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# Safe Farmer Common Sense' - A National Five-Year Education-Based Program for Prevention of Occupational Injuries in Swedish Agriculture-Background, Process, and Evaluation

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## ABSTRACT

**Background:** This paper provides background and a process description for a national initiative ('Safe Farmer Common Sense') on prevention of occupational injuries in Swedish agriculture.

**Methods:** This initiative, which received investment funding of 65 million SEK (6.5 million USD) from the European Union (EU) over the 5-year period 2009–2013, was jointly developed by researchers, agricultural organizations, authorities, and politicians. The program had a farmer-centered perspective and included short courses, on-farm visits by supervisors, and a number of education events and awareness-promoting activities.

**Results:** Our analysis showed that the concept was successful, since it involved farmers to a greater extent and prompted a high proportion of these to introduce injury prevention measures on their farms compared with a control group. The analysis also confirmed that these activities continued two-three years after participation in the program.

**Conclusion:** The program was not found to have any major effect on the number of occupational injuries, although the level of occupational fatalities was lower during the intervention period. Thus the investment can be questioned as regards the limited impact on the number of work-related injuries in Swedish agriculture and may have been too short to have a lasting effect.



## KEYWORDS

Agriculture; occupational injury; prevention; intervention program; education

## Introduction

Agriculture consistently ranks as one of the highest injury risk sectors of all industries, and occupational injuries are frequent worldwide.<sup>1,2</sup> Occupational fatality rates for agriculture in the United States and the 28 countries of the European Union (EU) are consistently several times greater than the average rate for all other industries combined. For these reasons, agriculture is often described as one of the most hazardous industries in which to work.<sup>3,4</sup> Occupational fatalities in Swedish agriculture have been a major issue for many years. Thelin<sup>5</sup> showed that the frequency of occupational fatalities increased during the period 1988–1997, while a high level of occupational fatalities in the agricultural sector has been reported repeatedly by the Swedish Work Environment Authority.<sup>6</sup> However, the number of occupational injuries (both fatal and non-fatal) reported in the official statistics<sup>6</sup> appears to be very low. This prompted Pinzke and Lundqvist,<sup>7</sup> together with Statistics Sweden, to conduct

a national study among farmers regarding their occupational injuries in 2004. The official statistics for that year showed just over 400 registered occupational injuries,<sup>8</sup> but Pinzke and Lundqvist<sup>7</sup> found that there were about 5000 actual occupational injuries in agriculture in 2004. This means that only 8% of occupational injuries emerged in the official statistics, which could have consequences on both the individual and the society level, since a low level of reported occupational injuries gives the impression that the industry has only a minor problem in this regard. The results were raised in a debate article in one of the major Swedish newspapers,<sup>9</sup> and this was followed by the Kuopio Declaration on occupational fatalities in agriculture, calling for urgent actions and a vision for zero fatal occupational injuries in agriculture by 2012.<sup>10,11</sup> Swedish politicians started to react, with the agriculture minister issuing a statement about the need for action.<sup>12</sup> After national elections in September 2006, the new Swedish government tasked the Swedish

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Board of Agriculture with identifying possible actions to counteract occupational injuries in agriculture.<sup>13</sup> Its report concluded that the occupational injuries in agriculture represented an annual cost to Swedish society of 2–3 billion SEK (0.2–0.3 billion USD).<sup>11</sup> The report suggested three major actions: a) Extension work with farmers regarding occupational injury prevention; b) a national competence center for occupational injury prevention in agriculture; and c) education and training for chainsaw users in the forestry sector. The report was followed by a government decision to develop an extension service and to train new extension workers in measures to prevent occupational injuries among Swedish farmers. The Swedish University of Agricultural Sciences (SLU) was tasked with providing the necessary training, while the Swedish Institute of Agricultural and Environmental Engineering (JTI) and the Federation of Swedish Farmers (LRF) were asked to support the work.<sup>14</sup> The government also announced its intention to run a 5-year program (2009–2013) and asked actors in the agriculture sector to prepare for this. Another decision by the government made health and safety a high priority within the EU-funded Rural Development Program for Sweden,<sup>15</sup> which made it possible to finance extension work on preventing occupational injuries in agriculture within the new intervention program. In the work on development of the intervention program 2009–2013, LRF was chosen as the host organization and the applicant to the EU-funded Rural Development program. The program received investment funding of 65 million SEK (6.5 million USD) from the EU for the 5-year period 2009–2013.

### **Aim and goals**

The aim of the present study was to describe the background and process of Safe Farmer Common Sense, the largest intervention program on occupational injury prevention in Swedish agriculture. The main objective was to determine whether this program encouraged farmers to be more active regarding different types of measurable actions, to prevent hazards and occupational injuries on their own farm. Another objective was to determine whether there was an effect over time, i.e., whether farmers continued to work with health and safety issues 2–3 years after participating in the intervention program.

These issues and our results are discussed below in relation to the overall goals established for the program, which were to achieve a 50% reduction in the number of occupational injuries in agriculture by 2013, and to have at least 75% of the target group (69,000 farmers) actively involved in the program by 2013.<sup>16</sup>

The Kuopio Declaration<sup>10</sup> stated there should be no fatal occupational injuries in agriculture by 2012, while the Swedish Ministry of Agriculture<sup>12</sup> established a vision of zero occupational injuries in agriculture. These could be seen as additional goals of the intervention program.

### **Training of farm extension workers and development of the supervision concept**

To educate farm extension workers, or supervisors as they were called within the program, it was first important to set up an organization to develop a training program for the supervisors and to prepare for the 5-year intervention program. An extensive consultation process was carried out to obtain farmers' perspectives on the training needed by supervisors and to identify the right structure for supplying the supervision in encounters with farmers, their families, and employees.

The program was named “*Säkert Bondförnuft*” in Swedish (Safe Farmer Common Sense in English). This is intended to indicate that farmer common sense is not enough, i.e., that there needs to be *safe* farmer common sense to make a real change, and that the key to this is in the head of the farmer. In the work to develop the concept, inspiration was found in other programs, such as the FarmSafe Program in New Zealand,<sup>17–19</sup> which derived from an Australian approach to farm safety.<sup>20</sup>

The training of the supervisors was based on the “Future Workshops” teaching method and concept,<sup>21,22</sup> which was identified as a suitable way to develop the participants' own abilities and creativity in devising new forms for conveying knowledge to farmers. The training also covered systematic work environment methods, major occupational injury problems in agriculture, prevention principles, and problem-based learning with real cases.

In the first phase, nearly 150 supervisors were trained during five rounds, each consisting of three

course sessions. Participants with eligibility for higher education studies also had the opportunity, with certain additions, to undertake an academic SLU course in working environment supervision in agriculture. All participants selected for these program components had an existing relationship with agriculture, e.g., as a part-time farmer, through working with agriculture as a teacher or in extension work, or through having other relevant knowledge. The supervision concept that developed for the farm injury prevention interventions resulted in three types of activities: a) a short course entitled “Three Steps to Safe Farmer Common Sense”; b) individual farm visits by supervisors; and c) farm walks (general information activities on farms to increase farmers’ interest in participating in the program). A full description of the training provided to supervisors in the Safe Farmer Common Sense program can be found in Alwall Svennefelt et al.<sup>23</sup>

### **The farmer supervision program**

The main farmer-centered interventions were the individual farm visits and the short course. The intention was to allow farmers to choose between receiving an individual farm visit by a supervisor or undertaking farm safety training in a short course with other farmers.

#### **Individual farm visits**

During the farm visit, the supervisor went through the risks of injury on the farm together with the farmer and, if possible, other family members and employees. All parties present then worked out an action plan to deal with the issues discussed. The goal of these visits was to train farmers about the systematic work environment process so they could implement it themselves, together with their family and employees, in the future. Another goal was to change the attitude and approach to risk prevention by identifying and exploiting the farmers’ own abilities. Each farmer could choose the focus of the visit, and many farming families with children chose a focus on child safety. The farmers had to pay a fee of 250 SEK (about 25 USD) for the visit. They also received a folder with facts and suggestions, a crisis plan, and an action plan, both in paper form and as a small white-board (to be placed in the barn, machine workshop, or other relevant

location on the farm). A total of 2934 individual farm visits, involving 4309 participants, were made within the program.<sup>24</sup>

#### **The short course “three steps to safe farmer common sense”**

The short course focused on farmers’ own experiences and thoughts. Discussing working conditions and risks in daily life on the farm together with others seemed to be a good approach to increase farmers’ awareness and motivation. The intention was for farmers themselves to prioritize the risks and decide how to deal with them in order to prevent injuries. The course combined discussions with provision of facts, videos, and a joint farm safety walk. Participants also received the same material as the farmers who opted for individual visits and paid the same fee. A total of 7775 participants took part in 681 courses, in groups ranging in size from 5 to 25.<sup>24</sup>

#### **Advertising, communication, and materials**

Advertising and communication about the program, including a website ([www.sakertbondfornuft.se](http://www.sakertbondfornuft.se) – no longer available) and development of materials for training supervisors and for training farmers, were deemed to be important, and a specialist was employed for that purpose. The material produced included a binder with training material for supervisors,<sup>25</sup> a folder for participating farmers,<sup>26</sup> and a short video<sup>27</sup> designed to be used as supporting material for the program.

The material for farmers comprised chapters on crisis and action plans with checklists for the farm; working with safe routines; systematic work environment actions; risk groups (children and seniors on the farm); machinery, animals and buildings; forestry/handling firewood; occupational health service and rehabilitation; reporting an occupational injury; and personal protection equipment (PPE).

As a way to raise awareness about the program and enlist participants, organized farm walks were held with large groups of farmers and farm families. These events were often organized in collaboration with a national insurance company (Länsförsäkringar), and they included practical activities such as fire and injury prevention, often with examples on working safe in forestry, safe handling of all-terrain

vehicles (ATVs), and first aid. Since these events were intended to be a family experience, there were also activities for children. However, the main aim was to inform participants about the program activities, i.e., the farm visits and the short courses, and to encourage farmers to sign up for these activities during the event. The farm walks were popular, with a couple of hundred participants.<sup>24</sup> The program was also promoted by the supervisors during a large number of meetings with farmers at agricultural shows, etc.

The Safe Farmer Common Sense program was advertised widely in different media campaigns, often in whole-page advertisements and using many photos with strong messages on themes such as stress during harvesting and child safety on farms. An example is shown in Figure 1. Besides these media campaigns in farm newspapers and magazines, there were also many articles and features on radio and TV about the program, often with an individual farmer or groups of farmers at the center.

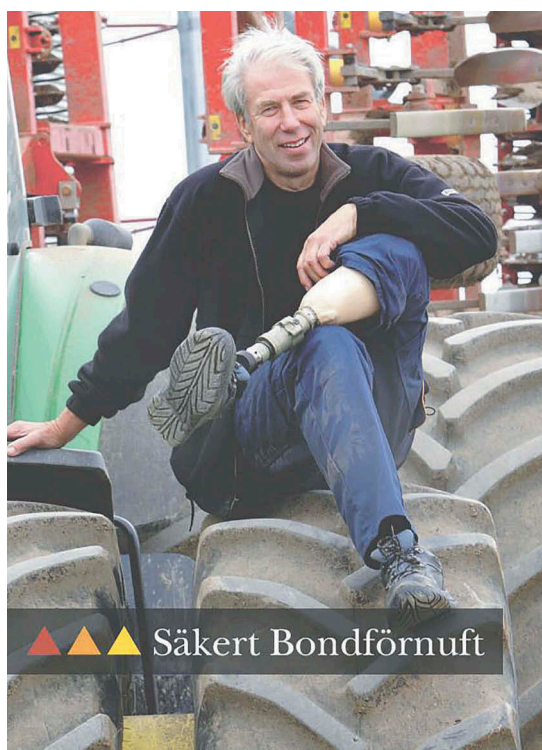
### Organization of the program

Because the program had a national scope and was designed to run for 5 years, there was also a need for

an organizational structure for the whole country. This structure was provided by LRF, using 13 regional coordinators to manage the supervisors and the participating farmers. All supervisors were paid by the hour rather than being formally employed. The program had a manager in charge, a communication officer, and part-time financial/administration staff, all employed by LRF. The program also had a project group with representatives from the other partners in the project, i.e., SLU and JTI. In addition, a formal steering group and flexible reference groups supported the program.<sup>24</sup>

### Other ongoing actions outside this program

It is important to point out that during the period 2009–2013, there were a number of other activities with the aim of preventing or reducing the number of occupational injuries in agriculture, as described by Lundqvist and Alwall Svennefelt.<sup>28</sup> The Swedish Committee on Working Environment in Agriculture (LAMK) played a coordinating role, where the different stakeholders met and discussed progress in their own initiatives. Besides the Safe Farmer Common Sense program, there was a national inspection project



**Håll olyckorna borta! Säkert Bondförnuft har utbildat 150 handledare som hjälper dig att göra gården till en säker plats för dig och din familj. Vi erbjuder dig:**

#### Gårdsbesök

Det är svårt att upptäcka riskerna på sin egen gård. Ett gårdsbesök hjälper dig förbi hemmablindheten. Boka en tid med en av våra handledare, som besöker dig när det passar dig bäst. Du bestämmer vad ni ska titta på. Du får en handlingsplan och en whiteboard för ditt fortsatta säkerhetsarbete. Ett gårdsbesök kostar 250 kr plus moms.

#### Kursen "Tre träffar till Säkert Bondförnuft"

Gör som hundratals lokalavdelningar och andra grupper – boka in en kurs tillsammans. Kursen varar diskussioner med fakta, filmer och en praktisk del i form av en gemensam skyddsron. Den prisbelönta filmen "För säkerhets skull" är en viktig del i programmet. Kursen kostar 250 kr plus moms per företag.

#### Beställ i dag

Beställningen görs på [www.sakertbondfornuft.se](http://www.sakertbondfornuft.se) eller hos ditt LRF-kontor. Du kan även ringa medlemservice på **0771-573 573**.



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Figure 1. Example of an advertisement used in farm newspapers and magazines to promote the safe farmer common sense program.

(2009–2012) run by the Swedish Work Environment Authority, with the focus on technical devices and machinery in agriculture, animal production, dangerous substances, and systematic work environment management through risk evaluations.<sup>29</sup> The Swedish Federation of Green Employers (formerly the Federation of Swedish Forestry and Agriculture Employers, SLA) ran a small-scale service program on health and safety supervision for its members (mainly large farms with employees). They provided a 2-hour on-farm safety advice visit, which was free of charge and provided by farm safety engineers, with the option to pay for an extended service.<sup>30,31</sup> Another active stakeholder was the Swedish Union of Municipal Workers (Kommunal), which had a system of regional safety representatives. It supplied advice and services to its members on farms and to their employers, to support the use of systematic work environment management (SAM), which aims to improve working conditions and reduce the number of occupational injuries.<sup>32</sup>

## Methods and material

To evaluate the outcome of the first effective full year (2010) of the Safe Farmer Common Sense program, telephone interviews were held in 2011 with farmers who had participated in either of the two major activities in 2010: a) individual farm visits (220 participants) or b) the short course (364 participants). The interviewees were randomly selected from the list of participants in the national program. A control group (209 participants) of farmers who did not take part in the program was also randomly selected from the official farm register.<sup>33</sup> The second part of the study involved interviews in 2013 with new participants in either of the program activities in 2012, i.e.: a) individual farm visits (155 participants) or b) the short course (146 participants), plus a new control group (150 participants).

In the third and final part of the study, telephone interviews were held in 2013 with the same (matched) farmers who had participated in the program in 2010 and in our telephone survey in 2011. These covered: a) individual farm visits (148 participants) and b) the short course (150 participants). The total number of participants involved in the three parts of the study was 1244 (including

control groups). The response rate for the telephone interviews was 73–76%.

The telephone interviews were based on a semi-structured questionnaire comprising questions relating to the interviewee's activities to prevent hazards and other injury prevention measures on their farm during the previous 12-month period. The results are presented as descriptive statistics. No formal ethical approval was needed for this study according to the Regional Ethical Review Board in Lund. However, the research procedures followed the guidelines by The Swedish University of Agricultural Sciences and the Swedish rules and regulations on the use of human subjects in research. Further research (not included in this paper) about individuals in this study received ethical approval (Dnr:2014/172, 253). Details of the full studies and the questionnaires and further results are available in two reports published in Swedish.<sup>34,35</sup>

## Results

The first part of the survey, on farmers who participated in the program in 2010, revealed that more than 90% (545 of 584) of these participants were satisfied with the organized activities (short course/individual farm visit by a supervisor). An important aspect of the present study was to determine whether there had been any real effect of the intervention program, e.g., introduction of real measures to prevent occupational injuries on participating farms. A key question asked in the telephone survey held in the year after the activity was, thus, whether the participating farmers had actually taken any real actions to eliminate or handle risks that could lead to an occupational injury.

The results showed that eliminating a risk factor was the most common type of action, e.g., fall prevention, improving animal handling systems, fixing guards on machinery, fences around manure pits, fixing electrical hazards, preventing slipping, etc. The highest level of actions regarding elimination of risk factors (67.7%) was reported by farmers who had individual farm visits in 2010, while the corresponding figure for farmers who had individual farm visits in 2012 was only 26.5% (Table 1). Farmers who participated in the short course in 2010 also reported being quite active (45.9%) in

**Table 1.** Type of preventive actions taken by farmers who participated in supervision (short course or farm visit) in 2010 (n = 584) or 2012 (n = 301) within the safe farmer common sense program (number and percentage of farmers who took the action within one year of participation). The control group (2010, n = 209; 2012, n = 150) was asked about actions taken during the same period.

Program activity	Short course				Farm visit				Control			
	2010		2012		2010		2012		2010		2012	
Type of preventive action	n	%	n	%	n	%	n	%	n	%	n	%
Action plan prepared	100	27.5	26	17.8	104	47.3	39	25.2	15	7.2	2	1.3
Risk factor eliminated	167	45.9	37	25.3	149	67.7	41	26.5	25	12.0	28	18.7
Changed work routines	60	16.5	24	16.4	21	9.5	27	17.4	0	0.0	9	6.0
Personal protection equipment (PPE)	36	9.9	18	12.3	19	8.6	18	11.6	3	1.4	11	7.3
Taking part in education/training	11	3.0	7	4.8	0	0.0	4	2.6	0	0.0	3	2.0
Other	56	15.4	0	0.0	1	0.5	1	0.6	17	8.1	1	0.7
Total number of actions	430		112		294		130		60		54	
Number of participants	364		146		220		155		209		150	

elimination actions, while farmers participating 2012 were less active (25.3%) as shown in Table 1. Another popular type of action was to draw up action plans for work on safety and risk prevention on the farm. Again, farmers who had a farm visit in 2010 reported the highest rate of action (47.3%, Table 1). Other types of actions reported in the telephone interviews were changing working routines and increased use of PPE. Some farmers reported they had participated in further education and training on health and safety. The control groups in both 2010 and 2012 were asked if they had taken any actions to prevent occupational injuries on their farm during the past year, and control group members most commonly reported seeking to eliminate a risk factor, but to a much lower level than those participating in the intervention program (Table 1).

Another question was whether participants regarded health and safety as more important after taking part in the program, and almost 70% of participants answered in the affirmative (Table 2). When asked about what had changed, many interviewees stated that they are now more careful: (*I am much more careful when handling animals when the children are with me; I try to think ahead about possible risks during different*

*work tasks; I am more careful since I understand that there could easily be an injury*). In other comments, interviewees reported that they never work alone when moving large animals, some use the systematic work environment procedures (as recommended by the Swedish Work Environment Authority<sup>36</sup>), and some talk with each other more about health and safety. A number of farmers raised the problem of 'home blindness', which led them to involve others to discuss the need for improvements.

One question that was only asked in the 2011 survey was whether the participants believed that, after taking part in the program activities, they now had enough knowledge to continue work on their own to eliminate hazards and risks and to improve working conditions on their farm. Around 70% reported they felt confident that they would be willing to continue to work with these issues on their own. Those who did not agree cited a need for more supervision at farm level, more education about health and safety, better information materials, and practical skills training, e.g., the use of chainsaws, ATVs, animal handling, and stress handling.

Another important objective of the present analysis was to determine the effect of the intervention

**Table 2.** Number and percentage of the same farmers participating in supervision (short course or farm visit) within the safe farmer common sense program who responded (2011 and 2013) to the survey question: "Do you think that work environment issues are more important to you since you participated in the safe farmer common sense program during 2010?"

Year of participation 2010	Short course				Farm visit			
	2011 Survey		2013 Survey		2011 Survey		2013 Survey	
Farmer opinion	n	%	n	%	n	%	n	%
Yes	103	68.7	99	66.0	94	63.5	109	73.6
No	38	25.3	16	10.7	20	13.5	16	10.8
Don't know	9	6.0	35	23.3	34	23.0	23	15.5
Number of participants	150		150		148		148	

program over a longer period, i.e., whether farmers were 2–3–three years after participation in the program. The telephone interviews in 2013 showed that farmers who participated in 2010 were still quite active 2–3 years later (Table 3). Elimination of risk factors was still the most common action, followed by drawing up action plans, and changing work routines. The control groups were different in the two surveys (2010 and 2013), but they reported a clearly lower level of action compared with participants in the program on both survey occasions, and also over time.

An attempt was made to compare the preventive actions performed on different types of farms using the data on farmers surveyed in 2011 and 2013. These results revealed no major differences, but there were indications that dairy farmers and arable farmers were somewhat more active in their work to prevent hazards and injuries (Table 4). Again, elimination of risk factors was the most common type of action.

## Discussion

This study analyzed the effects of participation in the national Safe Farmer Common Sense program on actions by Swedish farmers to improve farm safety. To this end, telephone surveys were held with farmers who had participated in the program, with particular emphasis on the outcome in terms of farmers' actions on their farms to eliminate hazards and risks, and other measures to prevent occupational injuries.

The results showed that the participating farmers appreciated the program and that the majority actually introduced preventive actions on their farms,

such as eliminating risk factors, preparing action plans, changing work routines, increasing the use of PPEs, and participating in further education/training. The results also showed that this effect of the program seemed to persist over time, since a high proportion of the farmers who participated in 2010 reported they were continuing to work with health and safety 2–3 years later (Table 3). On-farm education programs have been reported previously to be a successful way to motivate farmers to improve farm safety, with a high frequency of farmers reporting having made safety improvements.<sup>37</sup> However, comparing the farmers who participated in the program in 2010 with those who participated in 2012 revealed that the latter were less active in their farm safety work, which may indicate that the most motivated farmers participated in the program first (Table 1).

One official goal of the program was for at least 75% of the target group (69,000 farms) to have participated in the program by 2013. The final report showed that more than 48,000 participants had participated in a total of 5,244 activities, such as short courses (681), individual farm visits (2934), and farm walks, or engaged with the program at agricultural shows and different types of meetings.<sup>24</sup> This represented 70% of the target group, indicating that the program was close to reaching its target of involving three-quarters of the farming population. With 48,000 participants and the investment cost for this program by 65 million SEK (6.5 million USD), the cost per individual was less than 1500 SEK (150 USD). When making this calculation regarding the activities organized, we found a mean cost per activity by 12,000 SEK (1200 USD). These cost seems like an affordable cost for an ambitious intervention program.

Another official goal of the program was to achieve a 50% reduction in the number of occupational injuries in agriculture by 2013. This seemed like a very tough challenge and included the problem of how to measure this reduction in a reliable way considering the low level (7%) of reporting for occupational injuries in Swedish agriculture.<sup>7</sup> A study in 2013 examined developments in the previous 10-year period, which included the Safe Farmer Common Sense program and other initiatives (mainly in the sub-period 2009–2013).<sup>38</sup> The results confirmed the problem of a low level of reporting for occupational injuries, with only 7% reported in 2013.<sup>38</sup> Despite all

**Table 3.** Types of preventive actions reported by the same (matched) farmers who participated in supervision (short course, n = 148, farm visit, n = 150, total 298) within the safe farmer common sense program in 2010 when surveyed in follow up interviews 2011 and 2013. Number and percentage of farmers taking different types of action.

Year of participation 2010	2011 survey		2013 survey	
	n	%	n	%
Type of preventive action				
Action plan prepared	111	37.2	67	22.5
Risk factor eliminated	166	55.7	76	25.5
Changed work routines	48	16.1	52	17.4
Personal protection equipment (PPE)	27	9.1	43	14.4
Taking part in education/training	3	1.0	10	3.4
Other	26	8.7	19	6.4
Total number of actions	381		267	
Number of participants	298		298	



**Table 4.** Type of preventive actions taken on different types of farms by farmers who participated in supervision (short course, n = 148, farm visit, n = 150, total n = 298) in 2010 within the safe farmer common sense program. Follow up survey of the same (matched) farmers 2011 and 2013. Number and percentage of arable, beef, dairy, and other farmers taking different types of action.

Year of participation 2010 Type of production Type of preventive action	2011 survey								2013 survey							
	Arable		Beef		Dairy		Other		Arable		Beef		Dairy		Other	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Action plan prepared	26	47.3	30	43.5	37	35.9	18	25.4	8	14.5	14	20.3	27	26.2	18	25.4
Risk factor eliminated	33	60.0	34	49.3	64	62.1	35	49.3	15	27.3	15	21.7	35	34.0	11	15.5
Changed work routines	8	14.5	12	17.4	16	15.5	12	16.9	13	23.6	10	14.5	15	14.6	14	19.7
Personal protection equipment (PPE)	6	10.9	4	5.8	11	10.7	6	8.5	7	12.7	12	17.4	14	13.6	10	14.1
Taking part in education/training	2	3.6	1	1.4	0	0.0	0	0.0	1	1.8	0	0.0	4	3.9	5	7.0
Other	6	10.9	4	5.8	11	10.7	5	7.0	1	1.8	5	7.2	8	7.8	5	7.0
Total number of actions	55		69		103		71		55		69		103		71	

the efforts to reduce occupational injuries, it was concluded that, taking into account the reduced labor demand in agriculture and the decline in the number of farms since 2004, the rate of occupational injuries has only decreased slightly. Similarly, an evaluation of FarmSafe (the New Zealand Farm Safety Intervention program) concluded there was no evidence that this program prevents farm injuries.<sup>39</sup> Other evaluations of education-based interventions confirms the poor outcome in terms of reducing occupational injuries in agriculture.<sup>40–42</sup> Further in-depth studies are needed on how these education-based interventions were planned and delivered, and how they were received by the target farming population.

Another goal was to help achieve the vision of the Kuopio Declaration (2006), which was to have zero occupational fatalities in agriculture by 2012.<sup>10</sup> According to official statistics from the Swedish Work Environment Authority,<sup>43</sup> in the period 2004–2008 there were, on average, eight occupational fatalities per year in agriculture, while in the period 2009–2013 there were, on average, four occupational fatalities per year. This could be seen as a 50% reduction (and in fact there were zero occupational fatalities in agriculture in 2013). Including forestry, the reduction was just under 45%. These results indicate that major efforts to reduce occupational injuries in agriculture can have a positive effect, even to the extent of reaching the goal of zero occupational fatalities in agriculture. However, the number of occupational fatalities increased again after 2013, when the intervention program had ended and stakeholders and the media devoted less attention to farm safety. In the period 2014–2018, there were, on average, seven occupational fatalities per year in agriculture, or almost nine per year when including forestry.<sup>44</sup> The questions

that then arise are whether the apparent positive outcome of the intervention program in terms of a lower level of occupational fatalities in 2009–2013 was purely fortuitous; whether the agriculture sector needs constant reminding to treat injury prevention as a serious issue, or whether the intervention program was too short. The intention was to continue the program for another 5 years, also as suggested by Lundqvist,<sup>45</sup> but the Ministry of Agriculture made it clear that it had to divert funding to other priorities.<sup>46</sup>

The present study indicated that it is possible to make farmers more active regarding injury prevention on farms, but no deeper analysis was made of the actual effect of these improvements and why farmers took some actions and ignored other, perhaps even more urgent, issues.

### Limitations

This whole intervention program “Safe Farmer Common Sense” was driven by farmers’ perspectives. From the very beginning, farmers stated that they wanted an approach with person-to-person education/training. There was no real incentive to discuss alternatives intervention strategies such as engineering/technology, education/behavior change, legislation/enforcement, or multifaceted interventions using more than one basic approach.<sup>40</sup>

### Conclusions

It can be concluded that the Safe Farmer Common Sense program was successful in reaching a large proportion (70%) of Swedish farmers through activities, meetings, media campaigns, and other means. However, a relatively small proportion participated

in the actual main activities, i.e., a short course or an individual farm visit by supervisors.

Our survey of farmers who participated in the program showed that it was possible to motivate farmers to increase their work on injury prevention activities, both immediately and for years after the program. However, it could not be confirmed that this program, together with other activities initiated by different stakeholders, had any major impact on the number of occupational injuries in the agriculture sector, although the number of occupational fatalities was lower during the 5-year period of the program (2009–2013).

In summary, this was quite an ambitious program but may have been too short to give a lasting effect.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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