A Survey of Health and Safety on Irish Farms – Implications for Extension and Education

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Abstract
The alarming rate of farming accidents and fatalities resulting from those accidents on Irish farms has highlighted the dangers to which Irish farmers are exposed. This study sought to examine the incidence of farm accidents over a five-year period and also farmers’ attitudes and activities towards health and safety on their farms. A survey was developed and attached to the February 2002 supplement of the National Farm Survey (NFS). It resulted in 1127 utilisable questionnaires.

The results showed that during the five-year period from January 1997 to December 2001 an accident had occurred on 9.7% of the respondents’ farms. In three-quarters of the accidents the farmer was the injured person. Although the majority of farmers described themselves as ‘concerned’ about farm safety, the results illustrated that in the majority of cases this concern was not reflected in farmers’ actions towards safety on the farm. The results highlight the necessity for health and safety education for Irish farmers.
Introduction

Agriculture in the Republic of Ireland in 2000 employed 257,900 regular workers (family and non-family), working on 141,500 farms which vary considerably in type, economic viability and intensity of farming. The majority of labour employed on Irish farms is family labour with regular non-family workers accounting for 14,400 of the total employed. It is estimated a similar number of casual workers are employed (CSO, 2002). Including persons providing on-farm services to farms and non-working family members, up to 600,000 persons are exposed in one way or another to the hazards of farming (McNamara and Reidy, 1997).

The structure of the farm household in Ireland is quite unique in that the vast majority of farms are owner occupied. The farm is also the family home, often with three generations present. The typical farmer in the Irish context combines the roles of owner, manager and principal operative (McNamara and Reidy 1997). In the majority of cases there is no structural boundary between the family home and the farm. In other words there is nothing physically restricting the movement of people between the working environment and the home. Given the structure of farms in Ireland and the volume of people who have contact with farms, eliminating hazards and managing safety should be a central element of farm management.

According to the Nordin et al 2001, agriculture ranked second to construction in accident occurrence, involving absences of three or more days from work (Dupre, 2001). Occupational accidents in farming are a concern for many European Union countries; Danish research shows that a staggering problem exists there also. In Denmark, the risk of serious occupational accident is greater in farming than in most other occupations. In Denmark the yearly incidence of fatal work accidents per 100,000 employed is roughly three times greater in farming than in other occupations grouped together (Glasscock et al, 1997). Swedish statistics show that throughout the 1990’s, agriculture, hunting, forestry and fishing had the highest fatal accident rate by branch of economic activity (Swedish Work Environment Authority, 2001). According to Lundquist at al, (1992 as cited in Glasscock, 1995) in Sweden, where only 3-4% of the work force is engaged in farming, 8% of all fatal work related accidents occur in this occupation.

The increasing levels of fatalities resulting from accidents on Irish farms, in particular child fatalities, has highlighted the fact that the Irish farm has become one of the most dangerous workplaces in the country (Beegan, 2002). On average one-third of annual workplace accidents in Ireland occur in farming. Throughout the 1990’s Irish agriculture has performed worse, in safety terms, than any other sector in the Irish economy (Table 1).
Table 1. Fatal Accidents by Sector 1992-2002

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<td>15</td>
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<td>Manufacturing</td>
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<td>7</td>
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<td>4</td>
<td>4</td>
<td>2</td>
<td>4</td>
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<td>1</td>
<td>19</td>
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<td>5</td>
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<td>18</td>
<td>13</td>
<td>14</td>
<td>23</td>
<td>11</td>
<td>12</td>
<td>18</td>
<td>19</td>
<td>17</td>
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<td>Total</td>
<td>46</td>
<td>64</td>
<td>50</td>
<td>78</td>
<td>59</td>
<td>48</td>
<td>70</td>
<td>69</td>
<td>69</td>
<td>64</td>
</tr>
</tbody>
</table>

Source: HSA, 2002

For every death that occurs in Irish farming, there are many more non-fatal injuries of varying severity. Teagasc estimated that 5,000 farm accidents occurred in 1991; this figure decreased to 2,000 in 1996 (McNamara and Reidy, 1996, p.20).

With increasing farm inspections by the Health and Safety Authority (HSA) officials, farmers are now required to improve their safety record or face the legal consequences. Farmers are legally bound to compile a safety statement for their farm. A comprehensive safety statement, when acted upon is likely to reduce accidents on the farm (HSA, 2001, p.3). It is essential that, once drawn up, the safety statement becomes a real benchmark for the work practice of the farm (Dunne, 2000, p.12). However, research by McNamara and Reidy (1996, p.39) suggests that safety statement adoption rate is extremely low, with only 2.5% of farmers having a completed safety statement in 1996. The situation therefore stands with the vast majority of Irish farmers not complying with the safety legislation and more importantly not factoring safety planning into their farm management.

Accidents involve complicated interactions between characteristics of the individual and his/her environment. As farmers work alone, the effects of individual differences are magnified, in that the social and organisational regulation of behaviour occurring in other industrial settings will be to a large extent absent (Glasscock et al, 1996). While engineering advances have made safer working environments possible for farmers, very little has been done to introduce behavioural changes, with regard to safety, among farmers. Reducing accidents on Irish farms through education and providing practical advice on farm safety, has become a priority research area for the Irish State Advisory Service, Teagasc. In order to educate farm families in safety issues, it is vital to understand their attitudes toward safety and the safety practices currently employed on Irish farms.

Purpose of the Paper

This paper examines the current health and safety practices employed on Irish farms. The research identifies (1) the level, causes and consequences of farm accidents in Ireland and (2) examines the attitudes and activities of farmers to safety and accident prevention on their farms.

Methods and Data Sources

A comprehensive questionnaire was attached to the February 2002 supplement of the
National Farm Survey (NFS). The survey work was carried out by trained NFS recorders and resulted in 1,127 completed questionnaires.

The questionnaire sought information on accidents which had occurred on respondent’s farms in the five year period between January 1997 and December 2001 and also examined farmers’ attitudes and activities toward safety on their farms. The design of the questionnaire was based on that used in a similar study by Teagasc (‘Survey of Health and Safety on Irish Farms’) in both 1991 and 1996 in order to examine trends in health and safety. The questionnaire contained five sections: A. Accidents on the farm, B. Physical Health of Farm Workers, C. The Farm from a safety perspective, D. Awareness of Hazards, E. Preventative actions.

The questionnaire was made up of predominantly closed questions, although it did include a number of open questions designed to ascertain the main safety concerns farmers had and their suggestions for improving safety on their farms. The completed questionnaires were analysed using the Statistical Package for Social Sciences (SPSS). The survey data was weighted by size of farm and system of farming in accordance with a population of approximately 116,986 farms. The weighted data was used only to indicate estimated national farm accident levels; the remainder of the results relate to the sample.

Results

Accidents on the Farm

The results indicate that an estimated 3,077 accidents occurred on Irish farms in 2001. They also show that the average number of accidents per year in the five year period from January 1997 was 1,782. The figure is presented as an average per year over five years for two reasons. The first is that two similar five year surveys were conducted by Teagasc in 1991 and 1996, thus allowing comparison over three consecutive five year periods. The second reason is that the number of accidents reported by respondents varied enormously depending on how recent the accident was i.e. far more accidents were reported for 2001 than for 1997, placing doubt on the reliability of memory particularly for minor accidents.

The results showed that an accident occurred on 9.7% of the sample farms in that time period. In three-quarters of the accident cases recorded, the accident involved the farmer, while employees accounted for only 8%. Children accounted for 4.6% of those injured and the remainder were other family members. Almost 92% of those injured were male. In over 40% of the cases the accident caused economic loss to the farm household. Of those who experienced economic loss almost 42% found the loss to be moderate to severe. In most cases it was necessary for some one to take over the work of the injured person. Family members took over the work in 50% of cases, of which spouses accounted for over 14%. Hired labour was required in almost 22% of cases. In just less than half of accident cases full recovery from injuries did not occur and in almost three-quarters of the cases those injured resumed work while the injury was still causing difficulty.

Accidents associated with livestock, trips and falls, and other farmyard accidents were found to have increased since 1996. There has, however been a significant reduction in the number of accidents associated with machinery (Table 2).
Table 2. Types of farm accidents

<table>
<thead>
<tr>
<th>Year</th>
<th>Livestock</th>
<th>Machinery</th>
<th>Trips and falls</th>
<th>Chainsaw/Wood</th>
<th>Other farmyard</th>
<th>Building work</th>
<th>Other</th>
</tr>
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<tbody>
<tr>
<td>2001 (n=108)</td>
<td>26.9</td>
<td>19.4</td>
<td>22.2</td>
<td>6.5</td>
<td>13.9</td>
<td>2.8</td>
<td>8.3</td>
</tr>
<tr>
<td>1996</td>
<td>22.9</td>
<td>34.9</td>
<td>18.1</td>
<td>8.6</td>
<td>6.8</td>
<td>4.9</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Physical health of farm workers

This section was designed to examine the occurrence and severity of farm related ill health problems on the sample farms. The survey found that farm related ill health problems occurred on over 11% of the respondents’ farms. Similar to accident profiles, in the majority of cases (85%) the farmer was the affected person. In three-quarters of the cases the ill-health problem was described as moderate to severe and almost one-third of those affected described their condition as persistent. It was found that measures were taken to eliminate the ill health risk in over three-quarters of the respondent cases. Lung problems and chronic back pain accounted for the majority of the reported ill health problems (Figure 1).

Figure 1. Health problems associated with farming (n=129)
The Farm from a safety perspective

This section examines farmers’ attitudes towards safety on the farm. It looks at the level of knowledge of and compliance with health and safety legislation pertaining to Irish farms. The vast majority of respondents were aware of their legal obligation to conduct farm operations in a manner which does not put other people at risk. However fewer understood what a safety statement is and what purpose it serves and less than half of those interviewed were aware of their legal obligation to prepare a safety statement. Only 9.6% of those interviewed had prepared a safety statement for their farm (Figure 2).

![Figure 2. Awareness of and response to legal obligations](image)

The results show that although nearly three-quarters of the respondent farmers classify farm work as dangerous, over three-quarters classify their own farm as a safe workplace.

Over 67% described their own attitude to health and safety on their farm as ‘concerned’. Interestingly, almost half the respondents said they would not welcome Health and Safety Authority officials on to their farm to enforce safety standards. Alarmingly over 40% of the respondents stated they had not incorporated safety into their farming operations in the last five years.

Awareness of Hazards

The farmers were asked a series of questions in relation to their approach to hazards on the farm. This was an attempt to examine their awareness of hazards and how they respond to the most obvious hazards on the farm.

Some worrying trends emerged from the analysis; most worrying of all was that on 29% of farms all PTO shafts (which are in use on the farm) were not covered. The vast majority of respondents said that brakes on tractors were checked once a year or less often. Over 67% of those who responded had no locked storage area for chemicals on the farm and 36% admitted to not using protective clothing when using chemicals. However, the vast
majority of the respondents said they did consult manufacturer instructions and guidelines when using chemicals on their farm.

With a worryingly high level of farm accidents involving children, and indeed child fatalities, on Irish farms, it is encouraging to report some positive findings in this area. The majority of the sample farms reported that children under 14 years old were present on the farm. Most of the respondents said that children are restricted from certain areas of the farm and are not allowed to play in the farmyard (Figure 3).

![Figure 3. Safety practices relating to children on the farm](image)

Over two-thirds of the respondents said that children never have access to machinery on their farm. In addition 87% of the respondents said that children under 14 years of age are never allowed to drive tractors on their farm. This is in keeping with Health and Safety Authority guidelines advising that children under the age of 14 should not operate tractors or self-propelled machines.

Over three-quarters of the respondents said they did create an awareness of hazards on the farm among family, farm/casual workers and visitors to the farm. Similarly, the majority of respondents reported that at times of heightened activity on their farm (e.g., silage making), they made a planned effort to reduce the risk of accidents occurring. Over three-quarters of the respondents classified their farm as a ‘tidy’ workplace.

Because of the dependence on weather and cyclic nature of the processes involved, a large proportion of work on the farm is compressed into certain times of the year, month, week or even days in some cases. There are severe economic penalties attached to completing work too early or too late. This leads to periods of long hours, few breaks or holidays and physically and mentally demanding jobs being done at certain time of the year (O’Sullivan 1995, p.27). Given the pressure farmers are subject to, the sample were asked ‘In general is ‘getting the job done’ more important than taking safety precautions on your farm?’ Of the respondents, only 46% said never, 25% said rarely, 25% said sometimes and almost 4% said always.
Preventative Actions

In an attempt to ascertain what actions farmers take to prevent accidents occurring or to prevent the occurrence of ill health problems on their farms, a series of questions relating to safety planning were put to the farmers. The results showed that over two-thirds of the respondents do not always carry out safety checks on machinery before use. In planning operations, almost half the respondents said they do not always account for health and safety issues for themselves and others involved in the operation. Only 15.5% of the respondents perceived noise as a problem on the farm and the same percentage said they always use ear muffs/plugs themselves. However, interestingly when asked if they supplied ear muffs/plugs to other family member or farm workers, over 20% responded that they always did.

Almost three-quarters of the respondents think that safety signs are effective in minimising accidents on farms, yet only 16% of the respondents use safety signs on their own farm to create an awareness of hazards. Only 13% of the respondents had completed any type of health and safety training. Half the respondents felt that they require more information on health and safety issues, yet only 5% had looked for such information in the previous 12 months. The majority of the respondents said they would look to Teagasc for information on health and safety. Almost 19% would look to the HSA and 8% to farming organisations.

Discussion and Conclusion

The results clearly suggest that the level of farming accidents has decreased significantly since 1991 and continues to decrease. However, HSA statistics illustrate that fatal farm accident levels are not decreasing.

Over the five-year period beginning January 1st 1997 an accident was found to have occurred on an estimated 7.9% of Irish farms. The sample farms indicate that these accidents contribute to much more than a physical injury; they can have serious effects on the farm business. Economic loss was experienced on 40% of the farms, some of which could possibly be explained by the injured person returning to work while not fully recovered, in 45% of cases. In addition to this, in cases where it was necessary for someone to do the work of the injured person, hired labour was required in 22% of cases.

The results clearly indicate that more care is required with managing livestock on farms and the working environment needs to be critically examined in order to reduce trips and falls and also other farmyard accidents. Although there is evidence of a significant reduction in machinery related accidents, they are still unacceptably high. The reasons for the high level of machinery related accidents can be easily explained from the results. A high level of negligence with machinery is exhibited among the farmers in the sample due to uncovered PTO shafts, brakes on tractors not regularly checked and the lack of regular safety checks on machinery.

The results indicate that ill health risks are also a serious problem, with 11% of farms in the sample reporting ill health problems associated with farming. Chronic back pain and lung problems are responsible for the majority of farming related health problems. Adequate manual handling training and use of the appropriate protective equipment would go a long way to reducing these problems on Irish farms. The results reveal many contradictions, the most startling of these being that the majority of farmers classify farm work as dangerous, yet
the majority classify their own farm as a safe work place. Although the majority of farmers described themselves as ‘concerned’ about farm safety, only 9.6% had prepared a safety statement. This is certainly a case of ‘actions speak louder than words’! These results strongly indicate that the respondent farmers do not recognise potential hazards on their own farms.

The results suggest a very positive reaction to child safety on the respondent farms. Given that in the Irish context, the vast majority of farms are also the family home, nothing less than the highest level of vigilance is acceptable in regard to children. The high level of child fatalities on Irish farms is widely reported by the media and this is a key focus area for HSA campaigns. Half the farmers who were interviewed said they required further information on health and safety issues, which is testament itself to their lack of awareness of farm health and safety issues.

The results suggest that although much progress has been made and accident levels have been reduced, farm health and safety is currently not a priority with farmers in Ireland. Although they may be aware of the hazards associated with farming, much work is needed in getting farmers actively involved in safety planning and incorporating a safety culture into their everyday farm management.

**Educational Importance and Application**

To date there has been very little research into farmers’ attitudes towards farm safety in Ireland. Although farming accidents have been studied in detail in the past, the reasons why accidents occur have been neglected. For those involved in education, training and advisory services, it is essential to understand farmers’ attitudes toward safety in order to effectively promote farm safety. Teagasc offer a number of full time and part time courses to Irish farmers and safety is a module in most of these courses and is actively promoted throughout all courses. The main focus of the advisory programme in Ireland in the past was technical advice to generate production efficiency. However, in 2001 the advisory resources were reorganised into two new services: 1) The Technology and Business Service; 2) The Rural Viability Service. The four priority advisory programmes established were: a) Improved competitiveness; b) Rural Viability; c) Sustainable Farming; d) Food Safety and Quality (Teagasc, 1998, p.11). With evidence of very poor safety management on Irish farm there is a clear need to build farm safety education into day-to-day advice to farmers. This means not only designing programmes which will meet farmers’ education requirements but also programmes designed to educate advisors in Farm Health and Safety. Pierson et al 1996, recommended that agricultural educators and industry professionals should become more aware of their important role in the transmission of information and knowledge regarding agricultural safety and health hazards.

In addition more emphasis should be placed on farm safety in agricultural science higher education courses in Ireland.

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1 Teagasc are the national body providing research, training, and advice for the Agri-food industry in Ireland.
2 The Health and Safety Authority is responsible for the promotion and enforcement of the workplace Health And Safety in Ireland.
3 A safety Statement is a programme in writing aimed at minimising exposure to risk of injury or ill health for all employees or those who may be affected by that work. Under the Safety, Health and Welfare at Work Act
1989 all employers and the self-employed must prepare a Safety Statement.

The National Farm Survey is conducted annually by Teagasc to determine the financial situation on Irish farms and measure farm performance for use as standards for farm management purposes. The sample is randomly selected and designed to represent the major systems and sizes of farm.

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