



## NRN CASE STUDY

Addressing Health and Safety  
on the Farm



Part of the National Rural Network (NRN)<sup>1</sup> brief is to demonstrate the effectiveness of measures taken under the Rural Development Programme (RDP). One of the issues identified as being of concern to the rural economy is the issue of farm safety. Farm safety is a very complex issue which continues to be a serious concern. According to Health and Safety Authority (HSA) statistics, the most dangerous occupations in recent times have been construction and agriculture. A huge effort has been made by the HSA to address the risks of these two sectors and there has been huge improvements made in the construction sector in particular. Figures for fatalities and serious injury in agriculture have proven to be more difficult to consistently reduce and the figures for fatalities/serious injury for older people and young people on farms are of particular concern. The RDP has no direct responsibility to address health and safety concerns in agriculture, farm safety is primarily under the aegis of the HSA. However, the RDP channels significant funding to family farms. This case study addresses the interaction between RDP measures and health and safety on farms and makes suggestions for improving health and safety.

## Farm Safety in Context

Measuring the safety or otherwise of a sector is normally judged by the levels of workplace fatalities or serious injury that occurs. According to HSA statistics, in the ten year period between 1998 and 2007, an average of 15 fatalities per 100,000 workers was recorded in the Agriculture/Forestry/Fishing sectors as compared to two fatalities per 100,000 workers across all sectors. Long term figures would suggest that 30% of all workplace deaths occur on farms, in 2010 this figure was over 50%.

In addition, according to the Teagasc National Farm Survey, up to 1,800 serious injuries occur on farms every year. As well as the personal tragedy of these accidents, they come at a significant cost. According to research carried out by the HSA in 2002/2003<sup>2</sup>, the average cost of an on-farm accident is put at €1,969.



The fatality and injury figures are perhaps more tragic given the age profile of many of those killed, with the old and the young particularly vulnerable to death and injury on Irish farms. One of the reasons why this is the case is that farming in Ireland is family farm based, a structure that has evolved in Ireland over the millennia. This is also enshrined within the EU as a structure that should be preserved and protected for the future, the CAP Rural Development Programme being one of the key EU programmes aimed at this preservation. A family farm based agricultural structure has many socio-economic benefits. However, there is a blurring of the line between home and workplace and between work and social activity. One of the manifestations of this risk is the fatalities and injuries to those not directly involved in workplace farming activity, but yet killed or injured on a farm e.g. children crushed by moving machinery or older people attacked by animals.

<sup>1</sup> The National Rural Network (NRN), as a component of the Rural Development Programme 2007-2013 is being delivered by Tipperary Institute on behalf of the Department of Agriculture, Fisheries and Food (DAFF).

<sup>2</sup> An Assessment of the Cost of Reported Accidents in High-risk Workplaces' Health and Safety Authority, 2003.

# Description of Case/Analysis of Outcomes



This case study assesses farm safety on a mixed farm in Co. Meath. The farm consists of 70 ha in total (30 ha owned and 40 ha leased). There are 90 milking cows, about 70 followers are retained every year for beef or replacements and there are also approximately 50 ewes on the holding. The farm is a one-main unit with extra labour provided at busy times by the farmer's father and siblings.

## Farm Safety Requirements

This a family farm with the 40 year old farmer, his wife and 2 young children living adjacent to the farm and his elderly parents living within the farmyard. From a farm safety perspective, in addition to 3 generations living on the farm, there are also many visitors/relatives of the family of all ages coming into the farm environment (and workplace). This scenario is typical of the majority of farms in Ireland.

A self assessment farm safety document has been completed on the farm which meets legal requirements and the farm has undergone a number of safety inspections over the years, with no serious issue arising. He has never received any formal training in farm health and safety as he obtained his agricultural education prior to the inclusion of health and safety as a core module, he was never in REPS and has never worked outside the farm.



Figure 1: New cubicle house and filled in slurry lagoon

## Farm Safety Measures and Risks

Due to his age, proximity of the family to the farmyard, this farmer is extremely cognisant of safety on the farm and the appearance of the farm reflects this. There are no broken PTO guards to be seen, the slurry tanker is relatively new with all PTO guards and u-covers in place. In general all machinery is in good condition with all brakes, lights, guards maintained as appropriate. The tractors are well maintained, with handbrakes, rear-view mirrors, PTO covers, guards all in place and in good condition. Due to the proximity of the farm to a large town, significant emphasis is placed on managing livestock safely on the farm, particularly issues such as fencing of livestock to avoid straying and the safety of machinery travelling on busy roads. All fences, gates, entrances are maintained to a very high standard. However, a beef bull is maintained on the farm, which is a potential risk. The farmyard is adjacent to his parents' house which also poses a risk to those not directly involved in farm activities. However, new developments have been erected away from the house, so the main body of animal and machinery movements are made away from the house and separated by physical barriers such as closed-in sheds and closed gates.

The fact that there is a significant amount of machinery on the farm, daily direct interaction with livestock, proximity to main roads and a town and family members living within the farm environment means that there is always an element of risk on this farm (similar to all farms).



Figure 2: Open yard facilities and straw bedded area, now replaced by slatted facilities

### Farm Development and Investment

In recent years, the focus was on building up cow numbers and investment was necessitated to manage increasing livestock numbers with decreasing family labour. As a result, there was investment in housing facilities for cows (Figure 1) and the dairy (Figure 3), supported by the RDP Farm Waste Management Scheme and Dairy Equipment Scheme.

While the key motives for this development were efficiency, slurry management and pollution control, the investments also improved farm safety. The slatted cubicle housing has replaced straw bedding and open yard facilities (Figure 2) (all slurry storage is now in underground tanks). The tanks were built to Department of Agriculture, Fisheries and Food specification and for safety have external access points for agitation and emptying. More importantly, the open slurry lagoon was filled-in, which previously posed a significant risk to children (and others). The underground slatted tanks result in less volume of slurry to be spread (compared to the open lagoon). As there are adequate facilities to store all slurry produced, spreading takes place as part of a planned programme in spring and early summer and eliminates emergency emptying sessions when the tanks overflow (common in the past). Emergency slurry spreading under severe time and weather constraints in an unplanned manner posed a significant safety risk.

The net effect of the investment in winter housing and slurry storage from a safety perspective is that less machinery time is spent managing farm wastes, access points to slurry tanks are of high standard, slurry management is now planned and overall less manures are produced for spreading.



Figure 3: Upgraded dairy and collecting yard facilities

The existing dairy facilities were ungraded which included all electrical wiring and fittings. This has had a marked improvement on the safety of the dairy in the process. The milking parlour and dairy is where a farmer spends a significant proportion of his time and involves the combined risks of water, machinery, electricity and livestock. The improvement works also included the installation of non slip surfaces, which benefits the operator as well as the cows.

### Future Plans

The next priority on this farm is handling facilities. The bull is currently housed in old stables which is adequate but not totally safe. A new bull pen is planned with an escape exit and head restraining gate. There are also plans to improve the calving facilities to ensure the safety of the farmer at the time of calving (normally docile cows can pose a particular risk post-calving). These investments will be made on the farm irrespective of the availability of grant aid. Ongoing maintenance of stock-proof farm boundaries will continue.

### Perspectives from the Health and Safety Authority

While this farm is typical of the range of risks encountered on farm, it is not possible to provide every example of farm safety risks in one case study. Therefore, Health and Safety Authority Inspectors<sup>3</sup> provided an insight into some of the more prevalent risks that they encounter while carrying out farm inspections. Health and safety inspectors find that farmers are often aware of the risks that occur on their farm, particularly in relation to PTO guards, bulls, freshly calved cows and machinery, but as the farmers themselves are the only people on the farm on a daily basis, a significant problem of complacency creeps in. For example, the farmer might know the bull is potentially dangerous when he is running with the cows, or that the PTO guard is a bit damaged on the slurry tanker. However, he works within these risks and it doesn't become an issue for him to take action on, until an accident occurs to him or someone else, or until the risk is pointed out by a health and safety inspector, or perhaps an advisor or vet (unfortunately these risks are often identified by other family members also but no action taken).

HSA inspectors often find that most deficiencies occur on farms with older machinery, with broken handbrakes or mirrors on old tractors, or from handling facilities that were good, but now are rusted to the point that they are dangerous, being regular occurrences. Another common risk that HSA inspectors come across is in relation to electrical wiring. Modern sheds normally have excellent electrical facilities, but there are many old sheds in operation. Often these sheds have dangerous wiring, not suitable for external use and are not properly earthed with Residual Current Device's (RCD). Deficiencies in electrical installations are risks that will take a significant investment to rectify. However, as a general comment, HSA inspectors find that the majority of issues that they raise on farm can be rectified at a small cost (u-guards on a slurry tanker or PTO covers) or just a tidy up of equipment/facilities and a proper maintenance routine.

<sup>3</sup> Personal communication with Health and Safety Authority Inspector.



# Assessments of Critical Success Factors and Barriers



## Specifications/Standards

Farm safety improvements were made in tandem with the upgrading and expansion of livestock facilities, slurry storage and efficiency. Therefore, requirements/standards in farm investment grants impact on safety with specifications for eligibility for grant aid (e.g. S101<sup>4</sup>, S103<sup>5</sup> and S123<sup>6</sup>). All investments funded under RDP schemes must adhere to these minimum standards and as a result impact on what happens at farm level. One example of a requirement is to site all slurry agitation points externally, thereby reducing the risk of being overcome by gases during the agitation process (also includes safety covers to prevent falling into tanks). Another requirement is the use of Residual Current Devices (RCDs) and the use of a RECI (Register of Electrical Contractors of Ireland) approved electrician to install electrical wiring and fittings. Both of these standards were adhered to on the case study farm.

## Practices

Practices can be as important if not more important than facilities when it comes to safety on many farms. In this case study, slurry spreading is inherently safer as it changed from a reactionary process to a planned process. Too many accidents occur during emergency tasks that result from poor planning: overflowing effluent tanks that have to be emptied immediately; livestock breaking out of a poorly fenced field; machines being repaired in a panic, when they should have been given a complete pre-season service. It is very difficult to address every safety risk on a farm, but forward planning and implementation of these plans can make a farm safer. Increasing planned or precautionary work will reduce the amount of emergency work that has to be carried out.

## Farmer Attitude

The most critical factor regarding farm safety is the farmer himself. S/he is the person who works the farm on a daily basis. In this case study, he recognised the most critical risks on the farm and set about minimising these risks as much as practicable through investment. The development of the cubicle house eliminated the requirement for the lagoon and removed a serious risk to young children on the farm. In addition, he located new farm buildings further away from the dwelling house. Planned investment can have a dual result of increasing efficiency and increasing the safety of the farm. From the HSA inspectors viewpoint, farmers in general are quite good at addressing risks to others, such as removing the bull from the dairy herd when a relief milker is in, thereby protecting the safety of the milker. However, where action is required on risks for themselves/family, the response is often not as swift and this acts as a barrier towards making a farm safer. The attitude of the farmer is therefore the biggest factor which impacts on farm safety.

<sup>4</sup> Minimum specifications for the structure of agricultural buildings, DAFF.

<sup>5</sup> Minimum specification for the upgrading of existing dairies, milking premises and cow housing, DAFF.

<sup>6</sup> Minimum specification for bovine livestock units and reinforced tanks, DAFF.



## Cost of Investment

The cost of investing in safety measures can prohibit improvements. Despite the fact that many improvements can be made at low cost, significant investment may be required on some farms (particularly where low standards exist). In the past, investment supports were available to assist farmers in meeting the required standards and the grant aid inspections ensured adherence to these standards (complementing the inspections undertaken by the HSA). However, in the absence of farm investment grants, farmers may be less likely to invest in the necessary measures. Therefore, it may be necessary to drive enhancements in safety measures by education and legislation alone (grant aid provided an incentive in the past).

## Links To Rural Development Programme

The three objectives of the CAP Rural Development Programme (RDP) 2007 to 2013 are:

- Improving the competitiveness of the agriculture sector;
- Improving the environment and the countryside by support for land management; and
- Improving the quality of life in rural areas and encouraging diversification of economic activity.

The RDP does not specifically address issues relating to farm safety but it does impact on farm safety. As outlined, maintaining the family farm unit will maintain this link between social space, living space and workspace. Axis 1 (Competitiveness) targets 'Modernisation of Agricultural Holdings', while Axis 2 of the plan targets 'Improving Environment and Landscape' with the Rural Environment Protection Scheme (REPS) and the Agri Environment Options Scheme (AEOS). On farm investment schemes have very clear terms and conditions, many of which involve the construction of facilities to defined specifications. These specifications are maintained and updated by DAFF engineers and incorporate modern safety standards and technologies. In this way, the RDP can result in a safer working environment (directly and indirectly); directly in terms of handling facilities, electrical installation standards and external agitation points; and





indirectly through modern facilities and equipment which facilitates easier and safer handling of animals. REPS specified standards for livestock fencing and hanging of gates. Stock-proofing of farm boundaries reduces the likelihood of livestock straying, which can be a very dangerous occurrence.

Other policy instruments of the Common Agricultural Policy, such as the Single Payment Scheme (SPS) also impact on farm safety. Under 'cross compliance', farmers must adhere to many elements which have a farm safety dimension. For example, farmers must have suitable locked storage facilities for pesticides and milking facilities must be maintained in good repair, which includes safety concerns.

Training programmes funded by the RDP also impact on health and safety. REPS participants must undertake a 20 hour course on the management of the REPS scheme, which includes a module on health and safety. Farmers who participated in the vocational training programmes and in particular younger farmers who availed of the Axis 1 Installation Aid Scheme were exposed to a health and safety module. Therefore, RDP training measures have an impact on health and safety on farms.

## Assessment of Replication Potential

Concerns over health and safety can be addressed by: education; engineering; and enforcement (*the three 'E's*). Enforcement is under the remit of the Health and Safety Authority. Education is an ongoing challenge. Engineering is an area that the RDP has addressed through various measures. Engineering is a passive concept in terms of health and safety. If there is no slurry lagoon on a farm, there is no risk from drowning in a slurry lagoon; if the electrics on a farm are maintained to a high standard, there is little risk of electrocution; if the agitation point of a slurry tank is external, dangerous gases are vented outside and are less dangerous. If there is sufficient slurry storage on farm, emergency slurry spreading is minimised. Accidents will happen, but the incidence can be significantly reduced by improved practices and engineering to minimise risks.

Cross compliance has proven to be a very effective tool in the implementation of legislation. The prospect of using cross compliance as a tool to implement health and safety legislation would initially look an attractive option. However, health and safety was considered as a measure for discussion, but was ultimately not included. Nonetheless, there are lessons to be learned from cross compliance in ensuring adherence to standards.

Education is identified by HSA inspectors as an important factor in addressing health and safety. The farmer in this case study, while aware of implementing practices that make his farm safer, has no formal training in health and safety. Several initiatives are already ongoing in this area. Health and safety is included as a module in the REPS training and is already a core module in agricultural education, which ensures that the future farmers have all received some training in health and safety. This aspect could be replicated in all agriculture related courses and could increase the number of farmers who receive health and safety training to a specified standard. For example, the provision of specific training courses in the areas of safe livestock handling or safe driving course linked to specific legal requirements (e.g. an agricultural driving licence, or maintenance of a herd number) would bring the concept of health and safety training to another level.

As previously mentioned, the lack of resources within the current RDP to deliver on further agricultural measures may slow the pace of improvements in farm safety as the combination of incentives and legislation complemented each other.

## Lessons Learned

Availing of grant assistance under the RDP allowed the farmer in this case study to meet a number of objectives. Primarily the investments allowed him meet legal requirements for slurry storage under the nitrates regulations and quality milk production. The investments also improved efficiency of the enterprise and allowed for more cows to be maintained on the holding. The investments made the farm safer for himself, his young children and his elderly parents in a passive way, as many risks have been removed. By incorporating safety features into minimum specifications of buildings and designing the investments correctly, the farm is a much safer environment to work and live in. However, the farmer has received no formal training in health and safety. This raises the question of whether training should become mandatory to ensure that all people working on a farm (farmers, contractors, employees, family) have formal health and safety training. It is evident from this case study and the insights from the HSA that it is crucially important to change attitudes and practices.



## Conclusions and Recommendations

Most farmers are able to identify the main health and safety risks on their farm and most state that they would invest to reduce the risks. However, the priority for on-farm health and safety is getting farmers to take action on the known risks. The Rural Development Programme impacts on farm safety through the implementation of farm investment and training measures. Significant funding was provided through the RDP but farm fatalities in 2010 were the highest for a number of years. It is unlikely that funding will be available for large scale farm investment measures in the short-term, so other efforts need to be explored.

Many approaches and initiatives have been taken on farm safety and progress has been made at many levels. However, to have a more profound impact on farm safety, a new approach with clear objectives is necessary. Farmers have to be motivated into taking action to protect themselves, their families and others who come into contact with their farms. A new media campaign should be designed and implemented to highlight the importance of farm safety. This campaign could reflect the approaches taken in the Road Safety Campaigns. The stakeholders (including: farmers; farm organisations; Teagasc; ACA; Farm Relief service; HSA; and Government Departments) should be involved in the development and delivery of initiatives to coincide with the media campaign.

The role of planning and design in minimising the health and safety risks arising from physical development of farm buildings/facilities should be addressed with particular reference to the proximity of high risk farm areas to family dwellings. The Department of Environment, Community & Local Government could assist in this area by the issuing of appropriate guidelines to Planning Authorities and by a review of the regulations relating to exempted development for agricultural structures. Awareness raising should also be undertaken with farmers about the importance of safety considerations in the planning of new farm buildings/facilities and the modification of existing buildings/facilities.

Awareness and education may be the most effective way of getting farmers to take action on safety. Health and safety modules should continue to be core elements to all agricultural training and education courses (at all levels). The legal requirements and HSA inspections could be greatly complemented by a new approach to health and safety training. Training courses for health and safety have long been available, but in order to achieve progress, it is now opportune to develop and introduce a Safe Farm Training Programme. The Safe Farm Training Programme should be targeted at farmers, farm families and farm employees.



# Summary of Recommendations



Participation in the Safe Farm Training Programme should initially be voluntary subject to a review within 2 years. If the level of participation fails to reach agreed targets, mandatory training should be considered. Training modules should be established for a range of activities (e.g. animal handling, driving of agricultural machinery, chainsaw operation, operation of agricultural loaders, slurry handling). A number of modules will already be in place, while others will need to be developed. Safe Farm training should be provided by appropriately trained personnel available through Teagasc, ACA and independent safety consultants. The cost of training needs to be pitched at a level which is not prohibitive. Farmers (not employees) should also be required to present a copy of their completed self assessment document or safety statement in order to be considered as successfully completing these courses.



Every construction worker has to undertake Safe Pass training in order to work on a construction site. Every operator of a forklift or wheeled loader must also undergo a training course. In the agricultural sector, under the *Sustainable Use Directive*, new legislation is in development that will require all crop advisors, store handlers and operators of plant protection products (agricultural sprays) to undergo training in order to be able to carry out their job. A precedent has been set in other sectors for mandatory training, however, the initial introduction of Safe Farm Training provides an opportunity for the sector to embrace voluntary participation. A farm health and safety training measure should be considered for inclusion in the 2014-2020 Rural Development Fund (provision within current fund Reg 1698/2005).

The responsibility for a Safe Farm training initiative is another area which will need to be addressed: health and safety implementation is under the control of the HSA; agricultural and rural development schemes are under the control of the Department of Agriculture, Food and the Marine; the Department of Transport, Tourism and Sport has overall responsibility for agricultural vehicles; and the database of farmers is under the control of the Department of Agriculture, Food and the Marine. However, if there is a determination to address the level of fatalities and serious accidents on Irish farm families, perhaps it is time to bring together these public bodies to put in place a series of requirements on farmers which will ensure that farms become safer working and living environments. To be most effective, a lead Department/Body should be assigned primary responsibility for coordinating Farm Safety Policy, Farm Safe Training and the implementation of specific safety measures.

Participation in the Bord Bia Quality assurance schemes stipulates the presence of a completed self assessment document or safety statement. Completion of safety documents and other safety indicators should be included in other schemes. Specifically completion of farm health and safety training should be linked to the selection and eligibility criteria for future Rural Development Schemes.

The Department of Transport, Tourism and Sport has a testing programme requirement for tractors, equivalent to an 'NCT' in development. This initially is to be targeted at agricultural contractors who use their tractors to haul construction materials and has many technical and political difficulties to overcome before it is implemented in full. However, the HSA find that most machinery accidents occur with old machinery that is not regularly used or well maintained and accidents occur as a result. The argument put forward by representative organisations against NCT's for tractors is that many tractors are not used often but if this category of tractor is responsible for most accidents, it's the very category that should be addressed. The 'NCT' should be implemented for all agricultural tractors and linked to insurance requirements.

In order to reduce the level of fatalities and serious accidents which occur on family farms and for health and safety to be seriously addressed on farm, new policy initiatives and objectives will have to be pursued and legislative action has proven to be the most effective way of implementing policy objectives in the agricultural sector.

Improvement in on-farm health and safety will require that a number of measures be taken in co-operation with farmers to address specific issues that require action on each individual farm holding.

- A media campaign (perhaps reflecting the approaches taken in the Road Safety campaigns) to highlight importance of farm safety should be designed and implemented. Stakeholders should be involved in initiatives to coincide with the campaign.
- The role of planning and design in minimising the health and safety risks arising from farm buildings in close proximity to family dwellings should be addressed. The Department of Environment, Community & Local Government could play a role in this area.
- Farm health and safety modules should continue to be core elements of all agriculture training and education courses.
- A Safe Farm health and safety training programme (similar to Safe Pass) should be introduced for farmers and farm employees. This should initially be made available on a voluntary basis subject to a review in 2 years (after which time mandatory training may be considered if target participation levels are not reached).
- Completion of training should be linked with the preparation of the farm safety self assessment document or safety statement.
- The 2014-2020 Rural Development fund should consider including a Health & Safety Training Measure (this option is already provided in the current round under Article 20 (a) (i) of Council Regulation EC No. 1698/2005).
- A lead Department/body should be assigned primary responsibility for coordinating Safe Farm Training, farm safety policy and the implementation of specific safety measures.
- Completion of farm health and safety training should be linked to selection and eligibility criteria for future Rural Development Schemes.
- An 'NCT' process should be introduced for agricultural tractors.



