients

4. First Aid Measures

5. Fire-Fighting Measures

14.3 Types of chemicals used on the farm

The types of chemicals used directly in work activities on farms can be categorised into five main groups, with fertilisers and pesticides representing the largest volumes used:

Fertilisers

High nitrate fertilisers are oxidising, meaning that they can cause or contribute to the combustion of other material. Fertilsers containing ammonium nitrate, calcium nitrate and urea have the potential to decompose at high temperatures causing the release of potentially dangerous chemicals such as hydrochloric acid or ammonia. All fertilisers are generally considered to cause irritation or burning to the eyes, skin and respiratory system.

To ensure your safety and the safety of others on the farm engineering controls such as the use of automated systems (for example, sprayers) are recommended. Equipment should be maintained in good condition and it should be ensured that all valves, lines and connections are secure. Personal protective equipment may be required where spraying could result in exposure to the eyes, skin or lungs.

Plant protection products and biocides

Plant protection products and biocidal products have the capacity to cause serious damage to worker

health, including cancer and effects on the brain and spinal cord, immune system and reproductive organs. The marketing, sale and use of pesticides is regulated by the Department of Agriculture, Food and the Marine (DAFM), including the requirement to notify products and ensure sustainable use of pesticides. More information, including lists of notified or authorised plant protection and biocidal products are available on DAFMs website http://www.pcs.agriculture.gov.ie/.

Careful handling and application of pesticides is required to ensure your safety and the safety of others who may be affected. All users of pesticides must adhere to the advice and recommendations provided on the label and SDS, and use pesticides in such a way that minimises drift, run-off and volatilisation. Engineering controls such as the use of automated systems for the use of pesticides (for example, sprayers) are recommended.

Common maintenance chemicals

Chemicals used in farm machinery such as fuels, oils, paints, hydraulic lubrication and gear oils may cause health issues such as respiratory problems or allergic skin reactions. Paints such as red oxide paints may be sprayed onto metal surfaces of farm buildings, these paints may contain lead. Lead is harmful if inhaled and may cause damage to fertility or the unborn child.

To ensure your safety and the safety of others on the farm it is important to ensure that possible exposure to the lungs or skin is minimised. This might include avoiding spraying, avoiding any skin contact or using gloves, for example. Where possible, replace the use of lead-based paints for less harmful paints.

Acids and bases

Acids may be used as cleaning agents or as additives in the preservation of silage, commonly used acids include hydrochloric acid, sulphuric acid, acetic acid and lactic acid. Bases may be used in cleaning and the adjustment of soil pH, commonly used bases include lime (calcium carbonate), caustic soda (sodium hydroxide) and bleach (sodium hypochlorite). Due to their pH, both acids and bases are generally corrosive to the skin, eyes and respiratory system.

To ensure your safety and the safety of others on the farm, careful handling of acids and bases is recommended to prevent inadvertent mixing, minimise exposure to fumes and splashes; this may involve controls such as enclosure or the use of PPE.

Veterinary medicines

Farmers and agricultural workers may administer or apply authorised veterinary medicines including antibiotics, vaccines, wormers and ectoparasiticides such as sheep-dip. There are a number of hazards to health associated with their use, including puncture wounds from needles and accidental injection, inhalation causing infection and/or poisoning. Authorised veterinary medicines may only be administered by those with adequate training and knowledge, if in doubt use a veterinary practitioner. Farmers must ensure they purchase such products only from an authorised supplier. For more information please visit: https://www.hpra.ie/.

14.0 Safe use of chemicals in agriculture

To ensure your safety and the safety of others on the farm, controls to restrain animals and administer injections, for example needle guards, should be used in the first instance. PPE may be used for less hazardous medicines and may include gloves, aprons, face shields or respiratory protective equipment.

14.4 Sprayer design and operation

When purchasing a sprayer, be alert to design features that minimise the risk of contamination, including low-level fillers and steps to gain access to the tank lid. The sprayer should be checked thoroughly before the season starts, and regularly during the season. All boom sprayers (above 3m) and blast/orchard sprayers must be tested by an approved inspector every 3 years as determined by the Sustainable Use Directive (see www.pcs.agriculture.gov.ie).

The key safety features to check on an ongoing basis are: hose condition; nozzle condition; pressure gauge; filters and controls. Use of a clean water supply, minimises the risk of nozzle blockage and contamination.

Only a registered professional user can apply pesticides authorised for professional use (www.pcs,agriculture.gov.ie). Certificate of Competency training courses in pesticide operation, to Quality and Qualifications Ireland (QQI) standard, are available from several approved training providers. This training is mandatory. However, it can significantly reduce the amount and cost of pesticides used on the farm, can save money and prevent adverse health effects to you and others on the farm.

Sprayers must be operated by registered professional users only.

14.5 Storage

Chemicals on the farm must be stored in a safe and secured location. The storage unit must be dry, well-ventilated and constructed of non-combustible materials and in such a way to ensure that any leakages or spillages are retained within the store (for example, bunding or a floor sloped inward). A warning sign should be displayed at the entrance to the chemical store. Facilities must be available for the soaking up of small spillages for example, a bucket of sand or peat and the cleaning of equipment and PPE.

The storage of each chemical will depend on the advice provided in Section 7 of the Safety Data Sheet (SDS), and upon the type of chemical and its physical state. However the following general rules are advised:

14.0 Safe use of chemicals in agriculture

- Store chemicals safely in a locked store away from children.
- All chemicals should be kept in their original container and in good condition with the label attached.
- Chemicals. should not be transferred to another container.
- Segregate chemicals based on the most dangerous hazard displayed on the label.
- All chemicals must be stored away from animal feed to avoid contamination of feed stuffs.
- Veterinary medicines must be stored away from other chemicals to avoid contamination.
- Liquids should be stored away from solids (for example, powders) to prevent leakage of one chemical onto another.
- Oxidising chemicals, such as high nitrate fertilisers, should be stored away from heat or ignition sources, static or friction sources. They must also be stored away from flammable chemicals or materials, including fertilisers.
- Fertilisers and flammable chemicals must also be stored away from heat or ignition sources.
- Minimise your stock of chemicals.
- Old or unused chemicals should be disposed of in accordance with Section 13 of the SDS.
- Maintain an inventory of your chemical stock detailing the chemicals stored, their physical state (solid, liquid or gas), their hazards and the quantities stored.

A sample inventory is provided below;

Chemical Substance or Mixture	Solid / Liquid / Gas	Approx. Volume Stored									
Diesel	Liquid	50 L		X					X	X	X
Disinfectant for milking machine	Liquid	25 L					X				
Calcium Nitrate	Solid	10 kg					X		X		
Fertiliser	Liquid	50 L			X						

14.0 Safe use of chemicals in agriculture

HEALTH AND SAFETY AUTHORITY

Rinsing of Pesticide Containers

All containers should be "triple-rinsed", at the time of emptying into the sprayer, as follows:

1. Drain the contents of the pack into the spray tank for at least 30 seconds.
2. Quarter to half fill the container with clean water.
3. Close the container securely.
4. Shake vigorously.
5. Add the rinsate to the spray tank. Repeat steps 2 to 5 at least twice.

Store rinsed container upside-down with the lid off so that it dries out.

Disposal

Hazardous chemicals must be disposed of safely. Farm hazardous waste collection centres are available around the country where farmers can take their hazardous waste for disposal. Further details on this scheme are available from the EPA at www.epa.ie or your local Teagasc office.

Transport

Hazardous chemicals (dangerous goods), including waste for disposal, must also be carried by road safely under the provisions of the Carriage of Dangerous Goods by Road regulations. The types of chemicals that come under the rules of carriage by road regulations reflect many of those listed above under 'Types of chemicals used on the farm'. They include, but are not limited to:

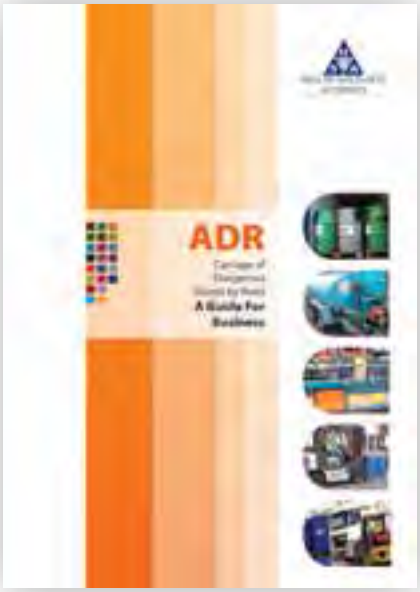
- certain grades of ammonium nitrate fertiliser;
- pesticides (biocides/plant protection products);
- Fuel (for example, petrol or diesel);
- paints/varnishes/lacquers;
- gases in cylinders (for example, acetylene gas for maintenance work);
- acids and bases (for example, cleaning agents, additives); and
- hazardous waste for disposal

14.0 Safe use of chemicals in agriculture

Transport safety information for the dangerous goods (chemicals) you use will be available in Section 14 of the SDS for that chemical. Certain requirements must always be observed when transporting dangerous goods, and these requirements include appropriate packaging, marking (including the UN number) and labelling (diamond shaped hazard labels) of the packages, load security and general knowledge/training in relation to the hazards presented by the chemicals carried.

Exemptions exist for the carriage of farm supplies using agricultural or forestry tractors and for the transport of small quantities of dangerous goods.

More details in relation to general requirements that apply to you and the exemptions that are available to you can be found in the HSA's Guide for Business at: http://www.hsa.ie/eng/Publications_and_Forms/Publications/Chemical_and_Hazardous_Substances/ADR_Carriage_of_Dangerous_Goods_by_Road_A_Guide_for_Business.pdf



15.0 Health of farmers

15.1. Risk assessment

- The principal causes of ill health among farmers are associated with manual handling, lung problems, infections and noise.
- Recent research indicated that almost one in every 10 farmers suffer a musculoskeletal injury annually with over 80% of injury victims being unable to work for three days or more.
- There is strong international evidence that healthy farmers suffer fewer injuries at work.
- Stress is associated with both high accident levels and disease of the circulatory system.

15.2. Occupational ill health

Manual Handling Risk Reduction on the Farm

Introduction:

It is good for the farmer to be active and dynamic and certain levels of manual handling are a good thing. However there are risks associated with manual handling and the risk level will increase if the following are present:

- excessive Force or load weight;
- awkward posture during lifting activities;
- highly repetitive bending, twisting postures;
- lifting activities carried out in a confined restricted work environment with unstable footing; and
- awkward or bulky loads.

The existence of one or more of these risk factors generally increases the risk of injury to the farmer particularly a back injury.

Reducing the risk of back injury on the farm

Recognising that manual handling activity is a potential workplace hazard on the farm that needs to be addressed is the first step in managing the risk of back injury on the farm.

Calf transporter trolley reduces manual handling risks

15.0 Health of farmers

Useful points to consider when planning to carry out a manual handling activity on the farm:

- Is the load very heavy for one person to lift for example the handling of a 50kg fertilizer bag by one person exposes that person to a risk of injury?
- 50kg bags where they are manually handled are best handled by two persons.
- Consider if a front loader or some mechanical aid can be used to lift bulk bags.
- Are there changes in the layout of a work area that can help for example can product be positioned at a height on a secure platform or fixture to allow loads to be handled at a safe height which allows better control of the load?
- Can the load be broken down into a smaller size so that the full weight is not being lifted or carried?
- Are there handling aids that can be used to reduce the need for lifting or carrying loads over a distance, for example, a sack truck or other appropriate handling aids?
- Can the work task be planned to reduce the distance that loads have to be carried?
- Are there handling aids or ways of handling calves during and after calving that reduce the exposure of the farmer to heavy physical lifting, pushing or pulling?
- Are there changes that can be made in the farm yard to ensure that loads are stored securely in mobile storage units to ensure good housekeeping and limited need for handling?
- Are there work benches available that allow the farmer to complete work with good posture reducing the need for prolonged bending posture?
- Are there useful handling aids to handle large tractor wheels safely?
- Are there good clear access routes and adequate space available to allow for the use of handling aids or to allow for ease of movement of loads?
- Would a meal bin be more effective than handling a large number of bags of meal?

Risks associated with handling loads which can include a heavy weight, awkward postures and poor access in the environment in which the work is being carried out. Think and plan the job before attempting a potentially high risk manual handling activity, consider the main risks and identify ways of making the job easier by exploring the possible options for reducing the risk of injury. There is scope on the farm to eliminate or reduce heavy lifting by fitting wheels to heavy loads, use of hitch three-point linkage systems and improved planning of the activity.

Give your health adequate attention

15.0 Health of farmers

HEALTH AND SAFETY AUTHORITY

Measures to help prevent an injury:

Think before you lift and always consider the use of mechanical aids or other means of reducing the risk where the load weight is excessive. When you do engage in lifting a load which is within your capability, always consider the following principles:

- ensure the load is kept close to the waist to give more control over the load,
- adopt a stable posture,
- ensure a good hold on the load,
- at the start of the lift slight bending of the back, hips and knees is preferable to fully flexing the back,
- avoid twisting of the trunk or leaning sideways,
- keep your head up when handling,
- move smoothly and do not lift more than you can manage, and
- put down then adjust.

The back needs to be looked after, so stop to consider ways to carry out a work activity that reduces the strain on the back and still gets the job done. First and foremost look at ways of reducing the risk through the use of handling aids, reducing size of load, improving lay out of work environment or other appropriate means. Only handle loads when the risk level has been reduced. Remember one poor lift can cause a lifelong injury.

Lung problems

Inhaled dust and spores can have a severe effect on lung tissue and cause severe illness in both the short and long term.

Mouldy feed or grain contains many minute spores. These spores affect the lung tissue if inhaled.

The protein in the spores triggers an allergic reaction and, after 6-8 hours, symptoms of influenza - fever, headaches, shivering, muscle pains and breathlessness - develop. If this occurs, to avoid possible confusion with influenza, a doctor should be told that the symptoms developed after the handling of animal feed.

Ventilation and wearing a suitable mask prevents respiratory hazards

Normally, symptoms clear in 2-8 days after a single attack. However, repeated exposure can lead to permanent damage to lung tissue, leading to permanent breathlessness. Exposure to mould can also lead to occupational asthma. Consult a doctor if symptoms persist.

The higher the dose of spores, the worse the likely health effect. A single high dose can lead to sensitisation of the lung tissue; this means that the lung tissue becomes susceptible to an allergic reaction. Once it is sensitised, any exposure, even to very low levels of spores, will trigger an allergic reaction. Smoking multiplies the damaging effect on lung tissue of exposure to mould/dust.

To prevent lung problems, avoid exposure to spores by keeping buildings well ventilated. For example, NEVER enter a grain store that holds mouldy feed without first ventilating the building thoroughly. Do not disturb bales by opening out, as this releases spores into the air.

An effective way to reduce the level of dust or spores is to damp down the source of these.

As well as the above, an added precaution is to wear a suitable mask, to the standard of European Standard "EN 149: 2001 Respiratory protective devices" (Type FFP2 or P3).

Infections

A range of serious illnesses can be caught from animals and contaminated materials. A disease that spreads from animals to humans is called a zoonosis. There are over 20 such diseases in this country, including brucellosis, tuberculosis, tetanus, Weil's disease, leptospirosis and toxoplasmosis.

Since these diseases can cause serious illness or death, it is essential to take precautions. The following are examples of where an infection can cause serious ill health.

- Where brucellosis infects a herd, the farmer, family members and workers can contract the infection if suitable precautions are not taken.
- Weil's disease is a form of leptospirosis, got from contact with infected rat's urine generally through broken skin or scratches. Infection leads to a high risk of debilitating illness or death. The symptoms of infection are often confused with influenza. Seek medical treatment at the earliest possible stage.
- E.coli infection, including the potentially fatal 0157 strain, can be contracted from livestock or contaminated material.

Measures to prevent infections include:

- maintaining healthy stock;
- vaccination;
- covering all wounds, cuts and scratches;
- immunisation (for example, against tetanus);
- use of protective equipment (for example, gloves, aprons); and
- ensuring good personal hygiene.

15.0 Health of farmers

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Noise

Noise can damage a person's hearing. This can be caused by exposure to high levels over an extended period of time or to intense noise over short periods.

Permanent damage, known as noise-induced hearing loss, is caused when the nerve hairs in the inner ear, which pick up sound and transmit it to the brain, become damaged and die. Once these hairs die they cannot be replaced, so hearing is permanently lost. When noise-induced hearing loss occurs, the affected person mishears words, particularly those beginning with s, t, p and f (words such as 'seen' and 'been' or 'fight' and 'right' are confused). Thus, the person has considerable difficulty understanding the meaning of words, and their quality of life can be greatly reduced.

Impulse noise, such as a bang or a blast from a shotgun, can damage the eardrum and bones of the ear. In some cases these require surgery to be repaired.

A simple rule of thumb to check if noise is at a damaging level is; if it is necessary to shout to communicate with another person who is at a distance of 2m away, the noise level is likely to be above the legal action level of 85 decibels dB(A).

The best way to solve a noise problem is to identify the source and reduce either the noise level or exposure time as much as possible.

There are many simple ways of reducing exposure to noise:

- purchase equipment with low noise level ratings which must be supplied with every machine,
- keep tractor doors shut and maintain silencers on equipment such as tractors or chainsaws,
- isolate or enclose equipment with noise above 85 decibels,
- use mechanical or automatic feeding systems to reduce the need to enter pig or poultry houses during feeding, and
- move away from the noise source (doubling your distance from it halves the noise level to which you are exposed).

Ear defenders must be worn if the noise level remains above 80 decibels. These should conform to European Standard "EN 352 - 1 to 3: 2002 Hearing protectors". Remember noise-induced hearing loss cannot be rectified by a hearing-aid."

15.3. Personal health

Your health is your greatest asset. You should do everything possible to safeguard it while at work.

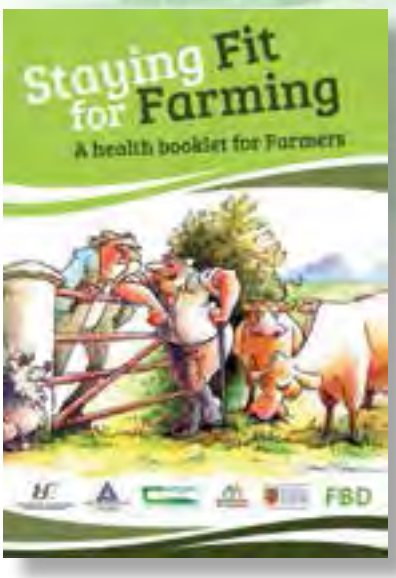
However, there is evidence that many farmers don't give their health adequate attention. Studies show that farmers tend to consider themselves as healthy as long as they can carry out their work. However, farmers tend to ignore health issues that could have serious long-term consequences. A recent study found that 38% of farmers reported one or more health issues in the previous 12 months. Some 34% of farmers reported a physical health complaint and 12% reported mental health issues.

15.0 Health of farmers

When it comes to getting the balance right It can be helpful to remember the 3 Ps – prioritising, planning and pacing. If you prioritise the things that really matter to you, plan your time effectively and pace yourself, then you make the most of your time and you are more efficient and productive on the farm. Good use of the 3 Ps can help you maintain the right balance and stay in good health, and ultimately get the most out of your enterprise.

With the high incidence of skin cancers you should also protect your skin from the sun by minimising exposure particularly in the hours either side of midday even on seemingly cloudy days. Wear long- sleeved shirts, a hat and apply sun creams.

Research shows that, because of health problems, many farmers are scaling back their farming activities or getting out of intensive and profitable enterprises such as dairying and sheep. There is also strong international evidence that healthy farmers have fewer accidents or injuries at work.



Stress

Farming today can bring about periods of high stress for even the most expert and resilient farmer. Excessive stress gives rise to negative feelings and is caused by many factors including our personal history, current pressures and our current environment. Some stress we can do little about and must be managed, but much of it we can reduce and control. Stress can cause heart problems, skin issues, digestive disorders, panic attacks and can cause or worsen many other physical illnesses.

Stress can affect our ability to get a good night's sleep and can result in poorer performance, whether that is driving less carefully, being less focused on a job in hand, forgetting things, difficulty in managing livestock or juggling different work and family tasks. Excessive levels of stress are not good for you, your family or for functioning generally. The main causes of stress among farmers are: uncertainties due to markets and farm prices, financial worries, excessively long working hours, poor working conditions, poor health, poor weather and isolation. Stress is associated with high accident levels and diseases of the circulatory system. It is important to recognise signs of stress and seek professional help.

Secondary effects of stress are things we do to 'treat' or help us deal with our stresses. They are often unhelpful and make things worse; unhealthy eating or drinking, recklessness in decision making and/or increased self- isolation and retreat from the community, all of which make matters worse and can lead to a cycle of distress for all.

Those working in farming should understand the self-care focus of proper sleep patterns, diet and exercise, as well as psychological coping mechanisms and calming techniques and should be facilitated through engagement with medical, community or representative bodies. Stress from farming is neither unusual nor unexpected but can be reduced and managed if reacted to appropriately. Talk to someone, share the load, evaluate where you are at and seek help.

The publication 'Staying fit for Farming' provides useful advice on the health of farmers and can be accessed at www.hsa.ie.

The clear message is that looking after your health is important for personal, family and work reasons.

16.0 Use of personal protective equipment in farming

Personal protective equipment (PPE) includes any item of clothing and equipment that gives protection against a hazard.

Protective clothing includes:

- various types of safety gloves;
- overalls or coveralls which prevent contamination;
- safety footwear; and
- waterproof or insulated clothing.

Protective equipment includes:

- eye protection (goggles or visors);
- ear protection (ear muffs/defenders);
- respiratory protection (dust masks and respirators which prevent dust, spores, gases or chemicals being taken into the body through the mouth and nose); and
- safety helmets and safety harnesses (when topping trees).

16.1. Consider other control measures before deciding on personal protective equipment

Before resorting to using PPE, consider using all other control measures to the fullest extent possible. In this way, instead of using PPE to guard against high levels of exposure, you remove the danger. Therefore, PPE should be considered as the last resort.

Examples of this approach are as follows:

Spraying

Before spraying a chemical, consider the following before using PPE:

- non-chemical methods;
- use of a less toxic chemical;
- ensuring the sprayer is in safe working condition;
- correct setting of the sprayer, with particular reference to nozzle and pressure settings; and
- undertaking the work in suitable weather.

16.0 Use of personal protective equipment in farming

Noise

All methods to reduce noise should be used before resorting to ear defenders. For example, keeping the doors and windows of a tractor cab closed can reduce noise levels considerably.

Dust and Spores

Reduce levels of dust and spores to the lowest level possible before resorting to respiratory protection. This can be done by thorough ventilation and wetting the source of dust or spores. Once this is done, consider using a mask or respirator.

Using personal protective equipment

Situations on farms requiring the use of PPE include when you are:

- using chemicals;
- welding;
- doing various workshop tasks;
- operating a chainsaw;
- working with hay or straw; and
- handling potentially infected animals or materials.

Any employees must be supplied with suitable PPE free of charge and they are required to make proper use of the PPE provided.

- Always remember that PPE only protects the wearer and not other people in the area. This is particularly relevant to goggles, masks and respirators.

Choosing personal protective equipment

Choosing the correct PPE for a particular task is crucial, otherwise the protection may not be adequate and injury or ill health may arise.

A good example of using inadequate PPE is using 'washing-up' gloves when handling chemicals. These are porous and allow easy penetration of a chemical. Also, when wearing these gloves, the pores in the skin generally open due to perspiration which allows the chemical to easily enter the blood stream. Washing-up gloves are totally inadequate for this task and can increase the danger rather than reduce it.

16.0 Use of personal protective equipment in farming

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- Only purchase PPE which is CE-marked, indicating that it is manufactured to a recognised European standard.
- Manufacturers of PPE, as well as suppliers, give detailed information and follow-up advice on the suitability of a product for a particular purpose.
- When choosing PPE, make sure that it fits the wearer fully and correctly. Check that movement, visibility and breathing are not restricted in any way. Also make sure that the PPE is comfortable to wear and does not cause irritation.

Providing information and training on the use of PPE

Information and training must be provided to ensure that a user understands why PPE must be used in the correct manner and what level of protection it provides.

- PPE is useless if used incorrectly and damaged PPE will not give adequate protection. Disposable PPE should never be reused.
- Store and maintain PPE in accordance with the manufacturer's instructions.
- Respiratory equipment/PPE requires a high level of maintenance. Goggles, gloves, work boots, waterproof gear and other such items require only routine inspection for damage and wear.
- Make sure that everyone using PPE is trained in how to wear, clean, maintain and store it.
- PPE must always be cleaned after use and stored in a dry, well-ventilated, uncontaminated place. Manufacturers often supply containers for storing PPE along with a product.

Maintenance of PPE

- PPE does not last forever. Make sure that spare filters and equipment/PPE are available on the farm. Using old or damaged equipment/PPE may damage your health or your employee's health.
- Place safety signs in suitable locations, as a reminder to wear PPE.

17.0 Use of safety signs on farms

Use of a range of safety signs enhances safety and health on a farm. While safety signs should never be used as a substitute for control measures, they do draw attention to objects and situations which may be hazardous.

Place safety signs where they give useful information to a person who could be affected by a hazard. This could be for you the farmer, a farm operator/worker, a family member or a person coming onto the farm such as contractors or someone making deliveries. Signs may also alert emergency services to the presence of a hazard, for example, a pesticide or fuel store. Safety signs should be placed so that they are easily seen and must be kept clean.

Provision and Use of Safety Signs:

Safety signs are the last line of defense against hazards and should only be used where hazards cannot be eliminated, avoided or adequately reduced.

The risk assessment should identify necessary safety signs. In some cases signs are specifically required, for example;

- Fragile roofs and ceilings;
- Emergency routes and exits;
- Fire detection and fire fighting;
- Work-at-height danger areas;
- Places with obstacles, falling risk or risk of falling objects;
- Workplace traffic routes;
- Areas where the noise can exceed 85dBA; and
- A field with a bull present.

Contractors and any workers must be provided with information and instruction on measures to be taken and the meaning of the safety signs on your farm. Effectiveness of a sign must not be adversely affected by poor design, insufficient number, incorrect positioning, poor state of repair or incorrect functioning.

Use of Text

Text should not be used if the meaning is clear by use of a pictogram or symbol alone. If a text explanation is necessary (for example, where doubt could exist as to the meaning of a symbol)

a section containing appropriate text can be used. The text area called a "supplementary signboard" can be part of the overall sign.

17.0 Use of safety signs on farms

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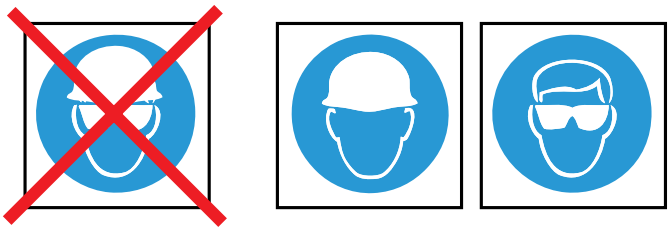
Combined Signboards

Graphical symbols should not be combined to convey more than one safety message. For example, a mandatory safety helmet and safety goggles instruction should not be combined as one graphical symbol.



Two safety messages should be shown by two separate signboards (with supplementary signboards as necessary) or the two signboards and supplementary signboards can be combined on one carrier.

Further information on safety signs can be found under publications on the Health and Safety Authority website; http://www.hsa.ie/eng/Topics/Signage/

Use standard road traffic signs to control farm traffic

The Farm Safety Partnership Advisory Committee to the Health and Safety Authority recommends that, to promote safety and health on the farm, a composite safety sign should be displayed in a good position in all farmyards. A sample of a design of such a sign and other common safety signs can be found in Appendix 4.

However, you should have a sign produced to suit the particular circumstances of your farm. Identify the various situations on your farm where a sign might be useful. Suppliers of signs, available throughout the country, will assist.

HEALTH AND SAFETY AUTHORITY

18.0 Competence and training for people at work in agriculture

18.1. Defining competence

Reference is made throughout the Safety, Health and Welfare at Work Act, 2005, to work being performed by a 'competent person'. Section 2 (2) of the Act defines competence.

"A person is deemed competent, where having regard to the task he or she is required to perform and taking account of the size or hazards (or both of them) of the undertaking or establishment in which he or she undertakes the work, the person possesses sufficient training, experience and knowledge appropriate to the work undertaken."

The requirement for competence applies to self-employed people such as farmers and farm workers as well as contractors and other employees. This is particularly relevant to the agriculture sector, since most people at work are self-employed farmers or family members. National surveys of farm safety and health consistently show that over 90% of farm accidents involve farmers or family members, and over 70% involve the farm operator.

18.2. Training

Training is the learning process of acquiring the capacity to carry out tasks to an acceptable standard. The Safety, Health and Welfare at Work Act, 2005, strongly emphasises the importance of training and the need to provide training. This reflects the fact that the work practices adopted by those at work in agriculture are crucial for securing safety and health. Training in the area of safety and health must always aim to motivate a person to recognise hazards and to adopt safe work practices.

Approaches to training

At its simplest, training means showing a person the correct method of doing a task and then making sure that he or she can carry out the task correctly. A good example is when a newly purchased machine is put into service. It is vital from the safety and operating perspective that the operator can operate the machine correctly. Training can be provided by reference to the operator's manual, with back-up from the machinery supplier where necessary. Agree a training package before purchase, particularly involving unfamiliar or complex machinery.

18.3. National framework of qualifications

A national framework of qualifications related to training and competence has been implemented under the Qualifications and Quality Assurance (Education and Training) Act 2012 (No. 28 of 2012). A national framework of qualifications is in place and training courses and training providers are validated by Quality and Qualifications Ireland (http://www.qqi.ie) established under this legislation. The awards made are recognised nationally and internationally. Courses are also validated at University level.

- Teagasc is the state agency with responsibility for advice, training and research in agriculture and food. It has integrated, in its training and advisory programmes, safety and health training related to practical compliance with 'safety, health and welfare at work' legislation. Training courses provided by Teagasc are accredited by QQI. The programme of courses can be found at the web site www.teagasc.ie or from any Teagasc office.

18.0 Competence and training for people at work in agriculture

18.4. Training on completing the requirements of the Code of Practice for Agriculture

The Health and Safety Authority and Teagasc, in conjunction with the Farm Safety Partnership, an Advisory Committee to the HSA, has established a half-day training course on the completion of this Code of Practice for Agriculture. This course can be delivered by persons with appropriate qualifications in occupational safety and health or Agricultural Science and practical knowledge of agriculture as specified by the Health and Safety Authority.

Current Department of Agriculture, Food and the Marine (DAFM), Targeted Agricultural Modernisation Schemes (TAMS) require applicants to have completed, (within the last five years prior to submission of their claim), the half-day Farm Safety Code of Practice training course or the QQI Level 6 Advanced Certificate in Agriculture (Green Certificate). These courses are given by Teagasc or other qualified persons. A claim for payment will not be processed until evidence of completing an appropriate course is provided.

18.5. Safe tractor-driving skills training

This programme has been designed to develop the safety skills of 14 to16 year-olds in relation to tractor driving. The course covers both theory and practice relating to tractor handling for on-farm use only. The course is available from a number of training providers.

Skillsnet

Skillnets is a government backed enterprise-led network of organisations providing training to employees, businesses and unemployed persons.

A number of farming and rural organisations (including ICOS, IFA, Macra na Feirme) have been approved and funded to provide skillsnet training, including occupational health and safety. Check the skillsnet website for contact details : http://www.skillnets.ie/

18.6. Training in first aid

If an injury occurs on a farm, medical care is likely to be some distance away, and family members or others present may find that they have to apply first aid. A suitably stocked first aid box should be available at a convenient location. Training in first aid gives people the competence to deal with accidents and emergencies. Many organisations offer certified first aid courses. It is recommended that farmers and family members would avail of some basic first aid training as a minimum.

19.0 Reporting of Accidents & Dangerous Occurrences to the Health and Safety Authority

Key points

- A fatal accident where any work activity was involved is reportable.
- Non-fatal injuries where a person is unable to carry out their normal work for more than 3 consecutive days, excluding the day of the accident, must be reported.
- A non-fatal injury to a member of the public which requires medical treatment is also reportable.
- Diseases, occupational illnesses or any impairments of mental condition are not reportable.
- Fatal accidents must be reported immediately to the Authority or Gardaí. Subsequently, the formal report should be submitted to the Authority within five working days of the death.
- Non-fatal accidents or dangerous occurrences should be reported to the Authority within ten working days of the event.

19.1. What types of Accidents & Personal Injuries are reportable to the Health and Safety Authority?

An accident is an unplanned event resulting in death, or resulting in an injury such as a severe sprain or strain (for example, manual handling injuries), a laceration, a broken bone, concussion or unconsciousness.

The Safety, Health and Welfare at Work Act 2005 contains the following definitions:

- 'accident' means an accident arising out of or in the course of employment which, in the case of a person carrying out work, results in personal injury.
- 'personal injury' includes –

  (a) any injury, disease, disability, occupational illness or any impairment of physical or mental condition, and

  (b) any death, that is attributable to work.

Under the Safety, Health and Welfare at Work (Reporting of Accidents and Dangerous Occurrences) Regulations 2016 (S.I. No. 370 of 2016) only fatal and non-fatal injuries are reportable. Diseases, occupational illnesses or any impairments of mental condition are not reportable.

There are three situations in which an accident should be reported:

(a) arising in the course of employment resulting in personal injury to the person carrying out the work activity.This could be an injury to an employee who is actually doing the work.

For example: a farm employee dislocates a shoulder while manually maneuvering a trailer onto the tractor hitch.

19.0 Reporting of Accidents & Dangerous Occurrences to the Health and Safety Authority

(b) arising in the course of employment which results in personal injury to an employee who was not doing the work that is the subject of the accident.

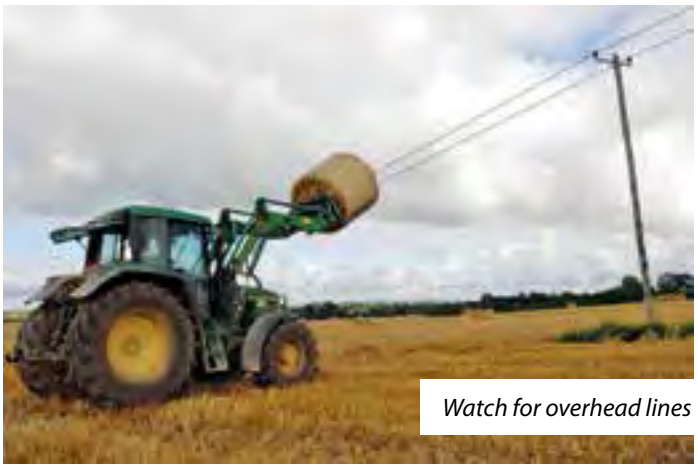
For example: a tractor driven mower strikes and injures an employee who is walking along a passage down to the fields.

(c) arising from a work activity which results in personal injury to a person outside of the course of employment. This could be an injury to a non-employee or member of the public.

For example: a bale falls from a trailer in a farmyard and causes an injury to a neighbor who was visiting.

What dangerous occurrences are reportable?

The Safety, Health and Welfare at Work Act 2005 sets out a list of prescribed dangerous occurrences which have a high potential to cause death or serious injury (even if they do not actually cause death or a reportable injury).



Watch for overhead lines

Examples of dangerous occurrences which might arise on a farm include;

- An incident in which a silage harvester either comes into contact with an overhead electric line in which the voltage exceeds 200 volts or causes an electrical discharge from such an electric line or cable by coming into close proximity to it.
- Collapse of a farm building

Who is responsible for reporting?

Self-employed farmers, farmers with employees, landowners and tenants all have a duty to report accidents and dangerous occurrences to the Authority.

Reporting requirements – employers

Fatal accidents in a workplace should be reported immediately to the Authority or to the Gardaí so that the necessary action, including any investigation by the Authority, can take place. Subsequently, the formal accident report form should be submitted to the Authority within five working days of the death. Non-fatal accidents or dangerous occurrences should be formally reported within 10 working days of the event.

19.0 Reporting of Accidents & Dangerous Occurrences to the Health and Safety Authority

Firstly, in relation to your employees:

You must report the death of an employee if this is as a result of an accident while at work.

The accident may have taken place either at your place of work or at another employer's place of work, or in a location other than the normal place of work.

The following are examples of reportable fatalities:

- your employee is fatally injured as a result of being hit by a delivery truck in your farm yard,
- your employee is fatally injured while driving for work on a public road, or
- your employee is fatally injured while carrying out contract work for another employer at their farm.

You must report the injury of any employee as a result of an accident while at work where the injury results in your employee being unable to carry out their normal work for more than three consecutive days, excluding the day of the accident.

- In calculating the days, you should include weekends and other non-working days.

Secondly, in relation to non-employees (non-workers, members of the public, employees of another enterprise) at your place of work:

You must report the death of a person who is not your employee and who is not at work, but who dies from an accident caused by a work activity at your place of work.

For example, if a member of the public is injured by a bull, and subsequently dies as a result of their injuries, then you must report that accident.

You must report the injury of a person who is not your employee and who is not at work but who is injured from a work activity if the injured person has had to be taken from the location of the accident to receive treatment in respect of that injury in a hospital or medical facility.

Reporting requirements – self-employed and landlords/tenants

If a self-employed farmer is fatally injured while working at their own premises, the Authority will receive notification from the Gardaí or other emergency services. The next of kin are not required to report the incident to the Authority. Following investigation, the Authority will ensure that the necessary data is recorded on the approved form.

If a self-employed farmer suffers a personal injury as a direct result of a work event, then that person is required to report this if it has resulted in them being unable to do their normal work for more than three consecutive days, excluding the day of the accident or exposure.

19.0 Reporting of Accidents & Dangerous Occurrences to the Health and Safety Authority

If a self-employed person is in control of a place of work in which there is a dangerous occurrence, they must report this to the Authority.

If a landowner or tenant controls a place of work in which a self-employed person is fatally injured as a result of a work activity, the landlord or tenant is required to report this death to the Authority.

Accident reporting

You can report an accident to the Authority in two ways;

Online Reporting https://webapps.hsa.ie/Account/Login?ReturnUrl=/

You can report accidents online by clicking on the logo that appears on the homepage and several other pages of the HSA website.

Reporting on Paper IR1 Form

You can also report accidents on the official IR1 Form.

The HSA only accept the pre-printed forms published by the Authority, photocopies are not acceptable.

Copies of the IR1 form are available from the Publications Section of the HSA by Telephoning 1890 289 389 or if calling from outside of the Republic of Ireland +353 1 6147000.

Enquiries about reporting accidents to the Authority or on any other occupational health and safety matter may also be made by email at wcu@hsa.ie.

Preserving the scene of a fatal accident

All fatal accidents reported to the Health and Safety Authority are investigated by inspectors. When employers or others notify the Authority of a fatal accident in a workplace they should, if they have control of the scene of the accident, discuss with an inspector of the Authority the extent to which the scene is to be maintained.

The Gardaí will ensure that the scene is left undisturbed until the inspector commences an investigation. Where appropriate, access should be restricted and items should not be removed. Employers may, however, take such steps as are necessary to make the scene safe.

HEALTH AND SAFETY AUTHORITY

Appendix 1

STATISTICS

1. Trends in fatal farm accidents: 1996 - 2015

Data covering fatal accidents in the Agriculture and Forestry sectors over the last 20 years (1995 -2015) shows that while there was a decreasing trend in the first 10 years, unfortunately the trend is increasing over the last ten years (2006 -2015) (See Figure 1)

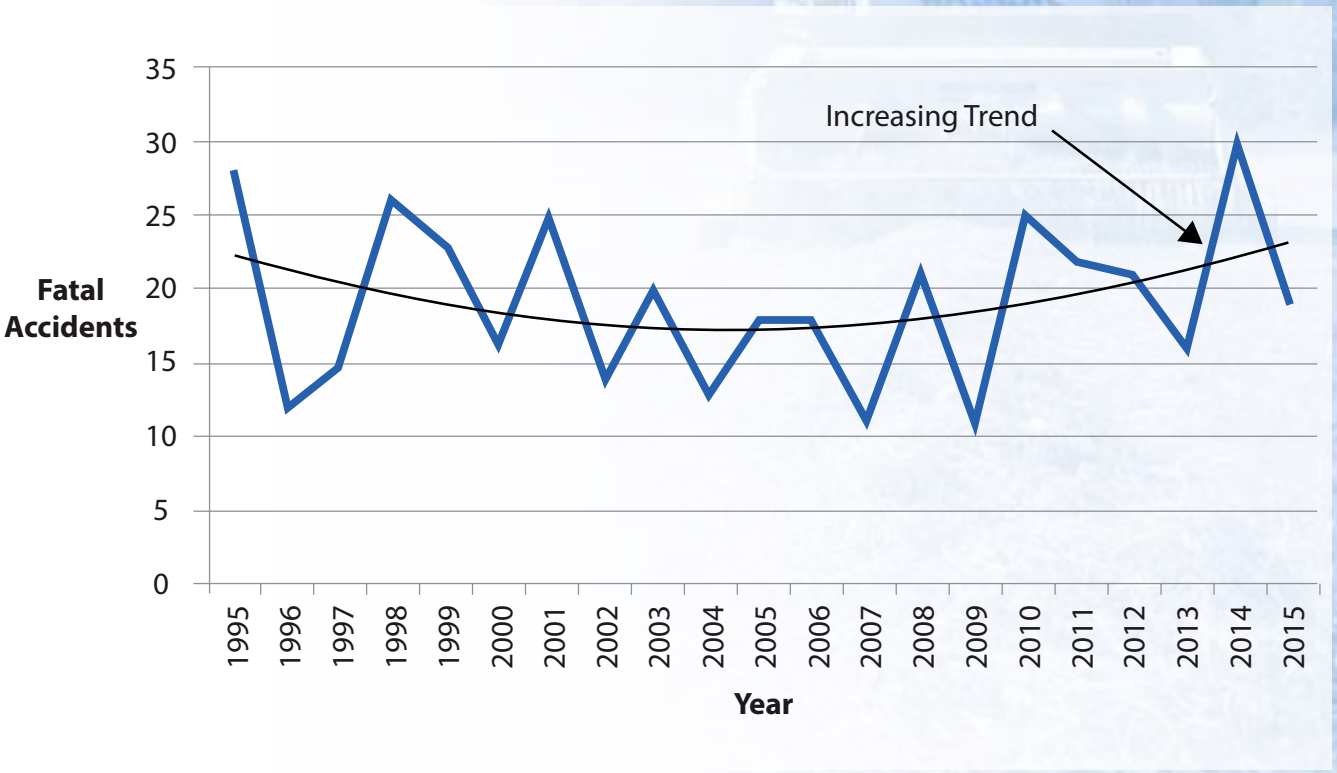


Figure 1: Trends in fatal accidents in Agriculture and Forestry over 20 years: (1995 – 2015)

Appendix 1

The main causes associated with fatal accidents over the ten year period 2006 -2015 are shown in Figure 2.

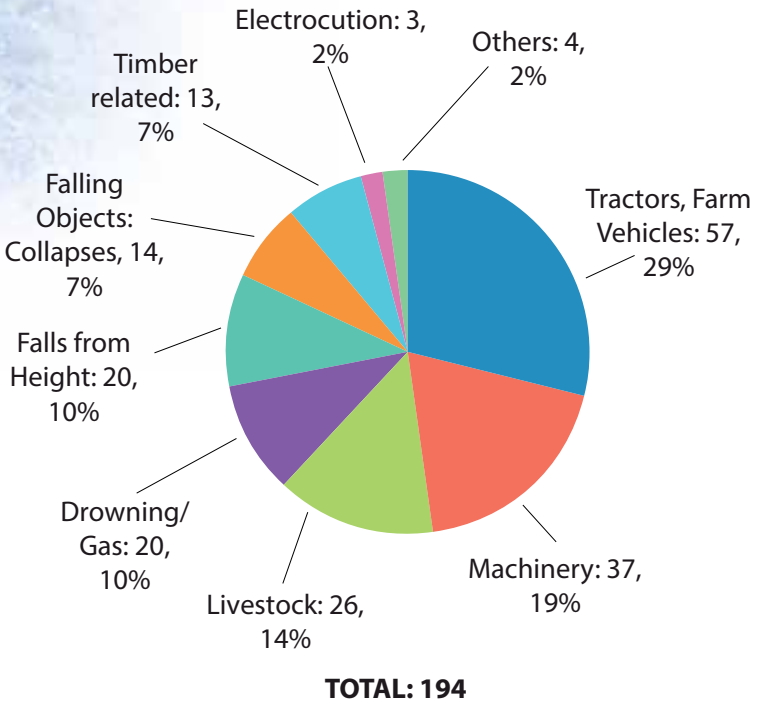


Figure 2: Causes of fatal accidents in Agriculture and Forestry, (2006 – 2015)

2. Pattern of fatal accidents through the calendar year

Looking at the monthly pattern of fatal accidents by month over the five year period 2011-2015, most fatal accidents happen from May to September, with July being the worst month for farm fatalities.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2015	2	1	0	1	2	1	2	3	2	1	1	2	18
2014	1	3	1	2	5	1	3	4	4	1	3	2	30
2013	0	1	1	0	0	0	6	1	1	1	2	1	16
2012	1	1	2	1	2	3	4	1	1	2	1	1	20
2011	2	0	1	3	3	3	5	1	1	2	0	2	22
Total	**6**	**6**	**5**	**7**	**12**	**8**	**20**	**11**	**9**	**7**	**7**	**8**	**106**

Figure 3: Trends in fatal accidents by month (2011-2015)

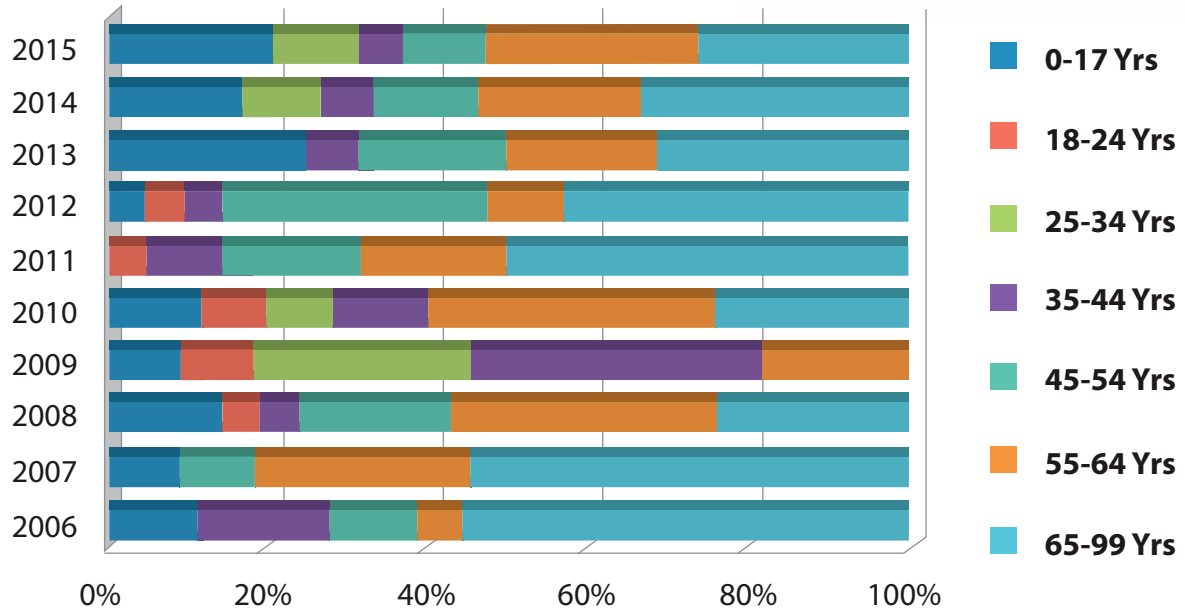
HEALTH AND SAFETY AUTHORITY

Appendix 1

3. Fatal accidents by age

A review of the fatal accidents by age over the ten year period 2006 – 2015 shows that farmers aged 65 and older made up almost 60% of the fatalities in 2006. However the most recent trend shows an increase in the proportion of fatalities to famers in the 45-64 age bracket. This could be attributable to the return of workers to agriculture following the downturn in construction activities from 2006 onwards.

Farming fatalities for ten year period 2006-2015 by age



4. Non-fatal farm accident levels

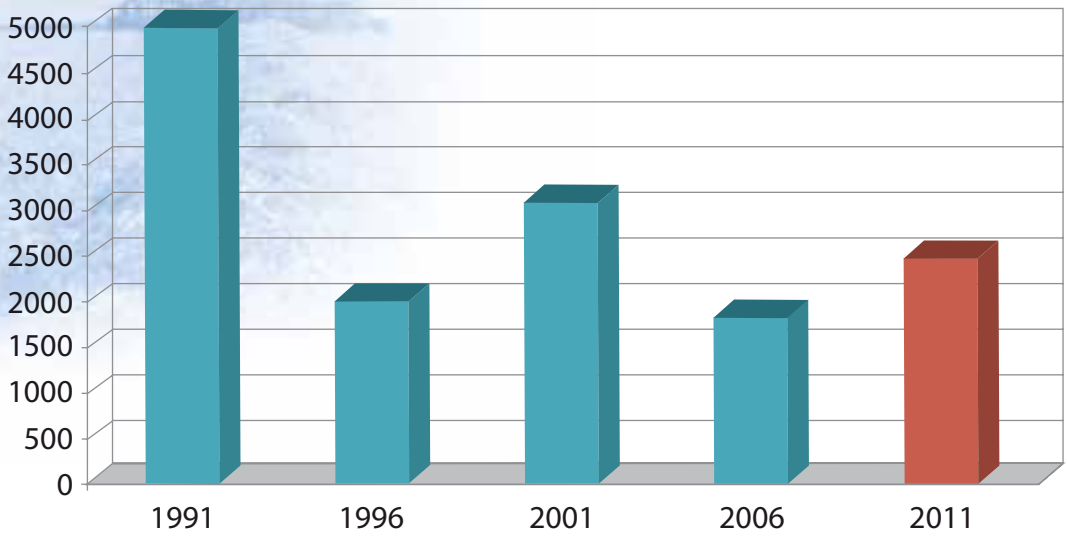
Three national surveys of safety and health on Irish farms have been carried out at five-yearly intervals since 1991. These were conducted in conjunction with the Teagasc National Farm Survey. They give accurate and critical information on non-fatal accident trends on farms.

Statistics on fatalities do not provide the full picture and they generally only represent the tip of the iceberg when serious non-fatal incidents are considered.

In relation to non-fatal farm injuries, it is important to bear in mind that the statistics are more difficult to compile than those for deaths. This is due to the gross under reporting of non-fatal incidents and injuries by farmers, with the average reported to the H.S.A. of just 100 per year, despite the legal obligation to report.

The Authority relies to a great extent on the findings of the National Farm Survey conducted by Teagasc for trends in non-fatal incidents. The 2011 National Farm Survey results estimated that farm injuries increased by 35% to 2,459 injuries per 100,000 farms reported for the year 2010 compared to the previous survey estimate of 1,815 per 100,000 farms in 2006. This is still a reduction in the numbers recorded in 2001. (See Figure 4)

Appendix 1



(Figure 4) National Farm Survey – Non-Fatal Farm Incidents per 100,000 farms.

Injury Categorisation

Injuries from trips, falls and blows are most frequent, accounting for 42% of injuries. Other major causes are livestock-related injuries (33%) and vehicle and machinery (11%) and chainsaws (3%) and other (8%). The trend over the various surveys indicates that machinery injuries have declined significantly which is welcome, but the proportion associated with livestock has increased.

Person Injured

The farmer or farm operator is predominately the person who has an injury and accounts for 73.3% of injuries. Other categories of persons injured are farm workers (8.9%); spouses (who could be male or female), 8.6% and family members (7.5%) and others (1.7%). A key message from this finding is that farm family members when combined suffer over 90% of all injuries on farms.

Location of Injury

The farmyard is where 71.5% of injuries take place. Other locations are farm buildings (18.7%) and in fields (9.8%). The farmyard is where the vast majority of farm work activity takes place, such as moving around on foot leading to having slips, trips and falls or being struck by falling objects along with the common work of tractor – machinery coupling/de-coupling & use, dealing with livestock in sheds or crushes or working in confined spaces, etc.

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Appendix 1

Indicators of Injury Severity

Within the National Farm Survey, 95% of reported injuries required medical treatment which is an indicator of the severity of farm incidents as farmers are generally slow to seek medical attention. Of these 49% required hospital inpatient treatment and 36% required hospital A&E treatment. Almost 90% of injuries caused 4 or more lost work days and 71% lost ten of more work days with 41% causing more than 20 days lost and 15% causing more than 100 days lost.

Farm Safety Action Plan

In its Farm Safety Action Plan 2016-2018, the Farm Safety Partnership Advisory Committee to the Health and Safety Authority set targets for improvements in safety and health levels.

The Action Plan lays out a series of specific actions and priorities for tackling the high rates of illness, injury and death on Irish farms.

The plan sets out six main goals for the three year period 2016 -2018.

These are:

1. To achieve cultural behavioural change in health and safety of persons working in the agricultural sector through research, education and training.
2. To develop programmes that will foster innovative approaches and deliver engineering solutions to reduce the risks to persons working in agriculture.
3. To reduce the level of death and injury arising from tractor and machinery use.
4. To establish initiatives to reduce the level of death and injuries arising from working with livestock.
5. To ensure high standards of health and safety are adopted in forestry and timber work on farms.
6. To implement programmes for the protection of health and wellbeing of persons, including vulnerable groups, working in agriculture.

It is clear that farmers need to give safety and health greater priority to make progress towards achieving these targets.

Appendix 2

SAFETY, HEALTH AND WELFARE AT WORK LEGISLATION

Safety, Health and Welfare at Work Act 2005

The objective of all health and safety regulations is to reduce human suffering and loss due to accidents and ill health in all sectors of work including agriculture. The benefits from complying with the law far outweigh the effort or cost involved in doing so. It is a matter of basic self-preservation. The risk of injury and ill-health can be greatly reduced by complying with this legislation. It is difficult to measure the degree of suffering and hardship that the victims of farm accidents and their families endure.

Health and Safety Authority

The Health and Safety Authority is the state agency responsible for enforcing the laws on safety, health and welfare in the workplace in the Republic of Ireland. The authority consists of a board and an executive. The board formulates overall safety and health policies, while the executive, headed by a chief executive, carries out the work of the authority.

The role of the authority is to:

- enforce safety and health laws,
- review and propose new laws governing safety and health at work,
- provide information and advice on safety and health, and
- promote accident prevention in the workplace.

The inspectors of the authority carry out the law-enforcement function and inspect workplaces. They carry identification at all times. The main laws covering safe agricultural work, which the inspectors enforce, are:

- Safety, Health and Welfare at Work Act 2005,
- Safety, Health and Welfare at Work (General Application) Regulations 2007, and
- And various other regulations as they apply, such as the Safety, Health and Welfare at Work (Construction) Regulations 2013.

These laws place duties on all people involved in work activities, including employers, the self-employed and employees.

Duties of people at work

Duties of employers

If a farmer employs people, the 2005 Act places general duties of care to ensure, so far as is reasonably practicable, the safety, health and welfare of all employees.

These duties include, providing:

- a safe place of work, including the farmyard, buildings, sheds, etc;
- safe systems of work including safe working procedures;
- safe equipment, plant and machinery for use on the farm (for example, tractors, balers and other machinery and tools);
- a safe way in and out of the farmyard and other workplaces (including farm buildings);
- information and training for all who work on the farm;
- personal protective equipment where necessary;
- plans to deal with emergencies;
- a safe system for storing, handling and using articles (for example, angle grinders) and substances (for example, chemicals and pesticides); and
- adequate toilet and washing facilities.

Duties of the self-employed

- Self-employed farmers are required to apply the duties of an employer to themselves. Most farmers fall into the self-employed category.

Duties of employees

Farm workers also have duties of care.

They must:

- take reasonable care of themselves and others working with them,
- cooperate with their employer to enable them to comply with the law,
- make proper use of all machinery, tools, substances, etc, and any personal protective, equipment provided by their employer (the farmer), and
- report to their employer any hazards they become aware of.

All employees have an obligation to work in a safe manner. Workers on farms must not misuse or interfere with anything provided for safety. They must also put to good use any training and instruction which they have been given. Workers have the right to consult with their employer on matters of safety and health on the farm.

Duties to non-employees

Farmers must conduct their work in such a manner that other people are not put at risk (for example, visitors, especially children, contractors brought onto the farm periodically and the general public). This obligation also applies to the control of animals, when crop spraying, slurry-spreading, etc.

Appendix 2

HEALTH AND SAFETY AUTHORITY

Requirement to take 'reasonably practicable' measures

In relation to the duties of an employer, the term 'reasonably practicable' means that an employer (or self-employed farmer) must:

"having identified the hazards and assessed the risks to safety and health which may result in accidents or injury to health, exercise all due care by putting in place the necessary protective and preventive measures, unless doing so is grossly disproportionate to the risks involved, having regard to the unusual, unforeseeable and exceptional nature of any circumstances in question.

In other words, you must do what seems reasonable to do to ensure the safety and health of all persons at work or who may be affected by a work activity. The purpose of a HSA inspection is to make sure that the farmer has in place a system for managing safety and health.

Enforcement

Powers of Inspectors

Health and Safety Authority Inspectors have the power to enter any place of work at any reasonable time for the purpose of inspection, accident investigation, etc. It is an offence to obstruct an inspector in the course of their duty.

- Where a serious breach of the law is observed, an inspector may serve an IMPROVEMENT NOTICE on the farmer, giving a specified timescale to put things right.
- Where what is observed is an imminent risk to the safety and health of the farmer or others, the inspector may serve a PROHIBITION NOTICE on the farmer, requiring work to stop immediately.
- Having a farm visit by a Health and Safety Inspector has been shown by independent surveys to be a generally positive and beneficial experience.

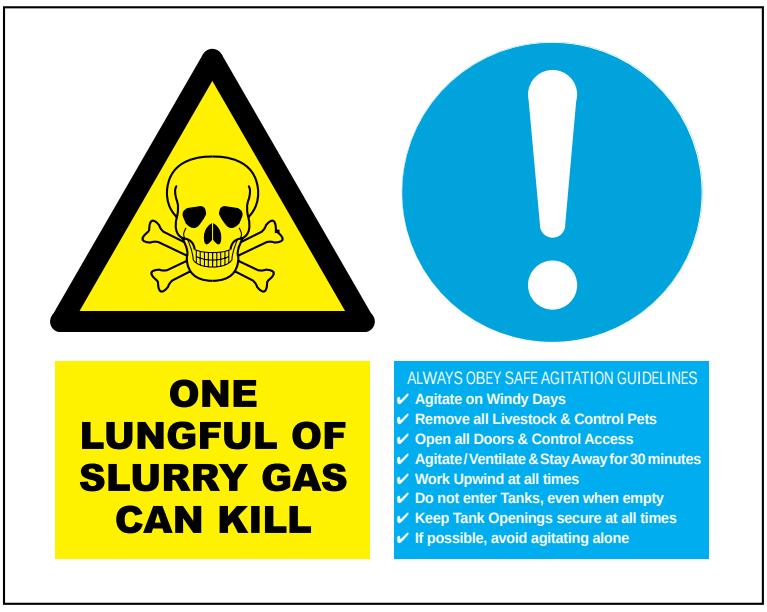
Penalties

Non-compliance with the law or with advice or notices issued by an Inspector may lead to prosecution. The maximum fine in the District Court is €5,000 per offence and/or twelve months in jail. In the case of conviction on indictment, a penalty of up to €3 million and/or two years in jail may be applied.

HEALTH AND SAFETY AUTHORITY

Appendix 3

Examples of farm safety signs



Notes

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