

Developing the Role of Extension in Farm Safety and Health in Ireland

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Abstract

The Agriculture sector in Ireland and Internationally has a poor health and safety record. In Ireland, a National Initiative is in progress to develop a legal Code of Practice including a Risk Assessment document and to evaluate strategies that assist farmers to effectively complete and implement the legal requirements. This paper describes the Initiative and presents the opinions of extension agents on the utility of a pilot training course initiative for farmers on completing the Code of Practice Risk Assessment Document. It also presents agents opinions on the training they received to facilitate farmer training and estimates the level and nature of follow-up advice on safety and health provided to farmers who attended a training course. The pilot training initiative attracted high numbers of farmer participants and 89% of agents believed that farmers considered attendance at a course was worthwhile. Just 62% of agents were satisfied with the training they received with the main comment being that it was too short. A comparison found that 90% of agents who facilitated a pilot training course reported the inclusion of some aspect of health and safety in their work programme compared to 71% for non participating agents. Forty eight percent of agents expressed the view that farmers give practical farm safety and health management a low priority. The findings suggest that extension agents predominantly had a positive view of the farmer training course provided and to providing advice on safety and health but follow-up strategies are required to assist farmers to implement the required changes.

Key words: farm safety, health, training, legislation.

Introduction

There is an urgent need to design effective education and extension strategies to assist farmers to adequately manage farm safety and health. Both in Ireland and Internationally the agricultural sector has a significant health and safety problem (Phelan et al, 2007). In Ireland 25% of workplace deaths occur in agriculture (HSA, 2007a), even though just 6.4% of the working population is employed in the sector (DAFF, 2005), while in the U.S.A. the sector is ranked in the top three occupations with the highest incidence rates of injuries (DeRoo and Rautiainen, 2000). Health also is an area where farmers have a poor record, and in Ireland it is a sector with one of the highest levels of health-related disability (CSO, 2004).

Accident causation theories generally suggest that positively influencing people have a crucial role to play in accident prevention. The Domino Theory postulates that '88% of all accidents are caused by unsafe acts of people' (Jovanovic et al, 2004), while the Multiple Causation Theory suggests that 'the accident is the result of a complex and random interaction between the victim, the agent and the environment' (Taylor, et al, 2004). In Ireland a recently developed Farm Safety Model (IFSM) provides an understanding of the factors which impact on farm safety through farmer, farm environment and farm technology interactions (Phelan et al, 2007). In this model the interactions involving the farmer are of more significance than those that don't.

While there is much discussion in the literature on models and levels of farm accidents, there are few evaluations of interventions available to determine what types of programmes are most effective in reducing farm injuries (DeRoo and Rautiainen, 2000). The so called Three-E Method of accident prevention involving Engineering (implementation of physical controls), Education and Enforcement (internally within organization or externally) has had some success in industrial settings but not in agriculture (Murphy, 1992). The reason for this difference, according to Murphy, was that a greater level of control exists in the industrial workplace.

Some evidence of the role that training has to play in reducing farm accident levels is provided by Shallones (1989) who found that 'education only' and 'education and equipment modification' would have prevented 58% and 89% of fatal and non-fatal accidents respectively with machinery. In Denmark (Rasmussen, et al, 2003) reported a reduction of 48% in accident levels among farmers who attended a half-day training course who subsequently had a farm audit conducted with an agricultural adviser. Further evidence for the proposition that farmers' need to engage with accident and ill health prevention approaches is provided by the recent emergence in the literature of evidence that farm management and safety standards may be closely co-related (Phelan et al, 2007; Glasscock, 1999 & Suutarinen, 2003).

In Ireland, a three-year national initiative commenced in 2005 to develop a Code of Practice, required by new legislation, to assist farmers to implement safety and occupational health control measures at farm level. The Safety Health and Welfare at Work Act (2005) updated Irish legislation for all work sectors and in particular, allows workplaces with three or less employees, to comply with the terms of a Code of Practice prepared for a specific sector. This is as an alternative to completing a written plan known as a Safety Statement, required by previous legislation. The Initiative is being conducted jointly by Teagasc, the Irish Agriculture and Food Development Authority and the Health and Safety Authority (H.S.A.) which has statutory authority for overseeing implementation of occupational safety and health legislation in Ireland. The Initiative is being implemented in association with the statutory Farm Safety Partnership Advisory Committee to the H.S.A. which has representatives from farming and state organizations. The Initiative is being developed and implemented against a background of

limited engagement by farmers or extension services in Ireland with the issue of safety and health management on farms. Just 5% of farmers in Ireland seek safety and health related information annually (Finnegan, 2007) and 8% of farmers have received any health and safety training (Hope *et al.*, 1999). Additionally, a sample of dairy farmers ranked 'farm safety' as the ninth most important from a list of farm management topics that they wanted their farm adviser to focus on (Byrne, 2005).

Development of the Initiative

The overall aim of the National Initiative is to develop a Code of Practice including a Risk Assessment document and to evaluate strategies that assist farmers to effectively complete and implement the requirements of the documents. This will then lead to a national programme to assist farmers to comply with the legislative requirements.

The National Initiative has the following phases:

Phase 1, (2005 -2007): Develop Risk Assessment Document and evaluate its use and implementation by a sample of 1,000 farmers who participate in a half-day training course.

Phase 2 (2005- 2006): Develop the Code of Practice Document and conduct the statutorily required consultation process for the documents developed in phases 1 and 2.

Phase 3 (2007 -2008): Commence a national training programme to assist farmers to comply with the legislative requirements.

The pilot Risk Assessment Document consisted of a series of sections where the safety and health control measures were outlined in question format. Farmers were required to identify controls both in place and missing on their farms. Each section was accompanied by a page giving fatal farm accident data in pie chart format related to the specific area. Pictures showing the necessary control measures were also included. A Farm Safety Action List Page was provided where farmers were required to list the control measures not in place and to set a time schedule for their completion. The final Risk Assessment Document developed can be viewed at www.hsa.ie.

It was decided to include in Phase 1 of the initiative provision of a half-day training course on farm safety and health with particular reference to providing training on completion of the pilot Risk Assessment Document as previously a non-statutory farm Safety Self Assessment Document circulated by post to all farmers by the Health and Safety Authority was completed by only 28.5% of farmers, nationally (McNamara *et al.*, 2006).

During November/December 2005, training was provided to Teagasc staff in five counties chosen to implement the pilot Initiative. The counties were chosen regionally on the basis of having a high level of fatal farm accidents and because farmers were involved in a range of farming enterprises.

Training was provided to the Teagasc County Manager (Chief Agricultural Officer), an Education Officer and approximately six Agricultural Advisers in each county. The role of the Teagasc manager was to manage implementation of the initiative in each county. Education officers have a specialized role at county level in providing training and have particular expertise in safety and health training. The role assigned to Education officers was to present the training courses. Each Adviser provides advice to an average of 120 clients and the role assigned to each adviser was to promote farmer involvement in the initiative, to assist the Education Officer in the delivery of the course by such means as stimulating discussion and to assist farmers individually and in small groups to complete the pilot document. Advisers also had the role of providing follow-up advice to clients following the course.

During January and February 2006, farmers in the five selected counties were invited to attend a half-day course by their adviser. The invitation indicated that the course would assist farmers to comply with their legal duty of completing a Risk Assessment under the new legislation. It also pointed out that following attendance at a course, participants would be exempted from a routine inspection by HSA inspectors (other than where an accident or dangerous occurrence was reported) for 2006. Courses were free of charge and were advertised jointly by Teagasc and the Health and Safety Authority in the local farming press and on local radio. Approximately 1,500 farmers participated in 40 half-day courses in spring 2006.

Each course included: a short introduction on the objectives of the course, a presentation on the key requirements of safety and health legislation, a discussion exercise on the causes of farm accidents accompanied with a presentation on the causes of fatal farm accidents, viewing of DVD clips where victims described their accident occurrence and a session of about 3 hours where each section of the Risk Assessment Document was explained supported with a short DVD on the content of the Risk Assessment Document for each section. Farmer participants were then given time to consider the questions asked in the Risk Assessment Document as they related to their own farm. The course curriculum outlined (Table 1) indicates considerable use of visual training materials and practical discussion on accident and ill health causes with farmer participants. Each course had an attendance of 40 to 50 farmers and was facilitated by at least two Teagasc training and advisory staff members. A Farm Safety Handbook already published by the Health and Safety Authority was distributed to farmer participants as an additional information source.

Table 1

Pilot Health and Safety Course Curriculum, Teagasc, Ireland, 2006

Topic	Training methods	Duration (minutes)
Introduction	Power Point	5
Health and Safety Legislation	Power Point	10
Discussion on Accident Prevention.	Flip Chart/ Discussion	15
Victim Testimonials	DVD/ Discussion	10
National Causes of Accidents	Power Point / Discussion	10
How to complete the Risk Assessment Document	Divide into groups to consider all questions in the document. / Stimulate discussion. Show section of DVD before explaining each section	180
Demonstration of Protective Equipment	Demonstrate Protective Equipment supplied.	10

Purpose of the Paper

The purpose of this paper is to present the findings of an evaluation of Phase 1 of the National Initiative. The specific objectives are to: 1) present the opinions of extension agents (referred to as advisers in Ireland) on the utility and effectiveness of the pilot training initiative provided to farmers on completing and implementing the Code of Practice Risk Assessment document; 2) to obtain extension agents' opinions of the training received to participate in the Initiative; and 3) to examine the level and nature of follow-up advice on safety and health provided to farmers who attended a training course.

Methods

Data were collected from 27 advisers who participated in delivering the half-day training courses for farmer clients on completing the safety and health Code of Practice Risk Assessment Document. This represents a response rate of 90% of advisers engaged in the pilot Initiative and also represents a 12% sample of the national cohort of advisers (c.220) who provide advice on farm business and technology to farmers. This data were collected in June 2006, a time period of 4-6 months after the provision of the pilot training courses. The data collected allowed an evaluation of adviser's views on the perceptions of farmers on the utility of the health and safety training they received and on the satisfaction levels among advisers themselves of the training they received to facilitate health and safety courses for farmers. Data were also collected from the same advisers which allowed an estimation of the level of farmer demand for safety and health advice following participation in a safety and health course. After a 12-month period, in June 2007, further data on the demand for information on health and safety by farmers who attended the course was collected from 20 advisers (71% response rate) who participated in delivering the half-day pilot training courses. This allowed an evaluation of the level and nature of pro-active safety and health advice provided to farmer clients by these advisers for the previous twelve months. On this occasion data were also collected using the same questionnaire from a sample of 34 advisers (81% response rate), where advisers had not received training and where farmers were not involved in the Pilot Initiative, on the level and nature of pro-active health and safety advice provided in the previous 12-month period. This allowed a comparison to be made in the level and nature of pro-active health and safety advice provided to farmers between advisers who participated and did not participate in the pilot training initiative. Throughout the study, data were collected by asking questions where advisers ranked their answers on a five point Likert type scale. Each question was accompanied by an open ended comment box where advisers could provide an opinion related to the question asked. Statistical analysis using the Chi-Square statistic using SPSS (Statistical Packages for Social Sciences) was performed on data related to the comparison of pro-active advice provided by advisers who did and did not participate in the pilot initiative.

Results

Overall Evaluation of the Training Course by Advisers

Regarding the importance of health and safety as a farm management issue, 73% of advisers stated that farmers regard it as an important issue (Table 2). However, 48% of advisers expressed the view in the accompanying comment box that practical farm safety and health management is given low priority by farmers. Comments made included: 'health and safety is the last thing they think of – they are too busy and too familiar with their own yards' and 'by their acts their regard for health and safety should be judged – by this measure they are ambivalent'. Eighty nine percent of advisers considered that farmers found the course worthwhile and 41 % made a positive comment on farmers' perception of the course including: 'some farmers did not take it completely seriously, but most were surprised at how much they learnt' and 'farmers attended to avoid a HSA inspection initially but found it worthwhile after attending the course'. These comments indicate that farmers came to the course on the recommendation of their advisers and were then 'surprised' as to the value of the course. Eighty nine percent of advisers considered that the course motivated farmers to improve health and safety, however, advisers comments, indicated that farmer motivation to improve health and safety is 'debatable' or 'fades with time'. The information obtained indicates a strong opinion on

the part of advisers that the health and safety course was positively received by farmers, however, there is also a belief that more priority needs to be given to the issue by farmers to achieve practical implementation at farm level.

Course Design

Ninety two percent of advisers considered that the learning objectives of the course were clear to farmers (Table 2). Eighty nine percent and 81% of advisers respectively considered that the course was well structured to make maximum use of the time available and was about the right length in time. A number of advisers, however, felt that more time was required for the course. Seventy four percent of advisers regarded the presentation on the law as sufficient for the farmer audience. Eighty three percent of advisers agreed that the Power Point presentation on accident causes and prevention was worthwhile. Ninety two percent of advisers considered that the use of a DVD interview where accident victims described their accident was motivating to farmer participants, with 29% making a positive comment about this approach. One comment made was 'this shock treatment undoubtedly will have sent home the message very closely'. However, just 48% of agents agreed that it would be worthwhile to provide a copy of the DVD to farmers for home use. Ninety two percent of advisers agreed that discussion of farm accidents based on ones that occurred in the locality of the course helped focus on safety and health issues.

Table 2

Adviser Opinions (%) on the Training Course Provided to Farmers, Teagasc, Ireland, 2006 (N=27)

Variables	5	4	3	2	1
Farmers regard health and safety as important issue	11	62	8	11	8
Farmers found attendance worthwhile	52	37	11	0	0
Motivated to implement health and safety controls	19	70	11	0	0
Course well structured	30	59	4	7	0
Course about the right length	22	59	8	11	0
Learning objectives clear	26	66	4	4	0
Presentation on health and safety law sufficient	22	52	19	7	0
Power Point on accident causes and prevention worthwhile	54	29	9	8	0
Accident victims describing accident on DVD motivating	56	36	4	4	0
Completion of risk assessment document at intervals worked well.	33	52	8	7	0
Use of DVD to show control measures was useful	36	48	12	4	0
Discussion on accident causes in local area provided useful focus	38	54	8	0	0
Relevance of health messages provided on DVD by medical doctor*	28	32	40	0	0
Worthwhile to provide a DVD to farmers as follow-up to course	22	26	18	30	4

Note. 5 = Strongly Agree: 4 = Agree: 3 = Neither: 2 = Disagree: 1 = Strongly Disagree

*5 = Excellent: 4 = Very Good: 3 = OK: 2 = Poor; 1 = Very Poor

The central component of the course was the completion of the Risk Assessment Document. This was done at intervals following the showing of a short section (3-4 minutes approx.) of the DVD showing controls related to each section of the document and followed by the course presenter discussing each control required. Farmer participants were then given time to complete the section of the Risk Assessment Document as it related to their own farm. Eighty four percent of advisers agreed that showing safety and health control measures on DVD

throughout the course was useful. One comment made was ‘most items on the DVD showed situations that farmers had come up against in their daily lives, by looking at this DVD it helped to show and act as a spur to implement control measures’. Eighty five percent of advisers agreed that completion of the Risk Assessment Document during the course worked well with positive comments received from 30% of advisers. One comment made was ‘the document was easier to fill-in when they got the information’ and another was ‘most farmers had completed the sections in the document before they completed the course’. A further 15% of comments by advisers focused on the difficulties posed by the document, for example: ‘farmers don’t understand the content of many sections’ and ‘not in time available’.

Health messages were provided by means of an interview with a medical doctor on DVD. Just 60% of advisers considered the health messages provided to participants as ‘very good’ or ‘excellent’. Advisers made comments on this aspect of the course in 33% of cases including ‘an area often overlooked’, ‘worthwhile’ and ‘farmers look on health and safety as machinery, PTO shafts etc and not about their own health’. Regarding comments about conducting future health and safety courses 67% of advisers responded with positive comments about the course and how it could be improved, while 15% of advisers indicated that ‘evidence of the law being enforced’ would be helpful.

Training of Advisers and Follow-up from Farmers

Regarding the training provided to advisers for their role in facilitating health and safety courses, just 62% of agents were satisfied while 26% were not satisfied with the training received (Table 3). The main comment made by advisers (15%) was that the training was too short in duration. One adviser referred to the ever increasing workload of advisers generally and the greater suitability of health and safety specialists for this work.

Following a period of 4-6 months after pilot course delivery, 31% of advisers received ‘some’ or a higher level of follow-up queries from farmer participants (Table 3). The principal place where a follow-up query was made by farmers was during a farm visit. In the following 12-month period after the initial period following the courses 60% of advisers who facilitated a pilot training course indicated receiving ‘some’ or a higher level of health and safety queries (Table 3).

Table 3

Adviser Opinions (%) on Training to Deliver Course, Estimates of Advisory Queries and Benefit of Follow-up Farm Walk, Teagasc, Ireland, 2006

Variables	5	4	3	2	1
Adviser satisfied with training to conduct course (N=27)*	8	54	12	11	15
Level of advisory queries received following course (N=26)	8	4	19	42	27
Level of advisory queries received in subsequent year (N=20)	0	5	55	25	15
Worthwhile to follow-up with a farm walk based on Risk Assessment Document (N=26) *	27	46	15	8	4

Note. *5 = Strongly Agree: 4 = Agree: 3 = Neither: 2 = Disagree: 1 = Strongly Disagree
5 = Very High Level: 4 = High Level: 3 = Some: 2 = A Few; 1 = None

The majority of advisers (73%) who facilitated a pilot training course considered that it would be worthwhile to provide an on-farm demonstration of health and safety (a ‘farm-walk’) as a follow-up to the half-day course (Table 3). The purpose of such an event would be to assist

farmers to further manage safety and health in the practical setting based on the Risk Assessment Document. Operational issues related to providing an on-farm demonstration were raised by 19% of advisers, gaining access to a suitable farm, work time constraints and receiving specialist support were the main concerns mentioned.

Inclusion of Health and Safety Issues in Advisers Work Programme

A comparison was made between advisers who facilitated a health and safety course in the pilot phase of the project and a sample of those who were not involved regarding inclusion of health and safety in advisers work programmes for the year subsequent to conducting the pilot training courses. This comparison found that 90% of advisers who participated in a pilot training course reported including some aspect of health and safety in their work programme compared to 71% for non participating advisers (Figure 1). This comparison was not statistically significant ($P=0.098$). Data for specific advisory activities indicate that for both advisers participating and not participating in pilot training courses providing advice occurred most frequently during advisory visits (85% and 59%), followed by an advisory event (67% and 53%), office consultation (40% and 35%), phone consultation (30% and 15%) and 'other' activities (5% and 15%) such as including the issue in newsletters or media articles. For all advisory activities except 'other', a higher level of advisory activity was noted for advisers who facilitated a pilot training course.

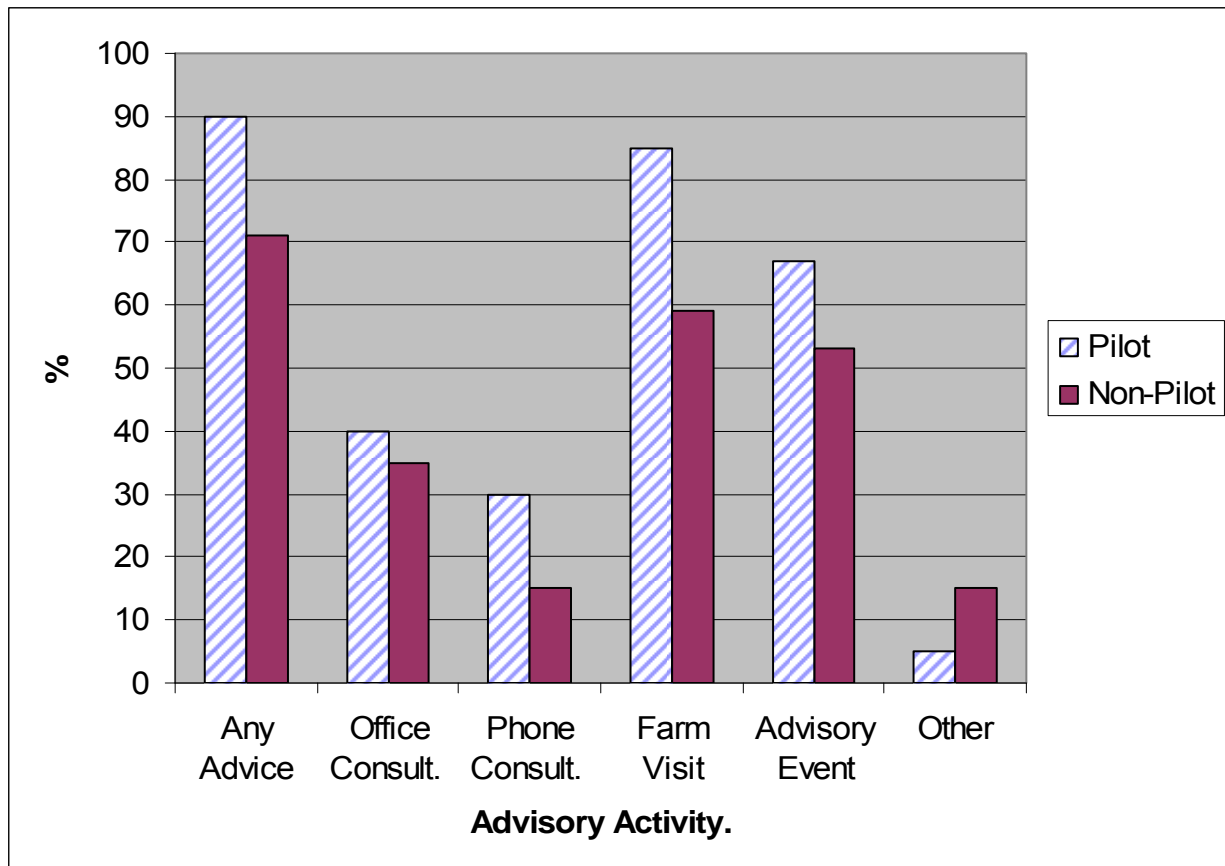


Figure 1. Comparison Between Pilot and Non-Pilot Advisers in Provision of Health and Safety Advice.

Comments on inclusion of health and safety in advisory work programmes were obtained from 70% of advisers who facilitated a pilot health and safety course compared to 59% of non-participating advisers.

Among the specific comments received from all advisers on providing health and safety advice 39%, 24%, 22%, 7%, 5%, 3%, respectively related to the following advisory work areas: at an advisory event such as a 'discussion group' 'farm walk' or training course; during a farm advisory visit; in relation to State grant schemes/farmyard or buildings layout and design; completion of health and safety legal documents related to health and safety management (Safety Statement/Code of Practice Risk Assessment document); advice related to machinery guarding and use of newsletters/radio programmes. A comment made by an adviser in relation to the provision of health and safety advice was: 'mostly at dairy discussion group meetings, but also during farm visits, nearly always in relation to conversions/additions to farmyards, where farmers are availing of the farm waste management grant scheme'.

Discussion and Conclusions

Gaining attendance is the essential first step to engaging with farmers on health and safety at a training course. The pilot health and safety initiative was highly successful in attracting high numbers of farmer participants to attend health and safety courses. This was attributable to a number of factors including: the powerful role of advisers in inviting farmer clients; the H.S.A incentive of no-inspection for a 12-month period and no charge being applied.

The findings clearly indicate that advisers had a positive view of farmer's response to the pilot training course with 89% both considering that farmers found the course worthwhile and that the course motivated participants to implement safety controls. Positive feedback was received on all aspects of course design from advisers. Use of the visual communications approaches, particularly, received high ratings. Advisers strongly agreed that using a DVD where the accident victim described their accident and its consequences motivated farmers while use of Power Point using pictures and pie charts showing accident causes and related data also received a high rating. Advisers also strongly agreed that discussion of local accident causes provided a useful discussion focus in 38 % of cases. The findings are in accord with those of Smith (1984), who found that a 'lecture video' was more effective than a conventional lecture. This author recommended regular breaks in the showing of visual material and encouragement of audience participation. Clearly advisers considered that these approaches grounded health and safety in practical farm management and assisted farmers to consider visualize and consider the consequences of injury and ill health.

Notably, however, advisers were less convinced of the relevance of the health message provided to farmers' with just 60% rating it as 'excellent' or 'very good'. Hope et al (1999) identified a low perceived susceptibility to health issues among farmers and this issue has received little attention at an extension level, which may explain adviser's perceptions.

Advisers were positive as to the central element of the training provided i.e. that completion of the Risk Assessment Document throughout the course in conjunction with viewing relevant control measures on DVD. This was aimed at instructing participants on both how to complete the document and facilitating farmers to identify controls required to be implemented on each individuals' farm. The document has similarities with one described by Chapman et al (1996) which was positively received by farmers.

Follow-up queries were received by advisers from farmer participants with 31% of pilot advisers reporting 'some or higher' in the period immediately after the courses and 60% for the

subsequent one year. A contrast occurred between advisers who participated in the pilot training courses and those that did not regarding including health and safety in their advisory work with trained advisers focusing more on health and safety in their programmes than those who had not received training.

Significantly however, 48% of advisers who took part in the pilot initiative commented that farmers regard safety as a low priority when it comes to practical farm management. The advisers view is supported by an evaluation by McNamara et al (2007) of implementation of controls at farm level by farmers who participated in the pilot phase of the project found that farm safety management was inadequate on 24% of farms. During 2006, H.S.A. inspectors served a legally binding 'prohibition' or 'improvement' notice for 15.3% of farms and issued written advice for 22.4% of farms following a statutory inspection (H.S.A., 2007b). Collectively these data suggest that the issue of health and safety needs continuing focus from external sources including enforcement and education to gain continuing improvements at farm level.

Just 62% of Advisers 'agreed' or 'strongly agreed' that they were satisfied with the training provided, to facilitate the course, with the main issue identified being that the training provided was too short. However, 73% of pilot advisers agreed that it would be useful to follow-up with a 'farm-walk' based on the Risk Assessment Document. The data also suggests that advisers who were involved in the pilot initiative were more pro-active with health and safety as an issue while an increased on-going level of advisory queries were received from farmer participants in a training course. These data indicate that the majority of advisers see the issue of health and safety as worthy of inclusion advisory work and see possibilities to build on the positive outcome of the pilot training programmes for farmers.

Educational Importance and Application

To date there has been little research into education and extension strategies to assist farmers to manage safety and health in Ireland. This mirrors the situation at an international level with DeRoo and Rautiainen, (2000) reporting that there are few evaluations of interventions available to determine the types of programmes are most effective in reducing farm injuries. For those involved in farm safety and occupational health regulation, education, training and advisory services it is essential to devise programmes that assist farmers to manage the health and safety dimension of farming in a practical way. Facilitating farmers to adequately engage with the issue of health and safety is the crucial first step in this process. This study shows that the majority of advisers perceived that farmers were motivated to improve safety and health following attendance at the short training course provided on completion of a pilot legal Code of Practice Risk Assessment document. However, inadequate adoption may occur after attendance at short courses. This suggests that follow-up strategies are required to assist farmers to implement the required changes. Advisers play a valuable role in the practical setting of providing health and safety advice or training at events such as on-farm demonstrations and discussion groups as well as with individual advice to farmer clients. This study indicates that the majority of advisers are positively disposed to this work; however provision of comprehensive training to advisers is necessary to equip them with the knowledge and skills to include the issue of health and safety in their advisory work. Equipping agri-professionals with the necessary knowledge and skills to facilitate health and safety change among the farming community has future educational and training implications for extension and university educators.

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