

Health and Safety Authority



Draft Code of Practice for Preventing Injury and Occupational Ill Health in Agriculture

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, and general public consultation through its website, and with the consent of Mr Tony Killeen, Minister of State at the Department of Enterprise, Trade and Employment, has issued a *Code of Practice for Preventing Injury and Occupational Ill Health in Agriculture*.

The aim of this code of practice is to improve the level of safety and health among all people engaged in the agriculture sector.

The code comes into effect on **date**, 2006. Notice of its issue was published in the Iris Oifigiúil of **date**, 2006.

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.

Martin O'Halloran

Assistant Chief Executive Officer and 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 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
to the Health and Safety Authority**

Frank Laffey (Chairperson)	Teagasc
Pat Kearney	Health and Safety Authority Board Member
Patrick Griffin	Health and Safety Authority
Anthony Morahan	Health and Safety Authority
Maura Kavanagh (Secretary)	Health and Safety Authority
John McNamara	Teagasc
Oliver McEvoy	Department of Agriculture and Food
Jim Dockery	FRS Network
Mary McGriell	Irish Farmers Association (IFA)
James O'Mahony	Irish Creamery Milk Suppliers Association (ICMSA)
Karl Skehan	Macra na Feirme
Michael Moroney	Farm Tractors and Machinery Traders Association (FTMTA)
Tom Murphy	Professional Contractors Association (PAC-Ireland)
Ciaran Roche	FBD Insurance plc

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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
- 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 to seek 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 the Minister for Enterprise, Trade and Employment.

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.

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.

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.
- It may also reduce insurance costs or protect against any compensation claims. It would help to convince a judge that you, as an employer, 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 the 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 carefully considered and completed all aspects of the document, sign it in the space provided.

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.

- 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.
- Ignore trivial issues and concentrate on the significant hazards that could lead to harm.

Where your risk assessment shows that control measures are inadequate, answer 'x' on the risk-assessment document. Then list suitable control measures on the action list.

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, use AI instead of keeping a bull; demolish unstable structures; instead of handling hazardous chemicals, use an enclosed, automated system.

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.

3. Provide information, training and supervision

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

Information can be provided verbally or in writing. Ensure that your family members, employees, contractors and service providers read and understand the contents of your safety statement or risk assessment. You can also provide information 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 and veterinary gloves.

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. Use the SSWP section of this code to carry out regular reviews of your risk assessment (see Appendix 3).

3.0 Preventing injuries and ill health in agriculture

3.1 Overview

WORKERS in agriculture suffer a high proportion of fatal workplace accidents in Ireland:

- 28% of all fatal workplace accidents occur in agriculture, even though just 6.5% 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 put things right. Research indicates that, in general, farmers' attitudes to safety only change after serious injury occurs.

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 (1996 to 2005) revealed the major causes of death and where solutions can be found (see statistics – Appendix 1).



Photo 1: Farm accidents and ill health can cause tragedy, pain and suffering to farm families 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 employees, must make safety and health their 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 effectively farm safety and health, 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.

To keep your risk assessment up to date, an easy-to-use **safe system of work** plan sheet (**SSWP**) is available (see Appendix 2). It can be used to review your risk assessment on a quarterly or yearly basis.

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.

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 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 Farm Safety DVD

A DVD on managing farm safety and health, entitled *FARMSAFE – A guide to managing safety and health on your farm*, has been produced by the Farm Safety Partnership Advisory Committee to the Health and Safety Authority. This DVD (enclosed in Appendix 3) complements the written

information presented in this code of practice. You are advised to view the DVD and implement the terms of the code.

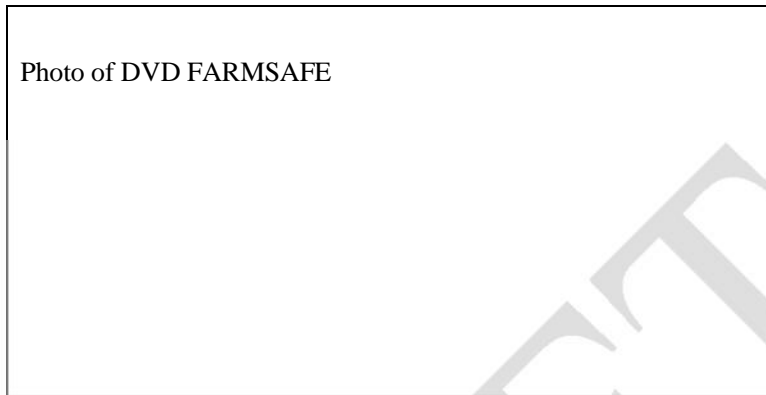


Photo 2. The DVD, *FARMSAFE – A guide to managing safety and health on your farm*, complements the written information provided in this code of practice

4.0 Child safety on farms

4.1 Risk assessment

FARMS are a high-risk area for children.

- Children aged under 16 suffered 21% (38) of all fatal farm accidents between 1996 and 2005.
- Tractors and machinery caused most child accidents (58%).
- Drowning accounted for 21% of child deaths.
- Over 70% of child deaths occurred in the presence of an adult.
- Most fatal child accidents happened to children aged five and under (39%).

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.

Figure 1: Child deaths (1996-2005)

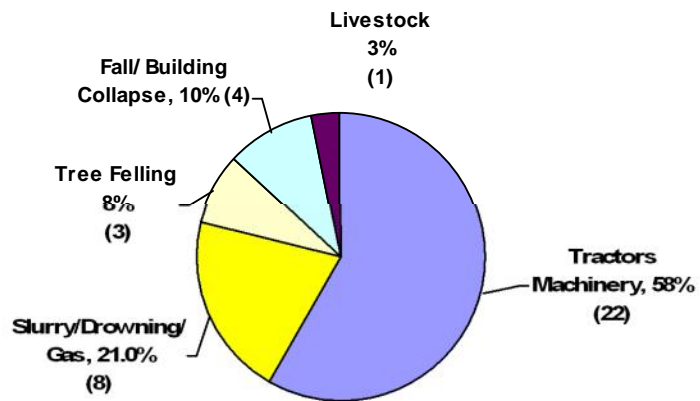
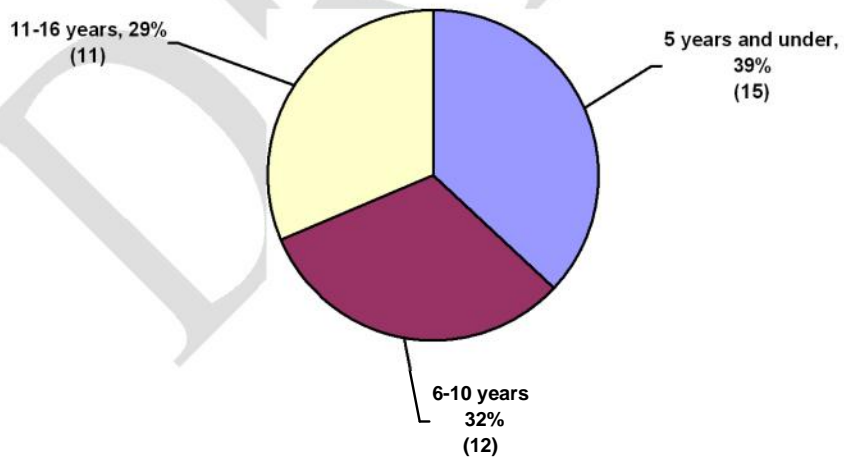


Figure 2: Age of fatal-accident child victims (1996-2005)



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 should not be allowed unsupervised access to the farmyard. Provide a safe play area in sight of your dwelling house and inform all children of the dangers on the farm.

Picture: Safe Play Area.

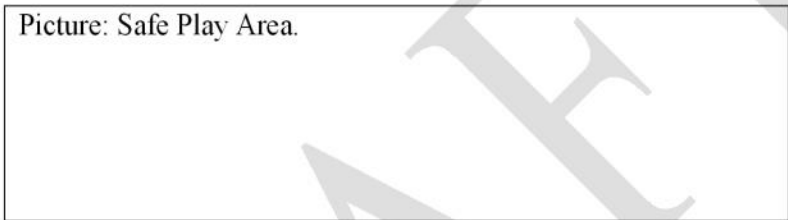


Photo 4: Provide a secure and safe play area for young children

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 17 on competence and training for people at work in agriculture).

Children over 14 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, nobody 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
- unintentionally operate controls (eg, parking brake) when the operator leaves the cab

When children have to be carried in the cab, it must be fitted with a properly designed and fitted passenger seat with seat belts.

Children under 14 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 cutting or crushing machines.

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

Use of vehicles on public roads is governed by the Road Traffic Acts. Persons driving on the public road require a valid driving licence for the type of vehicle used.

A rectangular box with a thin black border, containing the text "Young person on tractor." in a simple, black, sans-serif font. The box is positioned in the lower half of the page, below the text about public roads. A large, faint, diagonal watermark reading "DRAFT" is visible across the entire page, including behind this box.

Photo 5: Safety vigilance is necessary, especially when high-risk work is in progress

4.3 Workplace risks to children

CHILDREN are naturally curious. They will often get into seemingly inaccessible places. Make sure they are kept away from dangerous areas, such as slurry pits and slurry storage areas, sheep-dipping tanks and grain stores. Provide a safe play area, with child-proof fencing, in sight of your dwelling house. Above all, control hazards that could pose a risk to children. For example, make sure that slurry pits are surrounded by fencing.

Children may be tempted to climb on gates or wheels, particularly large tractor wheels. Gates and pillars should be properly erected so they don't 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.

4.4 The risks that animals pose to children

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

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 (Children and Young Persons) Regulations 1998 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 (eg, 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 killed in a farm accident. The adult who is present could prevent most deaths to children on farms.

Research also shows that:

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

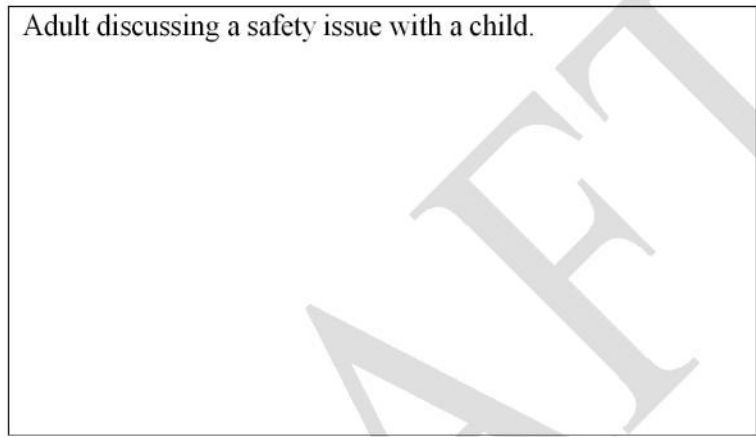
Childhood injuries are likely to be serious in nature. A major study carried out in the United States and Canada showed that emergency hospital treatment would not have prevented 95% of childhood deaths. The only way to avert child deaths is to prevent accidents from happening.

A rectangular box with a thin black border, containing the text "Adult showing young person how to do task." The box is positioned below the main text and above the caption. The text is centered within the box.

Picture 6: Instruct children and young people about safety measures

4.7 Programme for national schools

A PROGRAMME called *CHILDSAFE – be safe on the farm*, has been circulated to national schools in rural areas. The programme, available in video or CD format, is aimed specifically at 5th and 6th classes. Check to see if your child has viewed this programme.



Adult discussing a safety issue with a child.

Photo 7: Discuss safety issues and motivate your children to take safety precautions

4.8 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 that gives guidance on ensuring the safety and health of children and young people in agriculture. You should check this code when considering what work children and young people should and should not do on your farm.

5.0 Safety of farmers aged 65+

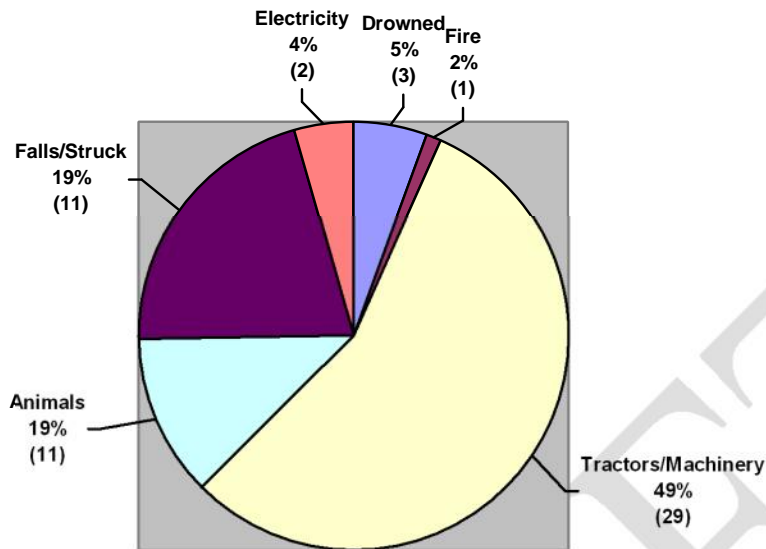
5.1 Risk assessment

- Farmers aged 65 or more suffered 32% (58) of all farm deaths between 1996 and 2005.
- In the last five years, 39% of all farm deaths involved farmers aged 65 or over.
- The vast majority of accidents were associated with use of tractors and machinery.
- A significant number of deaths were due to livestock, particularly bulls, 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.

DRAFT

Figure 9: Fatal farm accidents involving farmers aged 65+ (1996-2005)



5.2 Preventing injury and ill health to older farmers

ACCIDENTS and ill health among those aged 65 and above can be avoided if farmers and their families identify the health and safety hazards that most affect them. The 10-year review of fatal accidents indicates that most are associated with use of tractors and machinery; livestock, particularly bulls, and falling from heights (see Figure 9).

To protect older farmers:

- Examine work practices where older farmers are involved. For instance, a relatively high number of accidents occur when two people work in a farmyard at the same time. Examples include tractor operation and livestock-handling.

- Identify and remove hazards for people who are slower to react.

Further advice on general safety and health, and issues associated with ageing, can be obtained from the National Council on Ageing and Older People. This is an advisory agency to the Minister for Health and Children on all aspects of ageing and the welfare of older people in Ireland. It has produced a general fact file (no. 14), *Accidents and safety among older people*, which can be viewed at the website www.ncaop.ie.

Information on 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.)

Photo: Older and younger farmer discussing safety at work




Photo 8: Understanding the dangers associated with ageing is vital to prevent accidents involving older farmers

6.0 Vehicles and machinery

6.1 Risk assessment

- Farm vehicles and machinery account for the highest proportion of farm deaths (48% between 1996 and 2005) and accidents.
- 87 people, including 23 children, died as a result of vehicle and machinery use between 1996 and 2005

People at risk include vehicle or machine operators and others in the vicinity.

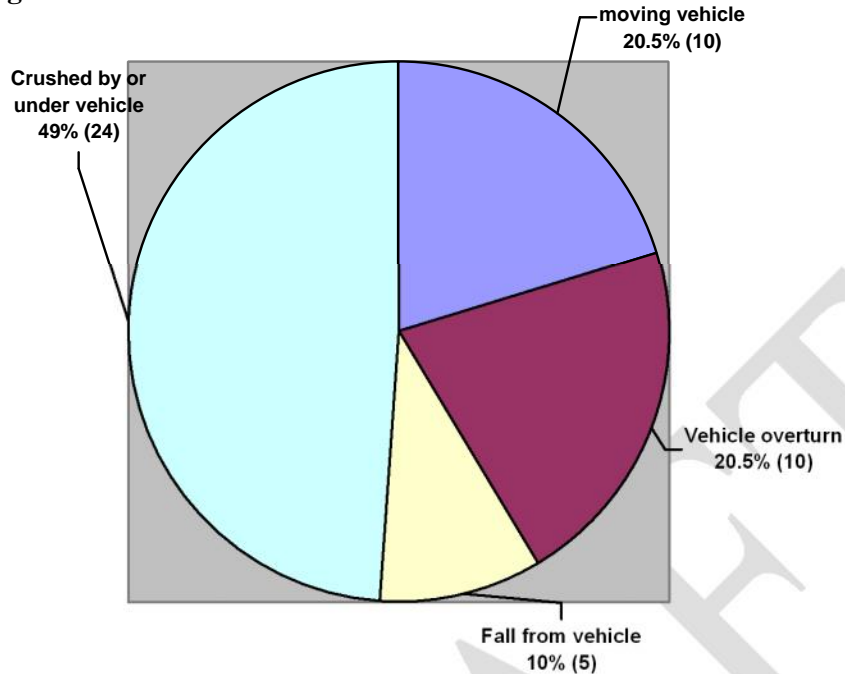
6.2 Risk assessment: vehicles

Of all deaths involving vehicles and farm machinery

- vehicle operation accounts for 56%
- being crushed: 49%
- being struck: 20%
- being pinned under: 20%
- falling from the vehicle: 10%

(See Figure 10.)

Figure 10: Tractor and vehicle fatalities



6.3 Safety-control measures when operating vehicles

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 accidents with farm vehicles:

- driving errors due to loss of control or speeding
- falls from the vehicle
- being run over by a moving vehicle
- crushing due to being trapped under a collapsing vehicle

- overturning vehicle
- being crushed between a hydraulically mounted machine and the vehicle

Do not carry passengers anywhere on the tractor or inside the cab unless the tractor is fitted with a passenger seat approved by the manufacturer.

Driver and other person present.

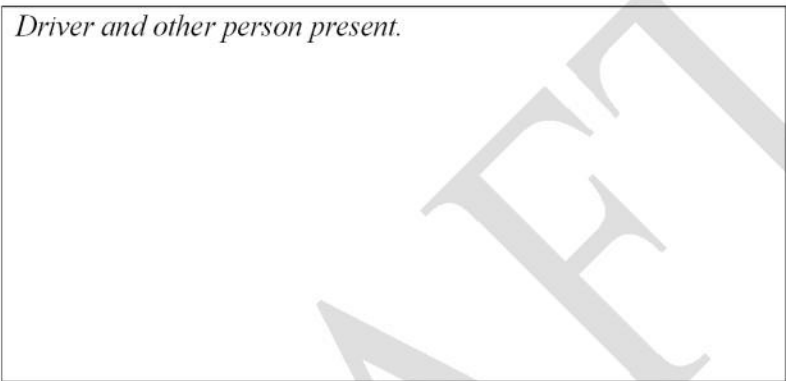


Photo 9. Driver awareness is crucial for safety

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.

The following are the main safety items requiring attention:

- A cab or safety frame to OECD 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.
- 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 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 worn.
- Do not leave the tractor seat while the engine is running.



Photo 10. Check that all vehicle components are in safe working order, particularly the brakes and handbrake

Hydraulic systems

Accidents involving 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.
- 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.

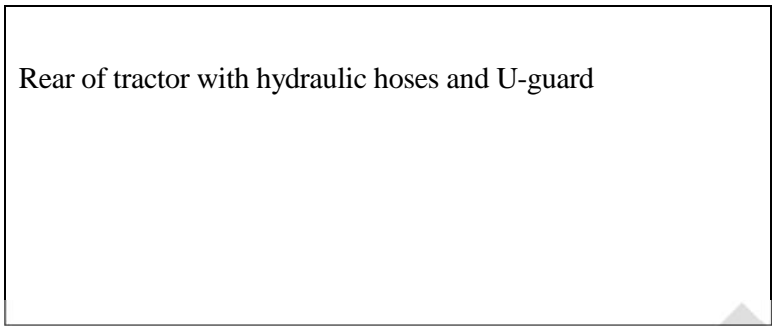


Photo 11: Maintain all tractor components, including hydraulics, u-guard and hitches

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.

Vehicle parking

As vehicles vary in operating procedures, always follow the instructions in the operator’s handbook. When parking a vehicle:

- Stop the engine and leave the fuel-control stop in the shut-off position.
- Apply the hand brake securely.
- Park on level ground. Leave the vehicle in gear. If on a slope, use the reverse gear if facing downhill and low forward gear if facing uphill.
- Use wheel stops if necessary to prevent a vehicle rolling from its parked position.
- Lower hydraulic implements and loaders to the ground.
- Remove the key if there is a risk of the vehicle being started by an unauthorised person.

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.

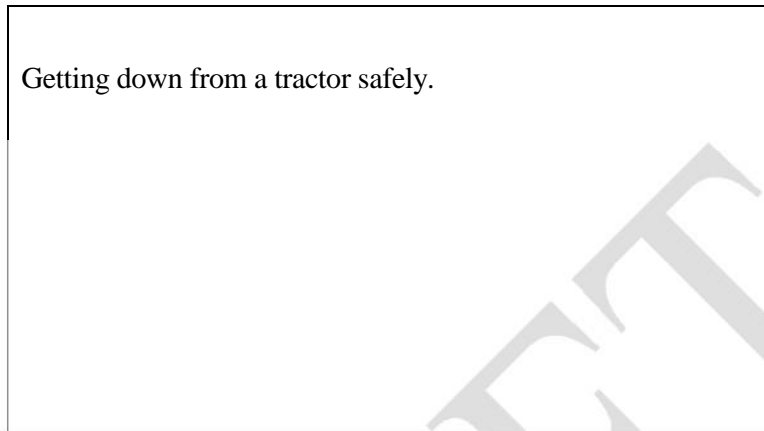


Photo 12. When parking a tractor, get up and down safely

General safety precautions

The doors and roofs of safety cabs should 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 one. If provided, seatbelts should be worn.

Loose tools, 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 run over, particularly when you are reversing.

Photo. Child with seat and seat belt.

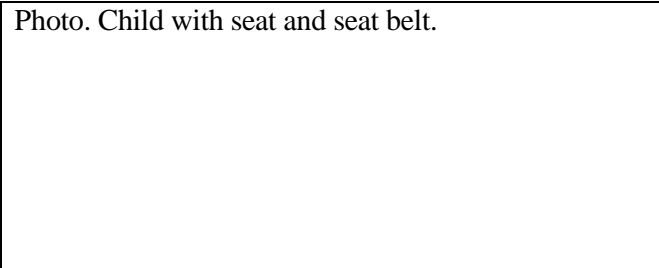


Photo 13. Do not carry a passenger unless it is safe to do so

Prevent vehicle from overturning

The following factors cause overturning: gradient, speed, towed or mounted loads, an operator's lack of ability and experience, 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 doing machinery work on slopes.
- Consider if it is worth taking the risk 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.

Precautions when driving on slopes

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

Checklist of actions

- Consider your land-use options and don't use tractor if you can avoid doing so.
- Make sure you are familiar with the slope. Walk the slope before driving on it.
- Use a four-wheel-drive tractor.
- Select the right gear 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.
- 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 machine.
- Don't assume that you can drive down a slope just because you drove up it.
- 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.
- 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 system. The trailer's brake valve, which controls the trailer brakes, is operated by the tractor brake pedal.

This control system should be specified for all *new* tractors (over 55 Kw) used for drawing heavy loads.

6.4 All-terrain vehicles (ATVs)

ATVs or quad bikes are increasingly used in farming and forestry. In 2005, 12% of farms used one. Fatal and very serious accidents have occurred when ATVs were being driven.

The causes of accidents include:

- the driver's lack of training or experience
- carrying a passenger or an unbalanced load
- tipping on a bank, ditch, rut or bump
- a steep slope combined with other factors such as ground or load conditions
- towing excessive loads with unbraked equipment

It is essential that you receive professional training before you use an ATV. This can be provided by ATV suppliers or training agencies.

Never carry a passenger on an ATV.

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

ATVs require on-going maintenance as specified by the manufacturer. Check, in particular, that:

- tyre pressures are correct
- brakes give a straight stop
- the throttle operates smoothly in all steering positions

Many ATVs have no differential, so the vehicle speed and placing of your body weight is crucial for safe cornering.

If, when driving on a slope, you suddenly increase speed or place your body weight and loads incorrectly, the ATV may overturn rearwards.

A guidance leaflet on the safe use of ATVs in agriculture and forestry is available on the HSA website.

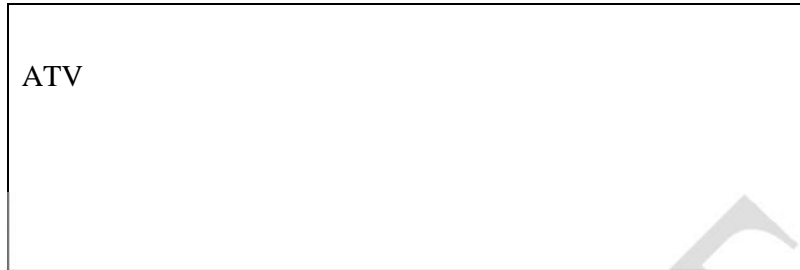


Photo 14. An ATV must be operated with extreme care

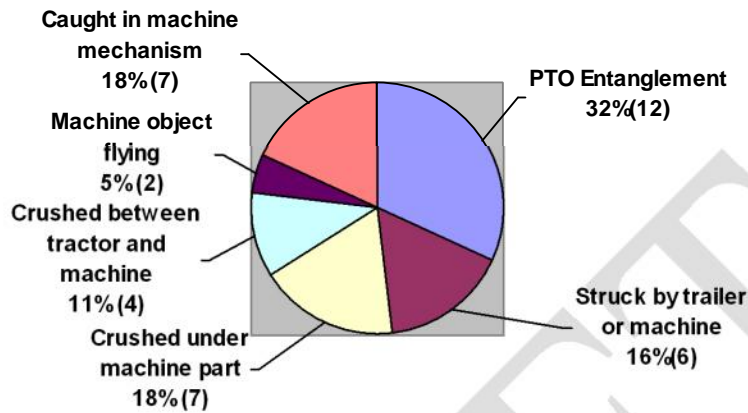
6.5 Risk assessment: farm machinery and equipment

FARM machinery accounted for 22% (38) of farm deaths between 1996 and 2005. Accidents involved the following:

- being entangled (32%)
- being crushed under a machine part (18%)
- being caught in a machine mechanism (18%)
- being crushed between a vehicle and a machine (11%)
- being struck by a flying machine-object (5%)

About 200 incidents involving machinery and equipment cause serious injury each year. People at risk include those operating and maintaining the equipment and others in the vicinity.

Figure 11: Fatal accidents involving machinery and equipment



Machinery operation

Operator competence is crucial in preventing injury. Make sure you receive appropriate training. Use the operator's handbook to become totally familiar with the operating procedures for a machine.

Do not carry passengers and watch out for people who risk being struck by the machine. This causes 16% of machinery deaths. Operate the equipment from the correct position. Never get into a 'trap zone' between a hydraulically operated machine-part and a tractor. Crushing in this position causes 11% of machinery deaths.

Maintenance and adjustments

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

Make sure that machines and trailed equipment are correctly attached to the tractor or vehicle. When attaching a machine, take the correct position in order to avoid getting crushed.

Always stop the machine and the tractor before attempting to carry out maintenance work or to free a blockage. Getting caught in a machine mechanism causes 18% of machinery and equipment deaths.

Make sure that the machine is adequately supported before working under any machine part where you could get crushed.



Photo 15: Always turn off the PTO and the tractor before attempting to free a blockage or adjust a machine

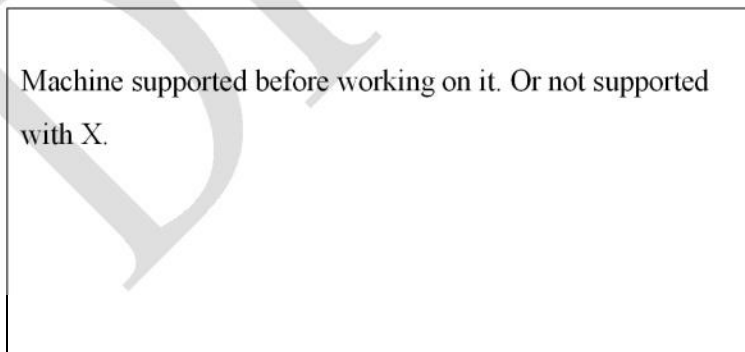


Photo 16. Always support a machine before working in a trap zone

Fixed guards

Fixed guards must always be kept in place. These prevent entanglement in drive shafts, chains and sprockets or v-belt and pulley drives.

Fixed guards are made from sheet metal, mesh or polypropylene. The guard should ensure that no part of your body 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 accidents if you:

- maintain fixed guards in good condition and refit after maintenance work
- do not use a machine unless all guards are in place

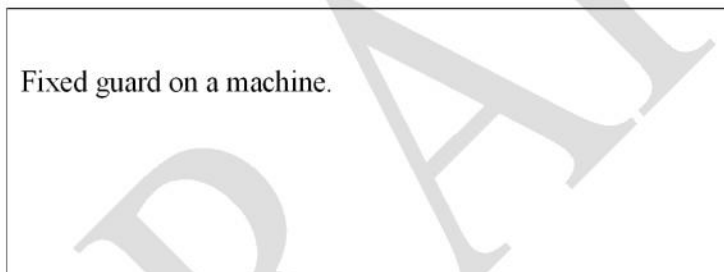


Photo 16: Maintain all fixed guards on machinery

Power take-off guarding

Entanglement in power take-off (PTO) drive shafts causes 32% 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 CEN 1152.

(Include diagram of power shaft, u-guard and o-guard here.)

Follow this checklist when using PTO shafts:

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

While all PTO guards should be in place, particular priority should be given to PTOs used in stationary situations (including slurry tankers and grain rollers). Most deaths involving PTOs occur when they are used in such stationary positions.



Photo 17: Power-shaft guarding is crucial, especially where the equipment is used in a stationary position

Hydraulic drives

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

Clothing

Loose or torn clothing 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.

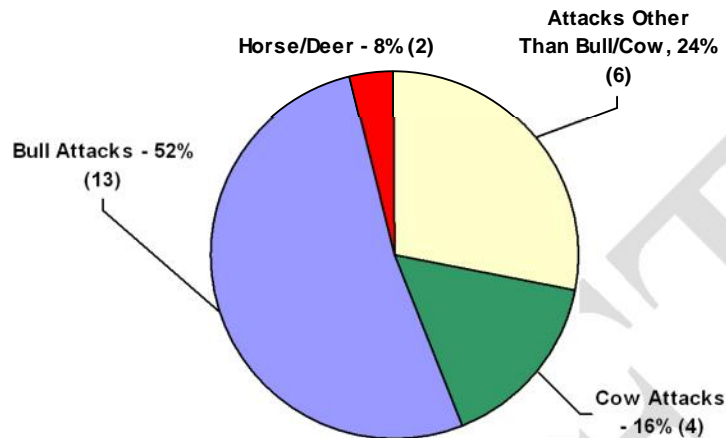
7.0 Safety with livestock

7.1. Risk assessment

- 25 deaths associated with livestock occurred between 1996 and 2005.
- Bull attacks accounted for 52% (13) of livestock deaths. However, all livestock present a risk.
- About 25% of all non-fatal accidents are livestock-related.
- Being crushed or gored by animals (particularly bulls) that are being herded, moved, separated, released or loaded onto trailers presents the highest risk.
- Cows with new-born young pose a significant risk.

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

Figure 12: Livestock fatalities



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:

- Animals react unpredictably when they are handled by an unfamiliar person, are in unfamiliar surroundings, and when they are separated from a familiar group.
- Animals respond to the way they are treated and draw upon past experiences when reacting to a situation. Animals that, when young, are chased, slapped, kicked, hit or frightened 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 excite them. This makes their behaviour unpredictable.

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.
- 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. Well-designed 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:

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 or locations remote from the farmyard reduces unnecessary movement of stock.

Design and layout

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

- | | | |
|---|--|--|
| <input type="checkbox"/> collecting pen | <input type="checkbox"/> race or chute | <input type="checkbox"/> skulling gate |
| <input type="checkbox"/> forcing pen | <input type="checkbox"/> catwalk | <input type="checkbox"/> dispersal pen |

Specifications for livestock handling and housing facilities are available from the Department of Agriculture and Food at its website: www.agriculture.gov.ie.



Photo 18. Well-designed handling facilities reduce the risk of injury involving livestock

Work practices when assembling and treating stock

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

7.4 Safety with bulls

- Bulls cause 52% 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.
- 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. Over the last 10 years, over half of all bull-related deaths happened to experienced farmers aged 65 and over.

Who should handle a bull?

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

How should a bull be handled?

- From an early age, the bull should learn to associate the presence of people with pleasant things such as feeding, grooming and exercise. However, do not make a 'pet' out of a bull.
- All bulls should be ringed when 10 months old, and the ring should be examined regularly.
- Consider having an aggressive bull 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. The handlers should walk at a slow steady pace, keeping the bull's head up.
- Consider using AI rather than keeping a bull.

How should bulls be kept in open fields?

- When grazing a bull with the herd, you should make maximum 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.
- When herding or moving the herd, be prepared to counter the bull's natural tendency to protect it. A tractor or suitable farm vehicle should always be provided as a mobile sanctuary.
- Young children should not be allowed into a field where a bull is running.
- When separating a bull from the herd, it is essential to have two adults on hand. Children should not be involved. This task is best accomplished 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.

Bull with ring and chain attached- and sign on gate.

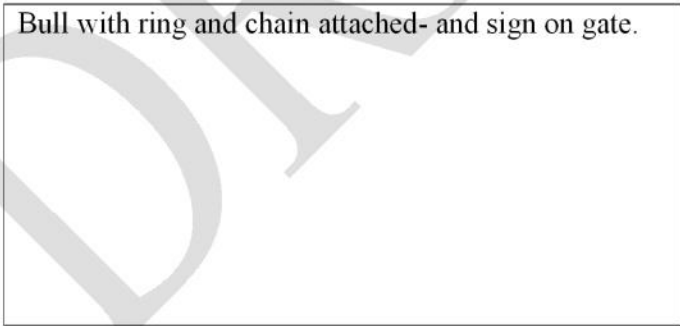


Photo 20. A bull at pasture should have a chain attached to the ring

Tractor and bull






Photo 21. 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, since 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 parlour or paddocks. Walls should not block the bull's view.

Design specifications are available from the Department of Agriculture and Food.

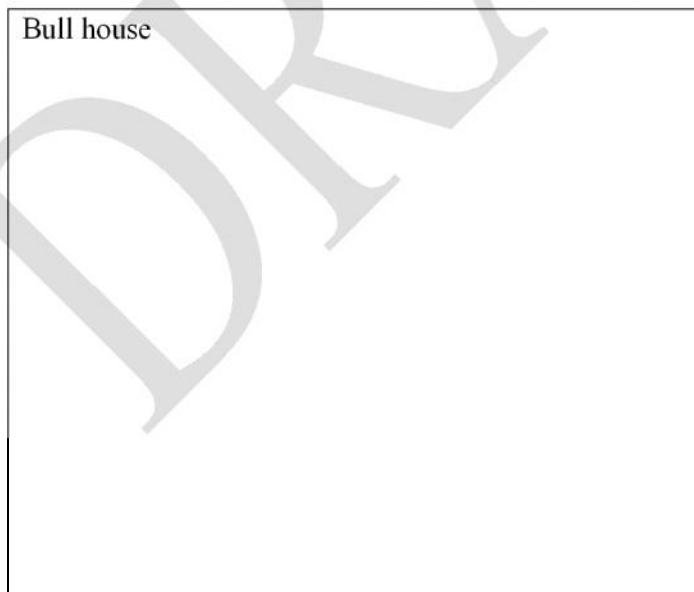


Photo 22. A bull house allows management of a bull when off pasture

7.5 Avoiding injuries at calving and weaning time

MANY farmers suffer serious injuries during or after calving. Cows have attacked and killed four farmers in the last decade. Accidents occur when farmers and vets are kicked, charged at, butted, crushed or knocked down.

Cows, and in particular heifers, can be unpredictable during or after calving. After calving, a cow may become 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. Generally, but not always, pre-calving warning signs occur, such as nervousness and excitement. This means that caution is required.

Calving facilities

The calving area should have adequate space and be well bedded. It should be tidy and free from obstructions and have good lighting. Well-designed calving pens and gates are essential. When installing a head gate, remember to allow for a caesarean section to be carried out on the left side.

Properly used calving jacks can reduce the possibility of back injury. 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 such back injuries.

Good calving facilities.



Photo 23. Good calving facilities reduce injury risk at calving time

Safe work practices at calving

You particularly risk an attack when you are handling a new-born calf, stomach tubing or dipping the navel.

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. A dog in or near the calving area is likely to upset cows.

Weaning

Weaning is a stressful period for both cow and calf; the cow's aggression is heightened. Take extra care at this time to avoid injuries.

Loading and unloading livestock

Animals being transported or moved are 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.

Ensure 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.

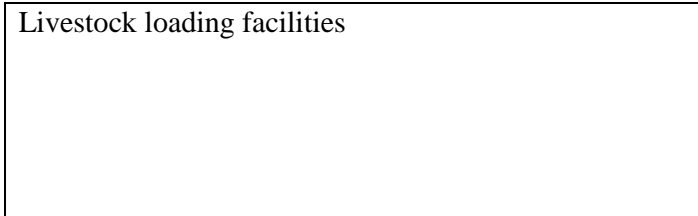


Photo 24. Well-designed trailers and loading facilities reduce risks when livestock are being transported

7.6 Safety with deer

PEOPLE working with deer risk being gored by a stag or being kicked by large hinds. Deer may also rear up and strike downwards with their hooves in a scissor-type kick.

Deer need to be brought into a handling area for certain tasks. This process is risky for stock handlers. A well-designed system for herding and handling deer enables tasks to be carried out safely and efficiently, with less stress on the deer. The collecting area needs to have a properly designed deer crush. Design the pen so that animals can easily enter the crush without direct contact with the handler.

A helmet made to EN 397 specification should be worn when handling deer in confined pens. A protective shield should be used when herding or handling deer. This should be made of 12mm plywood, polycarbonate or an equivalent material.

The antlers of all stags should be removed when the velvet is shed. When removing the antlers, use a deer crush with suitable head and antler restraint.

Stags become very aggressive during the rut. When entering a paddock in which there is a rutting stag, always use a vehicle as a mobile sanctuary.

Deer being handled.

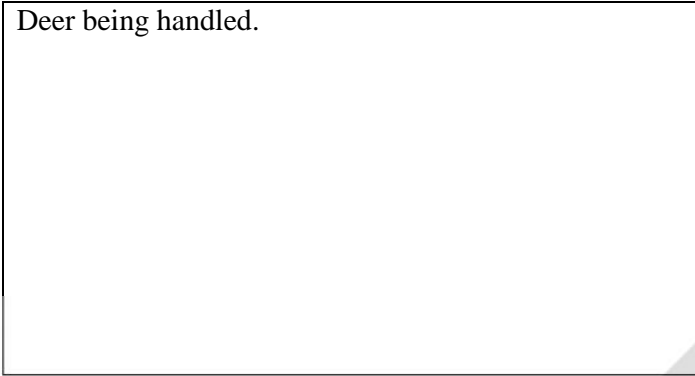


Photo 25. Good calving facilities reduce injury risk when deer are being handled

7.7 Safety with horses

SAFETY with horses is achieved through safe work practices and experience, training and skill. Safe, functional facilities and well-maintained equipment are essential to minimise danger. The following information is for farmer breeders.

Handling and catching horses

Competence and skill are important for the safe handling of horses. Think of your safety at all times, because 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.

Where a horse is 'cast', or caught on its back in a stable, particular care is required. The horse can strike out and seriously injure a person. Two experienced people are required to tackle the situation. Wear personal protective equipment, including a skull cap and gloves. Lunge lines can be placed on the horses' legs to 'right' the horse.

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 high. 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 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.

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 below.

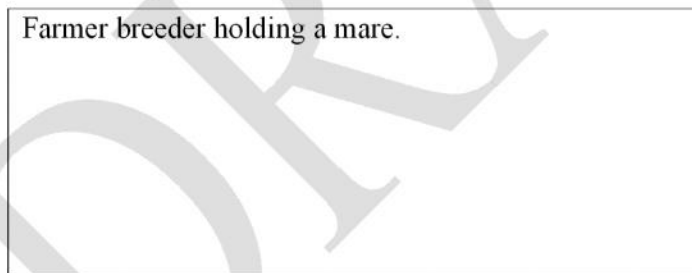
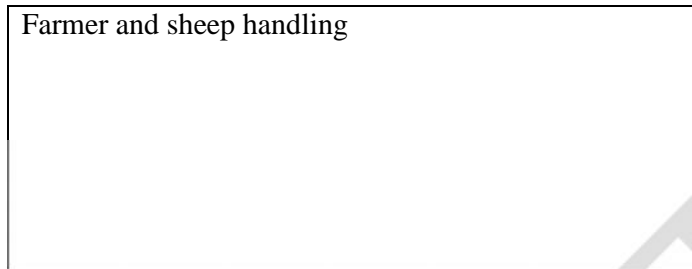


Photo 25. Experience and skill are necessary when working with horses

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

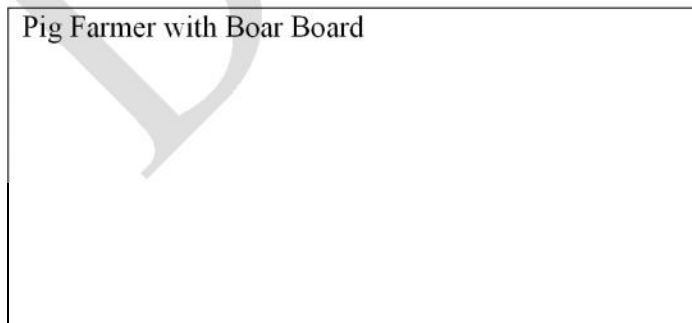
handling facilities and equipment eliminate manual-handling injuries due to pulling, pushing or tossing sheep.



Pigs

The main risk with pigs is being cut 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.



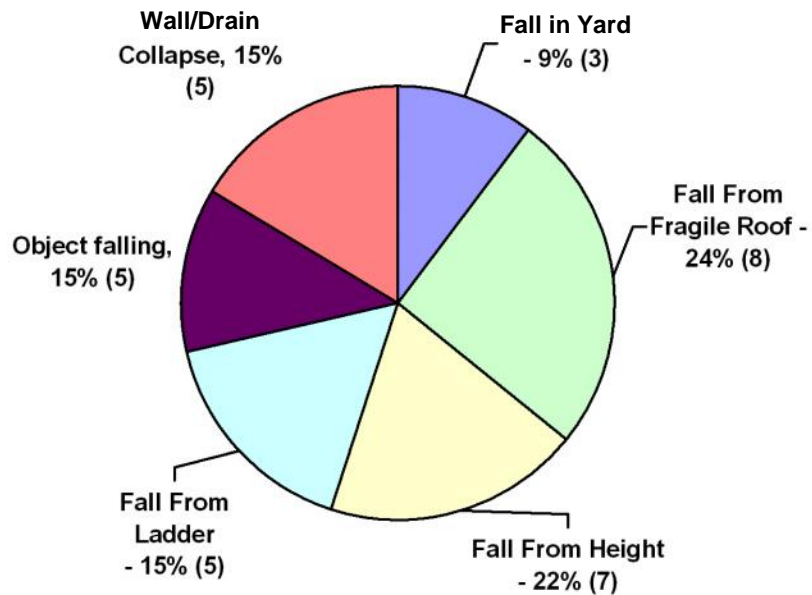
8.0 Farmyards, buildings, maintenance

8.1 Risk assessment: farmyard, buildings and maintenance

- 18% (33) of farm deaths between 1996 and 2005 were due to falls from 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 (about 71%) take place in or close to farmyards and farm buildings.

DRAFT

Figure 13: Fatal accidents associated with falls and collapses



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. Since farmyards and buildings have been developed over long periods and in different ways, depending on requirements and resources, 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.

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; access to heights; farmyard and building design, and safe storage and handling of slurry.

Movement within the farmyard

- Make sure that the farmyard allows orderly movement of people, livestock and machinery. Facilities such as gates and fences should facilitate the orderly and safe movement of livestock between buildings.
- 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.
- 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 modern equipment.
- Make sure that areas used for parking vehicles and mobile equipment are level, as rolling vehicles 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. 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. Cattle grids should have an adjacent gate or alternative safe means of access.

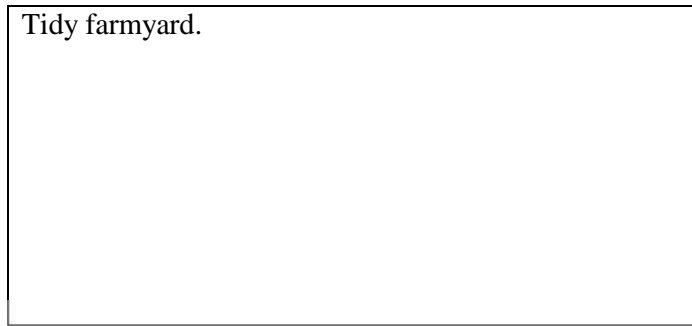


Photo 26. A tidy farmyard cuts the risk of trips and falls

Access to heights

Falls from heights accounted for the majority (63%) of farm deaths at farmyard buildings between 1996 and 2005. Take the following measures to prevent accidents related to falls from heights:

Safe use of ladders

- Much small-scale and short-duration maintenance work involves the use of ladders. Always secure a ladder, 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’ or tied off while it is being used. A second person can foot it or a heavy object (eg, a sandbag) can securely hold its base.
- 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 possibly turn it over.

- 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.

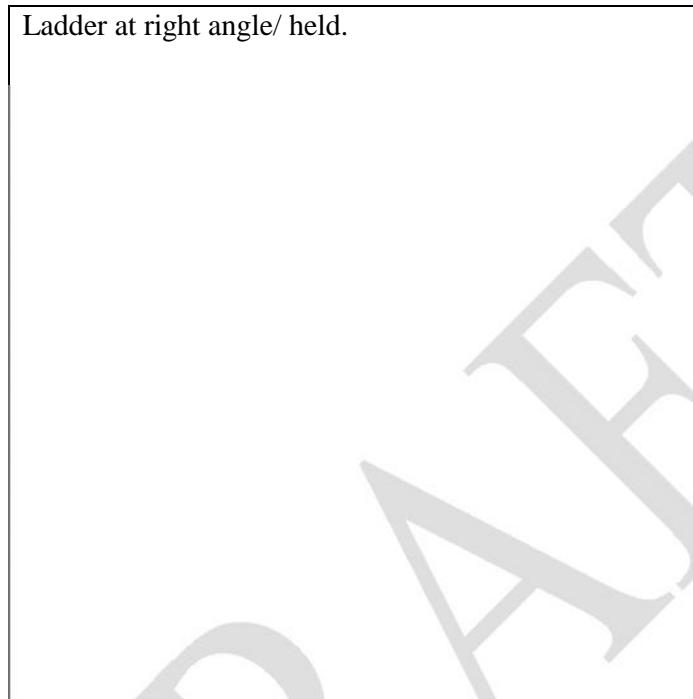


Photo 27. Use ladders with care

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, need to be used with care. A free-standing tower used out of doors should not be higher than three times its base.

An elevated work platform must:

- be sufficiently strong, with lockable access points, and fitted with sides or rails and toe boards on all four sides
- be secured to the lifting machine and unable to tip or slip sideways or forwards
- be fitted with a fail-safe lifting device that's designed to prevent collapse
- have controls to enable lifting and lowering from within the platform (where these are not available, use a reliable system of communication between the person in the platform and an alert and experienced operator)

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



Photo 28. Elevated work platforms should be used safely

Roof work

Fatal and serious accidents often happen when roofs are being quickly repaired.

A total of 25% of all deaths in the agricultural sector are associated with falls or collapses. These deaths are particularly linked to fragile roof sheeting and skylights. Weathered skylights become indistinguishable from other roofing material. Both skylights and glass, when painted over, are not recognisable as such and are highly dangerous.

Take the following precautions to prevent accidents with roof work:

- On 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.
- Consider using competent construction contractors for all work at height.



Photo 29. Take precautions when doing roof work

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 should be provided (a toe plate 0.15 metres high) 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.

Bale-stacking at heights

- Falling from stacks or loads of bales is the biggest cause of bale-handling injuries. This can be prevented by building secure stacks and paying particular attention to binding stacks and loads.
- Particular care is needed when removing bales from stacks, as many people, when trying to free jammed bales, fall from stacks or edges.

- Remove big bales from the top first. Never remove bales from the bottom of the stack, as this may leave overhanging bales unsupported.

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 Specifications (AES – Agriculture, Environment and Structures), issued by the Department of Agriculture and Food, give authoritative guidance on safety and health features of buildings and facilities. These specifications are mandatory for obtaining grant aid.

The Department of Agriculture and Food 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, you should consider what other safety- and health-related improvements to farm buildings and facilities could be included in the application.

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 personal-access doors.
- Ensure that gable-end walls are adequately tied into stanchions and have intermediate support. This reduces the risk of collapse if they are struck by a loader or vehicle.
- Provide adequate headroom.

8.5. Fire

FIRE on a farm can threaten life and cause serious injury. You should plan to prevent a fire and prepare an emergency response. Consider the following fire-prevention measures:

- **Isolation:** Hay and straw should be stored well away from a dwelling house and other stock buildings. 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.
- **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 causes many farm fires. Ensuring that electrical installations are done to ETCI 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 from an 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:** 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.

8.6 Construction regulations

THE Safety, Health and Welfare at Work Act 2005 and the (Construction) Regulations, 2006, place extensive duties on farmers who commission or procure the carrying out of construction and maintenance of buildings. Every farmer should be informed 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.

8.7 Building demolition

EXTENSIVE demolition work needs careful planning and preparation. It should be undertaken only 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 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

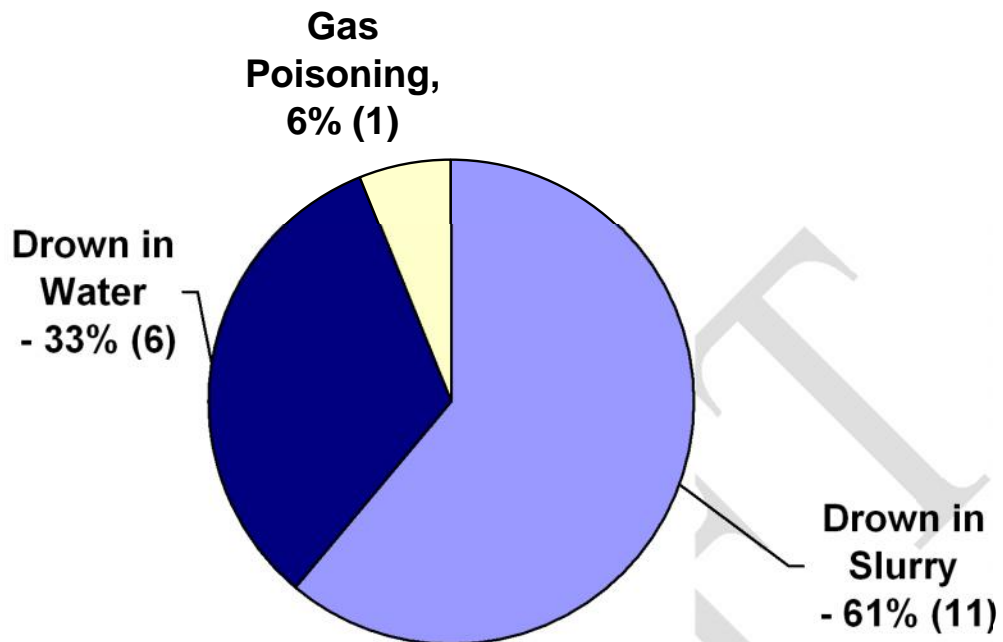
Risk assessment

IN the Republic of Ireland, over 40 million tonnes of slurry are stored, handled and spread each year. This presents two particular safety and health problems. Drowning in slurry, and water and gas poisoning, caused 18 (10%) farm deaths between 1996 and 2005.

9.1 Drowning in slurry

- Drowning is by far the most common cause of death involving slurry.
- Between 1996 and 2005, 12 deaths involving slurry occurred: 11 due to drowning and one to poison gases.
- 7 of these deaths were of young people under 16.

Figure14: Causes of slurry/drowning deaths



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 the tank has to be emptied, consider having an adequately constructed access platform with safety rails.
- Covered or slatted tanks require access manholes that children cannot open easily. Fit a safety grid below the manhole to give secondary protection.





Photo 30 All slurry tanks should be adequately fenced

9.2 Drowning in water

SIX people drowned in water on farms between 1996 and 2005. Where possible, fence off water hazards and take a cautious approach when working near water tanks, ponds, rivers or lakes.

9.3 Gas poisoning

DECAY of slurry or any organic liquid produces a mixture of unpleasant gases, including hydrogen sulphide, methane, carbon dioxide and ammonia. Some, like methane, are flammable. One in particular, hydrogen sulphide, is poisonous. All these gases are heavier than air, so they displace oxygen. This can lead to suffocation when a person enters a tank.

When slurry is disturbed by agitation, the gases within 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 this level causes INSTANT death.

Gas release from slurry is greatest in the following circumstances:

- within 15-30 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
- when slurry is mixed with cold water

Precautions

- Only agitate where there is good air movement.
- 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 stand 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 starting agitation.
- Avoid naked flames, as the gas mixture can be highly flammable.



Photo 31. Evacuate and ventilate before you agitate

Confined spaces

Never enter, or allow others to enter, any tank or confined space without breathing apparatus. Gas build-up due to fermentation 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.

9.4. Storage and handling of spent mushroom compost

MUSHROOM compost stored in large heaps, 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:

- Turn compost heaps regularly to avoid oxygen deficiency and the production of hydrogen sulphide.
- Never handle the compost in an enclosed space, such as sheds, tanks or trailers, where the toxic gas can build up. Ensure that there is thorough ventilation.
- 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.

10.0 Maintenance and repair of machinery

10.1 Risk assessment

- Six farm deaths between 1996 and 2005 were directly related to repair work.
- Most of these deaths were due to people being crushed under inadequately supported vehicles or machinery.
- Hazards during machinery repair include: crushing, entanglement, loss of limbs, electrocution, injuries to the eyes and feet, and noise-induced hearing loss. Repair 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.

10.2. Organising machinery repair and maintenance

MOST farms have a workshop. You should consider having repairs done by a competent service provider, as an alternative to doing all of them yourself. How a workshop is arranged, equipped and managed is important in preventing accidents and ill health.

Workshop construction

Space is the single most important aspect of workshop design. To work safely you need a space of at least two metres around a machine. Doors must be high enough to allow for modern equipment.

Floors must not become slippery, even when damp. A 'wooden float' concrete finish is ideal. Slippery surfaces due to oil or grease should be cleaned up immediately. Prevent slips, trips and falls by cleaning the workshop regularly.

Use only fireproof materials in workshop construction. These include concrete, steel and fibre cement sheeting.

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

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

Access to your workshop should be limited to people who work in it.

Well organised workshop



Photo 32. A well-organised workshop reduces injury risk

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 should be tested by a competent person before it is used. A certificate of examination must be obtained. The equipment should be re-examined by a competent person at least every 14 months. Slings should be examined every six months.

Always secure equipment before jacking. For example, when jacking up a tractor or a combine, 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, always provide support for the lifted object. Axle stands or solid wooden blocks may be used.



Photo 33. Adequately secure and support equipment

Power tools

Power tools such as angle grinders, bench grinders and drills can cause injury in an instant. Before use, make sure that the power tool is in a safe operating condition, with all the guards in place. Clamp with a vice the piece being worked on.

With angle grinders, make sure the correct disc is being used and is properly 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 angle grinder to ‘kick back’.



Photo 34. Make sure tools are safe and wear personal protective equipment

Welding

Welding requires skill, so get training. Courses are available from agencies such as Teagasc, FAS and vocational schools. Once trained, you can apply your skill safely and efficiently.

Compressed air/tyres

Air compressors can operate at a pressure of 150 PSI or more, and 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.

Always use a high-quality pressure gauge to make sure that a tyre is inflated to the correct pressure, and to prevent it from bursting due to excessive pressure.

When inflating a tyre fitted to a split rim, always use a safety cage or an airline extension. Many people have died because they were struck by a split rim.

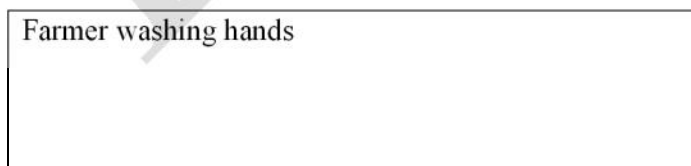
Personal protective equipment (PPE)

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 major 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 degrades the skin and causes dermatitis.



Add CAPTION

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.

11.0 Working with timber

11.1 Risk assessment

- One of the most dangerous tasks carried out on farms is felling trees and using chainsaws.
- Nine timber-related deaths occurred on farms and forests between 1996 and 2005. Seven of these occurred when trees were being cut down.
- The national survey of farm safety and health indicates that about 6.5% of all injuries are chainsaw- or wood-related. That amounts to about 120 serious injuries each year.

11.2 Training in chainsaw use and tree felling

THIS work is extremely hazardous. All people who do it should first be trained by a competent training provider. Alternatively, a competent person can be contracted to carry out the work.



Photo 35. Safe use of a chainsaw

11.3 Safety features of the chainsaw

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

- | | |
|---|--|
| <input type="checkbox"/> clearly marked, positive on/off switch | <input type="checkbox"/> anti-vibration system |
| <input type="checkbox"/> chain-brake device with a front hand-guard | <input type="checkbox"/> exhaust system to direct fumes away from the operator |
| <input type="checkbox"/> safety throttle | <input type="checkbox"/> chain cover for transportation |
| <input type="checkbox"/> chain catcher | <input type="checkbox"/> adequate tool kit for corrective and preventative maintenance |
| <input type="checkbox"/> rear hand-guard | |

11.4. Personal protective equipment for timber work

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

The following equipment should be worn:

- safety helmet, suitable eye protection and ear defenders
- chainsaw gloves with guarding on the back of the left hand
- leg protection incorporating clogging material
- safety boots with protective guarding and a good grip
- non-snag outer clothing

11.5. Using the chainsaw

WHEN doing chainsaw work, take the following precautions:

- Ensure that the chainsaw is properly maintained. In particular, make sure the air filter is clean, the engine properly tuned and the chain correctly sharpened.
- Make sure you know where the controls are, and that they are all in working order. You may have to stop the chainsaw quickly in an emergency.
- To prepare 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. Hold the front handle with the left hand and pull the starter cord with your right hand.
- 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 leave the chainsaw unattended while it is idling.
- Never use the chainsaw above shoulder height or when you are off balance.

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.

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 danger zone.
- Grip the saw properly, using both hands. The thumb of the left hand should be under the handle.

- Before cutting, your left arm should be 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.

11.6 Working-area precautions

WHEN cutting lengths of timber, such as firewood:

- Make sure the timber is securely supported off the ground, to allow room for the blade to cut.
- Make sure that other people are at least two saw-lengths away from the operator.

When preparing to cut a tree or 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 a tree'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.

11.7 Felling trees

BEFORE felling any tree, make sure the chainsaw operator has the necessary competence to complete the task in safety.

- When felling a tree, consider factors such as the wind, the natural lean and balance of the tree, location of large limbs, and whether the trunk is sound, hollow or partially rotted. Watch out for dead limbs overhead and for overhead power lines.

- Make sure that bystanders are at a safe distance from the tree-felling.
- For a tree that measures less than the diameter of the guide bar, adopt the following approach:
 - Cut a notch one-third of the diameter of the trunk, at a right angle to the direction of the fall.
 - The back cut should be at least 25 mm higher than the notch. Leave a hinge of uncut wood to guide the tree over.
 - The hinge must have the same thickness from end to end to direct the fall at right angles to the notch.
 - If there is any chance that the tree might not fall over in the desired direction, or may rock backwards and bind the saw, stop cutting before the back cut is completed. Use a wooden, plastic or aluminium wedge (never hard metal) to open the cut, and tilt the tree in the desired direction of fall. Never cut through the hinge.
- Watch out for 'spring poles' or conditions where a log or tree is under tension. When the timber is under tension, cutting could cause one length of timber to spring and cause injury or death. When lopping, make a preliminary cut underneath the branch and then complete the cut from the top.

11.8 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

12.0 Safe use of electricity in agriculture

12.1 Risk assessment

- Electrocutions accounted for 4% (8) of all deaths in agriculture between 1996 and 2005.
- Five deaths were related to contact with appliances, and three due to contact with the mains supply.
- Considerable progress has been made in upgrading electrical installations on farms over the last decade, but 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 strong risk of electrocution.
- The mains supply, particularly overhead cables, also presents a risk of electrocution.

12.2 Electrical standards

ELECTRICAL installations and equipment on the farm must comply with the Safety, Health and Welfare at Work (General Application) Regulations, 1993 (SI No. 44 of 1993). These regulations are supplemented by the detailed specifications contained in *National Rules for Electrical Installations* (second edition), issued by the Electro-Technical Council of Ireland (ETCI).

12.3 Causes of electrical accidents

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

Electrical accidents occur mainly for the following reasons:

- Plug contains a loose (floating) earth.
- Equipment is connected without using a plug top and/or socket.
- Unsuitable domestic-type plugs and other accessories are used.
- ‘Temporary’ joints, both taped and un-taped, are used on extension cables.
- Portable equipment, including infra-red lamps, is connected to lighting circuits.
- Improvised measures are taken and repairs carried out in an amateur fashion.
- Incorrectly rated or ‘make do’ fuses (including silver paper and nails) are used.
- Faulty equipment and installations are used.
- Frayed cable insulations cause galvanised roofs of outhouses and RSJ (rolled steel joist) pillars to become live.
- High voltages are imposed on electric fences where the fence earth electrode is too near the farm installation earth electrode.
- Buildings are erected and straw, hay or other materials are stacked under or near power lines.
- High machinery or equipment is operated under or near overhead power lines.

12.4 Fuses and miniature circuit-breakers (MCBs)

FUSES and MCBs are used to 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:

- ⇒ Use an MCB or a fuse to protect the circuit from fault or overload.
- ⇒ Use the correct type and rating.
- ⇒ 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.
- ⇒ Label clearly 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.

If you are unsure as to the adequacy of your fuse board, MCB assembly or any other part of your electrical installation, check with a competent electrician or electrical contractor.

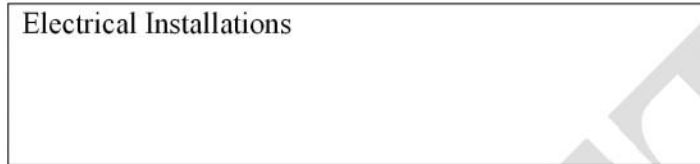


Photo 35. Make sure that electrical installations are adequate

12.5 Portable electrical equipment and RCDs

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

To prevent electric shock from portable equipment, you should:

- fit residual current devices (RCDs) with a 30 mA fault setting on all 220V and 380V socket circuits
- test RCDs monthly, by using 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 where damaged
- join cables using cable couplers only
- use a maximum supply of 25 volts for portable hand lamps in confined or wet locations

12.6 Plugs and sockets

DOMESTIC-type plugs and sockets are not suitable for use on farms. Use the industrial type (IEC 309).

They are colour marked as follows:

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

Plugs and sockets must:

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

The same criteria apply to cable couplers.

12.7 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. Get your earthing circuits tested by a competent electrician.

12.8 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.² This is both to provide additional strength and conductance for the bonding conductors.

12.9 Electric welders

- These should be supplied from separate circuits.
- 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 requires notification before an electric welder is installed.

12.10 Generators

PORTABLE generators:

- are generally rated under 20 KVA
- individually supply 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 and generator supplies (the switch should be clearly marked to show the ESB, generator and off positions)

PTO shafts of tractor-driven generators should be suitably guarded.

The ESB 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.

12.11 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.
- Never raise metal irrigation pipes under or near power lines.
- When spreading slurry, keep it away from power lines and poles.
- Keep away and keep other people away from fallen lines.
- Keep animals away from fallen lines.

- Notify ESB, Eircom, gardai, etc, of fallen lines.

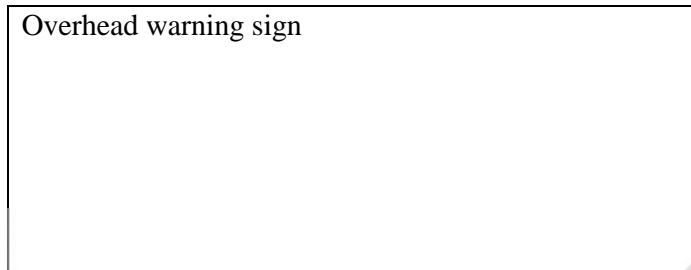


Photo 36. Maintain safe clearances from overhead wires

12.12 Electric fences

MAINS electric-fence equipment is widely used on farms and has caused a number of fatal electrical accidents. To prevent danger, the maximum discharged energy should be five joules per impulse.

Control units

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

Take the following precautions:

- Don't run fences parallel to power lines because dangerous induced voltages might result.
- Keep fence earth a minimum of 10 metres from main installation earth.
- Never 'whip up' or 'twitch' fence wires under power lines.
- Never electrify barbed wire because this is difficult to break free from.

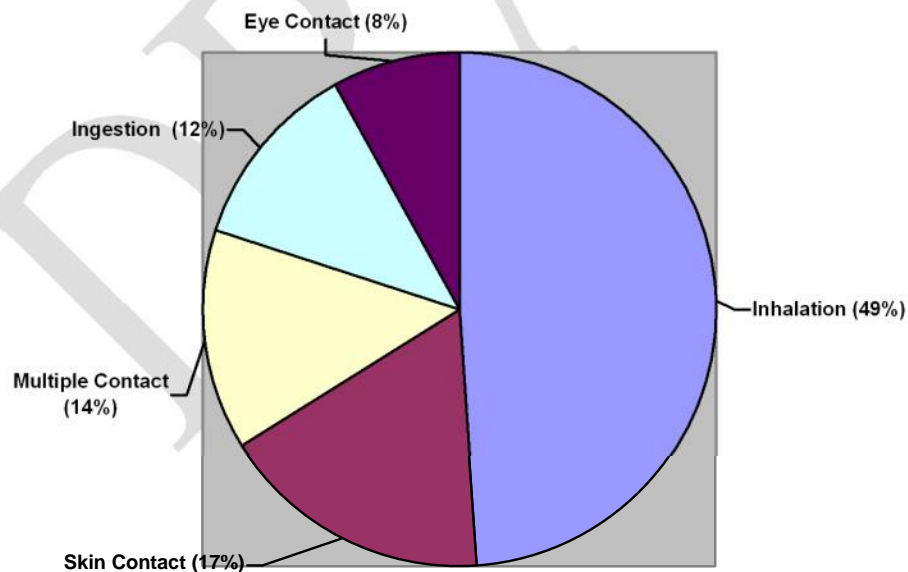
13.0 Safe use of chemicals in agriculture

CHEMICALS are used regularly on most farms, and play a key role in animal welfare and food safety. They must be used safely, in accordance with manufacturers' instructions, to avoid risk to the operator or anyone in the area of the chemical application.

13.1 Risk assessment

- About 25 poisoning incidents involving farm chemicals are reported to the National Poisons Information Centre (NPIC) each year.
- Inhalation is the most frequent cause, followed by skin contact, multiple contact and ingestion (see Figure 15).
- Over a four-year period, 10 cases of inadvertent poisoning, due to chemicals not being stored in their original containers, were reported to the NPIC.

Figure 15. **Chemical contact with body part in poisoning reports: percentages over two-year period (2002/2003)**



13.2. Chemical groups

Chemicals used in agriculture can be divided into four groups:

- Group 1: Common products: fertilisers, fuel (including diesel), oils, wood preservatives, hydraulic lubrication and gear oil
- Group 2: Acids and bases
- Group 3: Pesticides (agrochemicals such as herbicides, fungicides and insecticides)
- Group 4: Veterinary products

Group 1: *Common products: fertilisers, fuel (including diesel), oils, wood preservatives, hydraulic lubrication and gear oil*

These substances are generally inactive chemicals but some may still present a safety and health hazard to the user. Many have flammable characteristics, so care must be taken when they are being handled handling and in storage.

Some products, such as diesel and certain paints, can give rise to skin sensitisation, causing rashes. Precautions include avoiding exposure and wearing suitable gloves.

Red oxide paint, for spraying onto metal surfaces of farm buildings, has lead content. Take care to prevent inhalation, especially during spray painting. Stripping paint from old buildings involves similar lead hazards. The lead content of older paints is much higher than that of modern ones, as they were manufactured before the implications of lead toxicity were fully realised.

Group 2: *Acids and bases*

Acids

Products in this group are generally chemically active and normally corrosive. The main safety and health risks include contact with skin and eyes and problems with inhalation and ingestion, resulting in problems with internal linings of the body.

This group includes formic and sulphuric acids, used in the preservation of silage, and propionic acids for grain preservation. Take great care when decanting acids and, where possible, use enclosed pump systems.

Use protective equipment covering the face, hands and skin to avoid serious burns. Since fumes from acids can be dangerous, consider protection against inhalation.

Bases

These products are mainly associated with cleaning and disinfectants. Products such as bleach (sodium hypochlorite) and caustic soda (sodium hydroxide) are in daily use on farms.

The main risk is corrosion, caused by coming into direct contact with skin and eyes. Bases also dissolve the fatty tissues of the skin and so remove the body's natural protection, leaving the body vulnerable to infection.

To prevent contact with the body, make sure that equipment (such as milking machines) is properly maintained, and wear protective equipment when handling the concentrated forms.

Acids and bases should be kept apart when stored, to avoid the risk of chemical reactions.

Group 3: Pesticides (agrochemicals)

These products include herbicides, insecticides, fungicides and rodenticides. The use of pesticides is regulated by the Pesticide Control Unit of the Department of Agriculture and Food.

When preparing to use pesticides, it is very important to read and comply with all the instructions supplied with the product.

Pouring and tank-mixing pesticides prior to application is the time of greatest risk. Wear personal protective equipment to prevent contact with the concentrated product.

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.

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

Certificate of Competency training courses in pesticide operation, to Further Education and Training Awards Council (FETAC) award standard, are available from Teagasc.

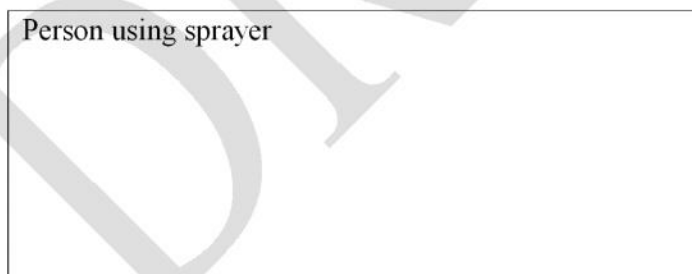


Photo 37. Sprayers should be operated by competent people only

Group 4: Veterinary products

Veterinary products must be licensed by the Irish Medicines Board before being put on the market. The board also investigates adverse effects of a product on humans or animals.

Always use veterinary products in accordance with label instructions. Accidental self-administration and inadvertent contact are the main hazards.

The best control measures are to have proper livestock-handling facilities, and to use recognised procedures when administering these products. For difficult procedures, use a veterinary surgeon.

13.3 Storage of chemicals

- The chemical store should be in a safe location at some distance from a dwelling house and any flammable materials stored on the farm.
- The store should be in a dry, well-ventilated, secure building constructed of non-combustible materials. Purpose-designed metal storage cabinets may be purchased or fabricated.
- The store must have a facility to contain chemicals in the event of a spillage (this is known as bunding).
- The store should be locked when not in use, to prevent access by children. It should be marked by a sign.
- The store should have easily accessible shelving for the stored containers.
- Washing facilities should be located close to the store.
- All chemicals must be stored in their original containers, displaying the hazard warning sign.
- A stock sheet should be kept away from the store, detailing the amount and type of chemicals present in the store (necessary in case of fire or other accident).

Storage of chemicals

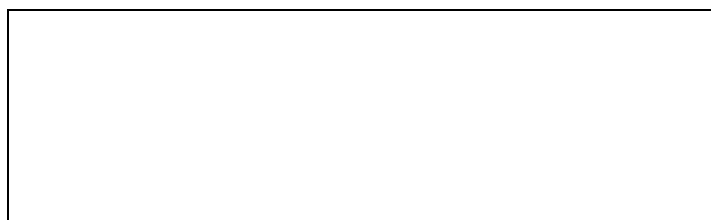


Photo 37. Chemicals should be stored in a locked store

13.4 Pesticide labels/ packaging

ALL pesticides sold within the EU are controlled by strict legislation covering packaging and labelling. A Material Safety Data Sheet for every chemical, giving further safety and health information, is available from the supplier on request.

The following hazard symbols may be found on pesticide labels.

Figure 16: Hazard warning symbols



Explosive



Oxidising



Highly flammable



Extremely flammable



Toxic



Very Toxic



Corrosive



Harmful



Irritant



Dangerous for the environment

Risk phrases

The risk phrases state specific risks associated with using the product. Some of the more common risk phrases include:

- May cause sensitisation by skin contact
- Toxic if swallowed

Harmful if contact by skin

Safety phrases

Safety phrases state the most appropriate measures that the operator must take to prevent risks associated with using the product.

Common phrases include:

- Wear suitable protective gloves (*Butyl Rubber or Nitrile Rubber*) and face protection (*face shield*) when handling concentrate.
- Keep locked away and out of reach of children
- Avoid contact with eyes
- Wash hands and exposed skin before meals and after work

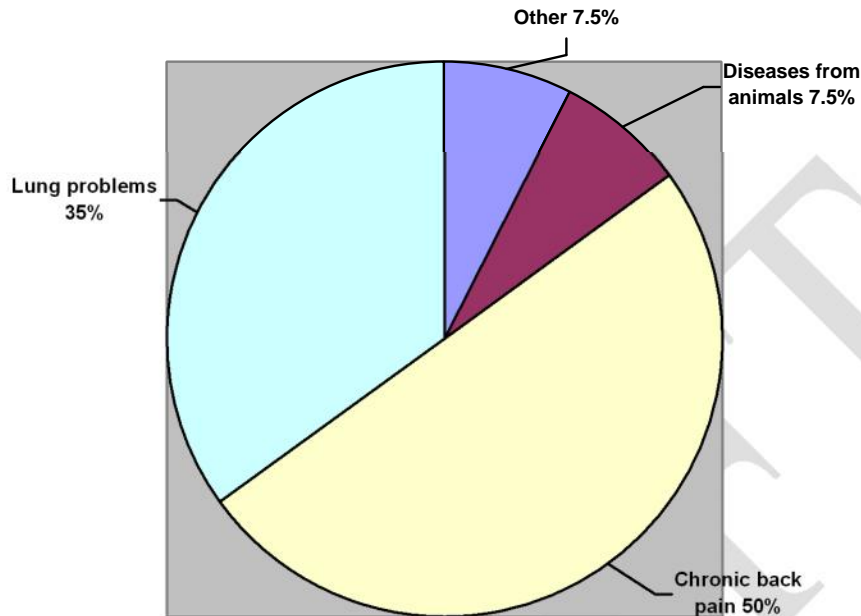
Remember that each product has specific hazard symbols, safety indicators, risk phrases and safety phrases. The operator must read each label before handling each product.

14.0 Health of farmers

14.1 Risk assessment

- A national farm survey indicated that ill health due to work occurs on 11% of farms.
- The principal causes of ill health were associated with manual handling, lung problems, infections and noise.
- Of farmers with occupational ill health, 50% suffer from chronic back pain.
- Regarding personal health, farmers have been identified as a group with a poor personal health profile (O'Shea, 1997). Male farmers between the ages of 15 and 64 have a death rate much higher than that of most other workers.
- 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.

Figure 17. Causes of occupational ill health



14.2 Occupational ill health

Manual handling

ABOUT 30% of all workplace injuries are due to manual handling when lifting, carrying or handling loads. While most manual-handling injuries occur to the back and spine, a person's limbs may also be injured. Poor manual handling, leading to injury of the spinal discs and bones and cartilage in the back, can lead to osteoarthritis.

Osteoarthritis can also occur in joints, particularly hip and knee joints, as a result of poor manual handling. Soft-tissue injury can occur to tendons, ligaments and muscles. As manual-handling injuries can lead to prolonged pain and suffering, and limit a person's capacity to work effectively, taking preventative measures is vital.

To reduce the risk of manual-handling injuries:

- eliminate the need for lifting as much as possible
- use mechanical aids

If you do need to lift, consider the following:

- assess the load
- assess your capacity to lift
- assess the work environment.

Assessment of a load

The key approach to adopt when assessing a load is to consider its weight. The following chart (Figure 18) gives maximum guideline weights to lift in various situations. It may be used to determine if a load is too heavy.

As can be seen, the guideline maximum weight is reduced if lifting is done with the arms extended, or at a height above or below the waist. An injury is more likely to occur when the arms are extended or when twisting of the spine occurs when lifting.

(Insert figure 3 page 19 in HSA guidance on the management of manual handling in the workplace as figure 18)

If a weight is too heavy for a person to lift, use a mechanical means of lifting. Many of these are available on farms, including: loaders, forklifts, bulk handling, hydraulic jacks, hoists, conveyors and elevators. Pump systems can be used to transfer liquids, to avoid the need for man-handling barrels.

Mechanical handling

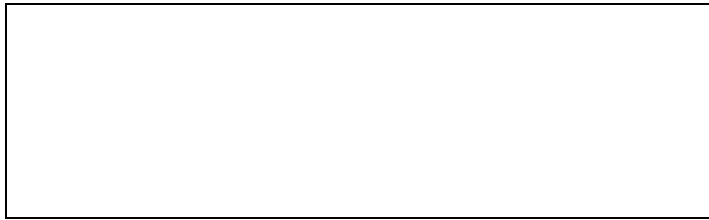


Photo 37. Mechanical handling eliminates the need for man-handling

Considerable scope exists on farms to eliminate heavy lifting by fitting wheels to heavy loads. Use of quick hitch three-point linkage systems and similar devices can also cut out the heavy lifting required when heavy tractor-mounted equipment is being put on or taken off.

Always use an alternative to manual handling when a load is too large or is unwieldy or difficult to grasp.

Assessment of a person's capacity to do manual lifting

To assess a person's capacity to lift a weight, note the following: age, gender, strength, physique, state of health and training received in manual handling.

People who do work which involves manual handling should receive training from a competent manual-handling trainer. Training provides knowledge and skills in the following areas:

- the legal requirements related to manual handling
- information on the anatomy and biomechanics of the spine and muscles
- how manual handling causes injuries and damage
- guidance on fitness, flexibility and muscle toning for manual-handling tasks
- information on conducting a manual-handling risk assessment
- possible measures to avoid or reduce manual handling
- information on good manual-handling techniques and practice at applying these

- instruction on appropriate clothing and footwear for handling loads
- instruction on the maintenance of the workplace in a safe condition
- the cooperation required between employers and employees

The length of a training course depends on a number of factors, including the prior knowledge of a participant and the level at which the training is being taken. Generally, a basic course takes about three hours.

Use of the correct lifting technique, imparted at a manual-handling training course, involves the following:

- use of a broad stance for balance and stability
- keeping your back straight to make sure the weight is evenly distributed through the spine
- keeping the load close to your body to reduce the pressure on the lumbar spine and prevent static muscle work in the arms and upper body
- bending your knees to bring the load closer to the centre of gravity of the body and allow the power of the thigh muscles (quadriceps) to lift the load
- use of the firm power or palmer grip to make sure the load is secure and to avoid using static muscle work in the arms
- pointing the feet in the direction of movement to prevent twisting of the spine (this is one of the most frequent causes of serious injury during lifting)
- keeping the arms in line with the trunk of the body, to keep the load as close to the body's centre of gravity as possible, and to prevent the use of static muscle work in the arms

(Insert – diagrams of the correct lifting technique as Figure 20)

Training courses also provide training on lifting techniques involving two or more people.

While the basic techniques are the same as for a single person lifting, a high level of

coordination between the lifters is required. Lack of coordination can lead to one person bearing the full weight of the load and the likelihood of a serious back injury.

Assessment of the work environment

To prevent manual-handling injuries, it is essential to keep a farm in a satisfactory condition.

Take the following precautions:

- Maintain a high level of tidiness, particularly where loads are being carried.
- Maintain non-slip surfaces and eliminate unnecessary ledges and uneven surfaces which could cause tripping. Tripping while carrying a load is a frequent occurrence.
- Design the farmyard and buildings in such a way that the need for manual handling is eliminated. For example, if access manholes to slurry-tank emptying points are installed, there is no need to lift heavy slats.
- Adequate design of buildings avoids situations where there is not enough room to lift correctly or where awkward postures may be adopted.

Lung problems

DUST and spores, if inhaled, 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 feed.

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 EN149 Type FFP2 or P3.



Respiratory hazards

Photo 38. Ventilation and wearing a suitable mask prevents respiratory hazards

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 in a high percentage of cases, if suitable precautions are not taken.
- Weil's disease is a form of leptospirosis, spread by contact with infected rat's urine. 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 stage possible.
- E.coli infection, including the potentially fatal 0157 strain, can be contracted from livestock or contaminated material.

Measures to prevent infections include:

- | | |
|---|---|
| <input type="checkbox"/> maintaining healthy stock | <input type="checkbox"/> immunisation (eg, against tetanus) |
| <input type="checkbox"/> vaccination | <input type="checkbox"/> use of protective equipment |
| <input type="checkbox"/> covering all cuts and wounds | |
| <input type="checkbox"/> ensuring personal hygiene | |

A booklet on zoonotic infections is available from the Health Service Executive. It is called *Staying Healthy on Your Farm*. An advice pack for the farming community, it deals with preventing infections and diseases from animals. It is also available on the HSE website.

Using veterinary gloves

Photo 39. Take precautions to prevent farm infections

Noise

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

Permanent damage, known as noise-induced hearing loss, is caused when the nerve hairs in the 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 quality of life can be greatly reduced.

Impulsive 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.

If it is necessary to communicate by shouting at another person who is at a distance of two metres, 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:

- purchasing equipment with low noise levels
- keeping tractor doors shut and maintaining silencers on equipment such as tractors or chainsaws
- isolating or enclosing equipment with noise above 85 decibels
- using mechanical or automatic feeding systems to reduce the need to enter pig or poultry houses during feeding

- moving 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 standard EN 352.

14.3 Personal health

YOUR health is your greatest resource. 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. A study conducted at the National University of Ireland Galway (Hope *et al.*, 1999) shows that male farmers have a poor health profile: only 35% got an annual blood pressure check, only 29% took regular exercise and only 26% protected their skin from the sun.

A *Cancer Atlas of Ireland and the UK*, published in 2005 by the National Cancer Registry, Ireland, shows a very high incidence of lip and mouth cancer in the west and north-west of Ireland. A form of skin cancer, called melanoma, occurs in Ireland at above average rates, particularly in the south-west, south-east and east regions. The report suggests that sun exposure associated with farming is a major factor in this trend.

You should protect your skin from the sun by minimising exposure around midday, wearing long-sleeved shirts and hats, and applying sun creams.

(Include 2 maps from Cancer Atlas here for skin cancer and mouth and lip cancer, with permission as Figure 21)

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 injuries at work.

Blood pressure check



Photo 40. Give your health adequate attention

Stress

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, 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.

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

15.0 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:

- safety gloves
- safety footwear
- waterproof or insulated clothing
- overalls or coveralls which prevent contamination

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)
- safety helmets and safety harnesses (when topping trees)

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

BEFORE resorting to using PPE, consider using all other control measure 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
- undertaking the work in suitable weather

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.

Use 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
- handling potentially infected materials

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

- 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 equipment 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 can open due to perspiration and allow the chemical to directly enter the blood stream. Washing-up gloves are totally inadequate for this task and can increase the danger rather than reduce it.

- 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 equipment is comfortable to wear and does not cause irritation.

Providing information or training on the use of PPE

Information or 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. Damaged equipment will not give adequate protection. Disposable equipment should never be reused.
- Store and maintain PPE in accordance with the manufacturer's instructions.
- Respiratory equipment 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, along with a product, containers for storing PPE.

Maintenance of PPE

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

16.0 Use of safety signs on farms

USE of a range of safety signs enhances safety and health on a farm. Safety signs should never be used as a substitute for control measures, but 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 the farm operator, a worker, a farm family member or a person coming on to the farm. Signs may also alert emergency services to the presence of a hazard, for example, a pesticide or fuel store. Safety signs must be kept clean.

Safety sign colours and shapes should follow the Safety, Health and Welfare at Work (Safety Signs) Regulations, 1995.

Examples of various categories of signs are:

SIGN	MEANING	DESCRIPTION	EXAMPLE
Prohibition	Stop or prohibition	Circular sign with red safety colour, white contrasting colour and black symbol colour	No Smoking
Warning	Caution! Possible danger	Triangular sign with yellow safety colour and black contrasting and symbol colour	Corrosive matter
No danger/first aid	Identification of emergency routes and exits, and first-aid stations and rescue points	Square or rectangular sign with green safety colour and white contrasting and symbol colour	First-aid post
Mandatory signs/information	Requirement to wear safety equipment or location of information	Circular sign with blue safety colour and white contrasting and symbol colour	Eye protection must be worn

Further information on obligatory safety signs can be found on the Health and Safety Authority website: www.hsa.ie

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 be displayed in a good position in all farmyards. A sample of a design of such a sign is displayed 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.

17.0 Competence and training for people at work in agriculture

17.1 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 a competent person as follows:

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 as well as 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.

17.2 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 need to provide training. This reflects the fact that the practices adopted by people 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 trainee to recognise hazards and to adopt safe practices.

Approaches to training

At its simplest, training means showing a person the correct method of doing a task and 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.

17.3 National framework of qualifications

A NATIONAL framework of qualifications related to training and competence has been implemented under the Qualifications (Education and Training) Act 1999.

- Vocational training courses are accredited by the Further Education and Training Awards Council (FETAC).
- Higher-level (third-level non-university) courses are accredited by the Higher Education and Training Awards Council (HETAC).

Training courses are provided and validated within the framework of qualifications. The awards made are recognised nationally and internationally. Courses can be provided and assessed by training providers approved by FETAC, HETAC or 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 both FETAC and HETAC. Details of the programme of courses can be found at the website www.teagasc.ie or at any Teagasc office.
- **(List and describe other training providers)**

17.4 Training on completing the requirements of the Code of Practice for Agriculture

THE Health and Safety Authority, in conjunction with the Farm Safety Partnership Advisory Committee to the HSA, has developed a training course on completion of the Code of Practice for Agriculture. This can be delivered by organisations or persons deemed competent by the Health and Safety Authority.

(Expand when exact details of the course are known)

17.5 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. It is provided by FRS Network. The course covers both theory and practice relating to tractor handling for on-farm use only.

Further details can be found on the FRS Network website www.frsnetwork.com, or by contacting FRS Network, Head Office, Derryvale, Roscrea, Co Tipperary (phone: 0505 22100).

17.6 Training in first aid

FARMING has a high requirement for basic 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 will have to apply first aid. Training gives people the competence to deal with accidents and emergencies.

Many organisations offer certified first-aid courses, including: Civil Defence, Order of Malta, St John's Ambulance and the Red Cross.

DRAFT

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APPENDIX 1 - STATISTICS

1. Trends in fatal farm accidents: 1996-2005

DATA covering the last 10 years show that there is no consistent downward trend in farm-accident deaths (see Figure 1). In fact, there was just a slight reduction in farm deaths between 2001 and 2005, compared to the period 1996-2000.

There has been a major increase since 1998 in the level of farm-accident deaths of older farmers (65+). Fatal accidents to children, however, declined by 35% in the five-year period 2001-2005, compared with the previous five years.

Fatal accidents (see Figure 2) are mainly associated with:

- operation of tractors, vehicles and machinery (48 %)
- livestock (14%)
- falls (12%)
- drowning (11%)
- collapse of buildings and falling objects (5%)
- electrocution (4.5%)
- working with timber (5%)

This code of practice pays especial attention to areas where accidents of the above kind can happen.

Figure 1: Trends in fatal farm and forestry accidents: 1996-2005

Year	96	97	98	99	00	01	02	03	04	05
Total	12	15	26	23	16	25	13	20	13	18
Children¹	1	4	7	9	2	7	2	2	2	2
Older farmers²	2	1	5	6	8	6	3	11	7	8

¹ Children: aged 16 and younger

² Older farmers: aged 65 and older

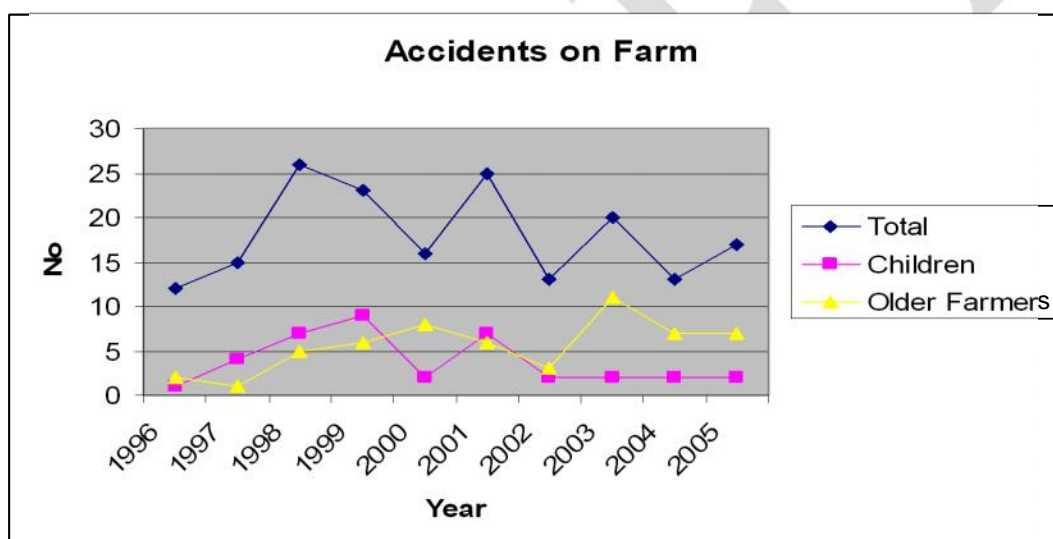
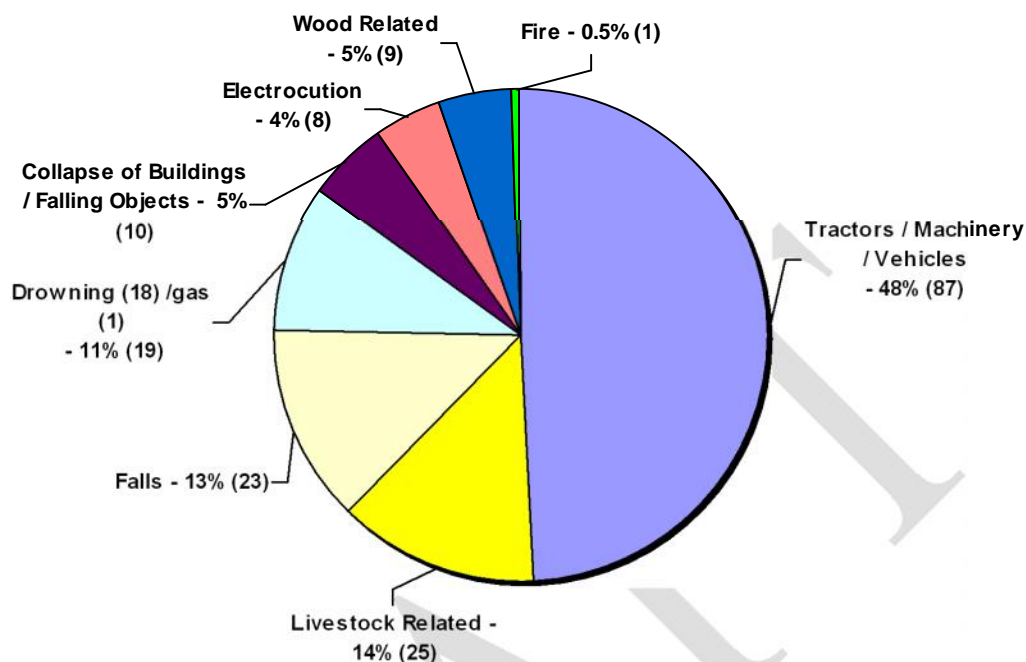


Figure 2: Causes of fatal forestry and farm accidents, 1996-2005



2. Pattern of fatal accidents through the year

FATAL farm accidents now occur throughout the year. Each quarter has an equal number of fatal accidents (see Figure 3). This is a major change from 10 years ago. Most fatal accidents now happen in January, March, May-August and September (Figure 4).

Fatal accidents involving tractors and machinery generally happen in December and January, and from June to September. A high level of falls and blows happen in March and October/November. Drowning accidents generally happen in March. Animal accidents, however, occur throughout the year. Therefore a farmer must think safety at all times of the year

Figure 3: Trends in fatal accidents by quarter (1996-2005)

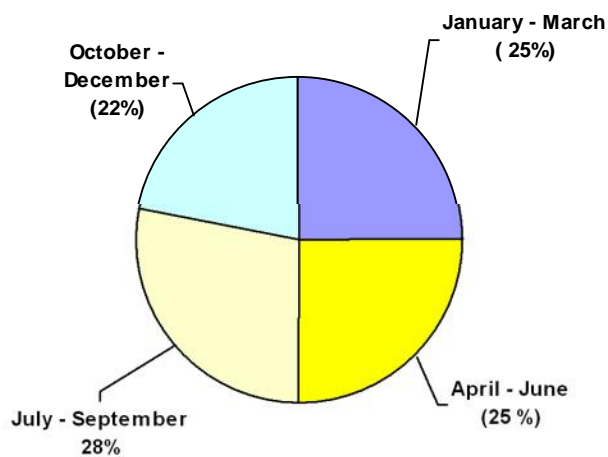
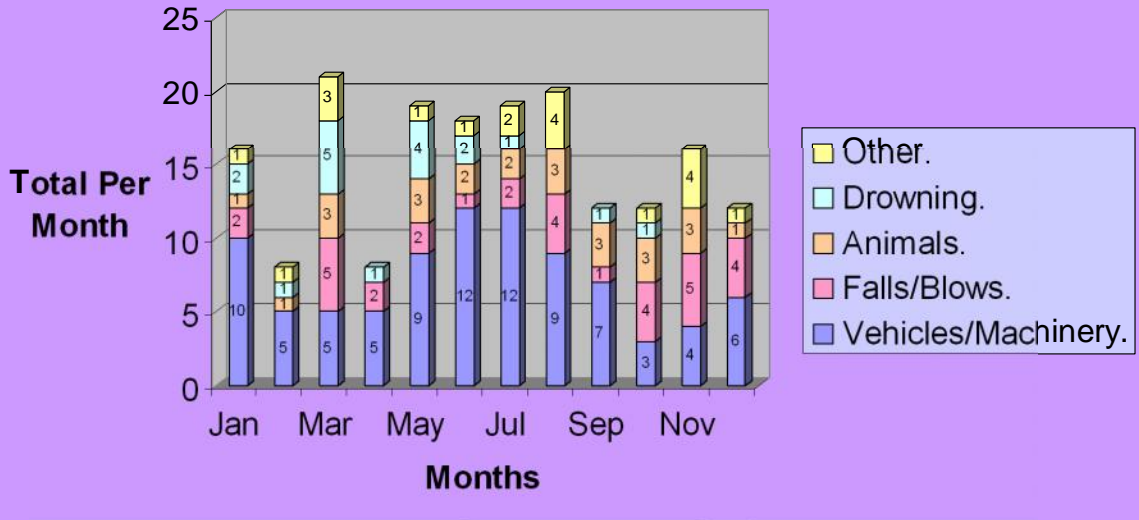


Figure 4: Trends in fatal accidents by month (1996-2005)

	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Total	16	8	21	8	19	18	19	20	12	12	16	13
Vehicles/machinery	10	5	5	5	9	12	12	9	7	3	4	6
Falls/blows	2	-	5	2	2	1	2	4	1	4	5	4
Animals	1	1	3	-	3	2	2	3	3	3	3	1
Drowning	2	1	5	1	4	2	1	-	1	1	-	-
Other	1	1	3	-	1	1	2	4	-	1	4	1

Figure 4: Trends in Fatal Accidents by Month



3. 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 information on accident trends on farms.

The most recent survey, in 2001, shows that non-fatal farm-accident levels have increased by 50% since the mid-1990s. It is estimated that about 3,100 accidents causing injury now occur each year, compared to 2,000 in the mid-1990s (see Figure 5).

The major causes of non-fatal farm accidents identified in the 2001 survey (Figure 6) involved:

- livestock (27%)
- trips and falls (23%)
- tractors and machinery (19%)
- farmyards (22%)

Accidents were also associated with swinging doors or collapsing walls, chainsaws and wood (6%), and building construction work (3%).

In its *Farm Safety Plan 2003-2007*, the Farm Safety Partnership Advisory Committee to the Health and Safety Authority set targets for improvements in safety and health levels. The targets to be achieved by 2007 are:

- Farm accidents will decrease to fewer than 1,600 per annum.
- Fatal farm accidents will be reduced by 50%, with particular emphasis on eliminating child deaths.
- The incidence of health problems associated with farming will be reduced by 50%.

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

Figure 5: Trends in farm injuries in Ireland

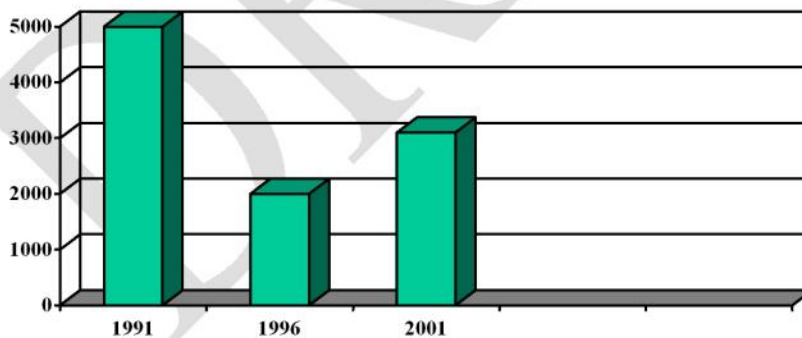
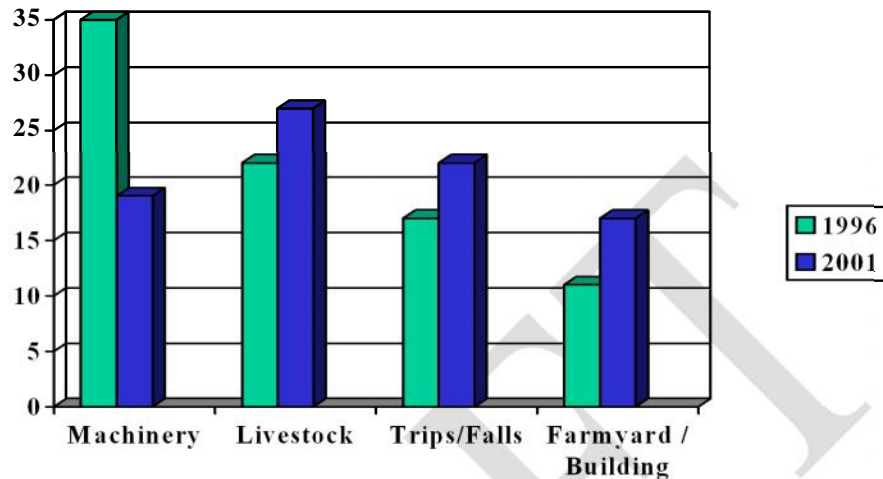


Figure 6: Causes of non-fatal farm accidents (1996 and 2001)



Appendix 2 - Safety, health and welfare-at-work legislation

The Safety, Health and Welfare at Work Act 2005

THE objective of all health and safety regulations is to reduce human suffering and losses due to accidents and ill health at work. The benefits from complying with the law far outweigh the effort involved in doing so. It is a matter of basic self-preservation. It is difficult to measure the degree of suffering and hardship that the victims of accidents and their families endure.

The 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
- 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 1993

These laws impose 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 imposes 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 working procedures
- safe plant equipment and machinery for use on the farm (eg, tractors, balers and other machinery and tools)
- a safe way in and out of the farmyard and other places of work (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 (eg, angle grinders) and substances (eg, chemicals and pesticides)
- 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 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)
- report to their employer any hazards of which they become aware

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 operations in such a manner that other people are not put at risk (eg, visitors, especially children, and contractors brought onto the farm periodically). This obligation also applies when spraying and slurry-spreading are being carried out.

Requirement to take ‘reasonably practicable’ measures

IN relation to the duties of an employer, the legislation states that ‘reasonably practicable’ means that an employer (or self-employed person) has:

“exercised all due care by putting in place the necessary protective and preventative measures, having identified the hazards and assessed the risks to safety and health likely to result in accidents or injury to health at the place of work concerned, and where the putting in place of any further measures is grossly disproportionate, having regard to the unusual, unforeseeable and exceptional nature of any circumstance or occurrence that may result in an accident at work or injury to health at that place of work.”

In other words, do what it seems reasonable to do to ensure safety.

Enforcement

Powers of inspectors

Health and Safety Authority inspectors have 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 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 the breach is an imminent danger to the safety and health of the farmer or other people, the inspector may serve a **prohibition notice** on the farmer, requiring work to stop immediately.

Penalties

Non-compliance with the law or with notices may lead to prosecution. The maximum fine in the District Court is €3,000 and/or six 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.

Accident reporting

All farmers are required to notify the Health and Safety Authority of any accident that occurs to themselves or their employees during the course of their work that prevents them from carrying out their normal duties for more than three days. To do so, use the approved form IR1. The authority must also be notified of specified dangerous occurrences, such as fires, explosions and chemical spillages.

Photo: Inspection in Progress.

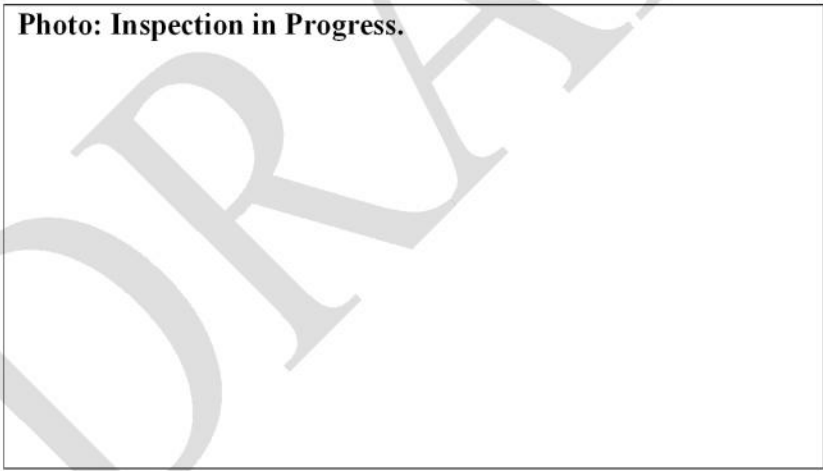


Photo 3: The purpose of a HSA inspection is to make sure that the farmer has in place a system for managing safety and health

Appendix 3 - SSWP sheets

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Appendix 4 – Examples of farm safety signs

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