



# Reducing lameness in dairy cows: Working with farmers to manage lameness

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## Introduction

The balance of responsibility for farm animal health and welfare is weighted heavily towards the farmers and farm staff who have day to day and managerial responsibility for their livestock. However, other stakeholders have an interest in or influence on the decisions that farmers make. In the dairy sector companies that buy, process and sell milk are often vigorous in setting standards for farmers to meet. Similarly, government bodies are focussed on the enforcement of legislation and ensuring compliance with regulations and minimum standards. However, many other “influencers” within the agricultural industry are positioned to work with farmers to support the development of management change and consequently welfare improvement. Groups such as veterinarians, veterinary practitioners, farm consultants, paraprofessionals (such as cattle claw trimmers, scanners and inseminators) and some charities have this remit. Much of the support they offer is in the form of advising farmers to implement change as a result of professional experience and information filtering through from researchers.

Using the example of lameness in dairy cattle, there is little evidence to date that enforcement and standard setting or advisory approaches are having a substantial impact on reducing lameness in the UK national herd. In 1996 Clarkson et al. (1996) reported a mean lameness prevalence of 20.5% (25% in winter only) across a sample of UK farms; 7 years later Whay et al. (2003) reported a winter lameness prevalence of 22.1% from a sample of 53 UK dairy farms, and 7 years after that study Barker et al. (2010) found a lameness prevalence of 36.8% observed during winter visits to a sample of 205 UK dairy farms.

Of the policy instruments available to government (Webster et al., 2006), incentive schemes such as the successful initiative for broiler footpad health described by Algers and Berg (2001) are currently not being used in relation to UK dairy cattle lameness. Farm Assurance assessments are much more widespread but implementation of their standards does not necessarily guarantee high levels of animal welfare (Main et al., 2003). There is mixed evidence regarding the success of advisory approaches in bringing about dairy cattle welfare improvement. Green et al. (2007) reported achieving a 22% reduction in the proportion of cows with clinical mastitis following a health planning intervention, while in contrast Bell et al. (2009) reported that an intervention to reduce lameness in dairy heifers was largely ineffective as farmers did not implement planned actions. The concept of “giving advice” is likely to be understood and practiced very differently by people in advisory roles. Jansen (2010)



studied 17 veterinarians – farmer conversations during herd health visits on Dutch dairy farms. The veterinarians' communication skills were evaluated and their conversations were found to lack structure, active listening and efforts to elicit farmers' opinions and values. Often in formalised veterinary advisory visits the veterinarian has a set of tools to support the consultation, for example a pro-forma for a health plan, a disease cost calculation tool or a structure for formulating an action plan. However, it appears that the communication skills and strategies that underpin the use of such tools are vitally important for leading farmers towards implementing change and compliance with action plans.

The process of introducing changes to management practices, strategies and routine behaviours is difficult. Most individuals find introducing changes, particularly health related behaviours, to their own lives difficult. This is evidenced by the discrepancies between knowledge of positive health behaviours and actual levels of implementation. For example the Food Standards Agency (2004) reported that despite a substantial increase in people's awareness of the health benefits of eating fruit and vegetables only a two percent increase in people achieving the target of eating five portions of fruit and vegetables per day was seen between 2000 and 2003. This discrepancy between knowledge of action that should be taken and the actual implementation of change is a well recognised phenomenon (McKenzie-Mohr and Smith, 1999) and presents many challenges when trying to work with farmers to implement research findings on farm to bring about welfare improvement (Whay, 2007).

### **Example: Intervention study to Reduce Lameness in Dairy Cattle**

In the UK the need to encourage farmer uptake of lameness-related advice led to a relatively large scale intervention project called the Healthy Feet Project. The project was supported by Tubney Charitable Trust and the initial partners were Milk Link, Long Clawson, OMSCO, Freedom Food and Soil Association Certification. The project also went on to work with an even greater number of industry stakeholders to insure wider application of the findings from the project. The project team developed a range of tools to promote on-farm implementation of lameness prevention activities using the principles outlined below. For each principle the project team developed specific methodologies applicable to UK dairy farms. An intervention study

involving 140 intervention and 87 control farms was then initiated to examine the effect of this approach. Dairy farms were recruited via direct contact or via the relevant milk companies. A team of four researchers with a good understanding of lameness then undertook a four year programme of visits, follow up telephone contact and group meetings on those farms receiving the intervention.

### **Intervention approaches**

The primary focus for the project was to promote the uptake of actions / activities likely to reduce lameness or to refine existing lameness reducing activities to increase their effectiveness. These actions were based on existing knowledge of risk factors known to influence lameness and on advocating the early treatment of lame cows. Although mobility



scoring and formal risk analysis are valuable tools for promoting lameness improvement, it was considered critical that these management tools did not become the primary focus of the initiative. It is clear that when management tools are introduced without consideration of the target audience some resistance is inevitable. This has been seen with health planning initiatives which have been variably received by UK farmers (Bell and others 2006). So the project did not concentrate on insisting that farmers agree with the results of a lameness assessment which was considered confrontational. It was thought more important to provide an identification list of cows that were likely to benefit from treatment rather than present an overall prevalence figure. Similarly for the risk assessment process, even though formal evaluation tools were available, the dialogue with producers did not concentrate on explaining risk assessment process or detailed finding on farms. The risk assessment web site ([www.cattle-lameness.org.uk](http://www.cattle-lameness.org.uk)) was, therefore, only advocated for use by those farmers and their vets/advisors with a particular interest.

Since the primary focus was on promoting an uptake of lameness relevant activities, the project team developed a social marketing approach suitable for UK dairy farmers. Social marketing (McKenzie-Mohr & W Smith 1999) involves the application of marketing principles to an area of social benefit, in this case animal welfare. Farmers in the UK often work alone on their farms, they have very limited contact with others and their days involve completing a lot of repetitive, routine tasks. So social

marketing for farmers needed to include more contact with individuals than would normally be expected, this contact was delivered through the four researchers visiting each farm at least once a year.

The key elements of the social marketing “type” approach used in the project are outlined below:

#### **a) Recognizing the Benefits and Barriers to Change**

Farmers are more likely to take action if they perceive **benefits**, although, this change may be limited by any perceived **barriers**. For every desired change in behaviour there will be both perceived benefits and perceived barriers. A potential benefit may include believing that the change will save time, offer economic benefit, or perhaps contribute to making other tasks on the farm easier. For example, keeping the feet of cows clean in order to reduce infectious lameness may also result in cleaner udders and faster milking times. A potential barrier to achieving cleaner feet might include a lack of appropriate equipment, for example the yard scraper may be inefficient and need repair, modification or replacement or a perceived lack of time to increase the frequency or diligence of yard scraping.

It was important that the project team who were promoting behaviour changes understood the details of the possible benefits and barriers as perceived by the farmers. It was also essential that the project team members encouraged implementation of changes on farm by using phrases and quotes that made sense to the farmers they



were speaking to. This was achieved by inviting farmers to a series of focus groups where their ideas and the language they used was listened to very carefully.

### **b) Facilitating farmers to plan their own changes**

Farmers are more likely to implement management or routine that result from their own ideas i.e. a “farmer-owned approach”. A good facilitator will not provide unsolicited advice, i.e. **they will not tell the farmer what to do.** The goal should be helping the farmer to generate solutions that are appropriate to his or her own farm. Members of the project acted as facilitators and walked around the farm with the farmer asking questions about particular aspects of the farm which were likely to be risk factors for lameness. During this walk round the farm the facilitator addressed barriers to change presented by the farmer by encouraging him or her to weigh them against potential benefits. The facilitator also shared the experiences of other farmers by describing actions they had taken, and offered contact details of other farmers (with their permission) that had found ways of tackling a similar problem. At the end of the facilitated visit, before leaving the farm, the facilitator compiled a summary of the changes the farmer had identified as being possible to make into an action list including notes on who would be responsible for implementing each change (the farm manager, herdsman, tractor driver etc) and when the change was going to be implemented along with a space to tick when the change had been introduced. This list was then left with the farmer for the coming year.

### **c) Establishing lameness prevention activities as a normal behaviour or “Norm”**

Farmers are more likely to change behaviour if they know others have done the same. Establishing “norms” is the process for reassuring farmers that others are also making changes i.e. that it is normal behaviour to make changes to reduce lameness. The project brand “Healthy Feet Project” and its use in all communications ensured that all the participants are aware they belong to a larger project in which others are involved and that they had a group identity they could be proud of. Norms were also created through describing what changes other farmers had made on their farms. This helped to address perceived barriers but also acted to reassure each farmer that others were also making changes and overcoming problems. The activities of other farmers were relayed using verbal descriptions, photographs of what they had changed (with their permission) and a regular newsletter which featured case examples of farms where changes had been implemented.

### **d) Encouraging Commitment to the project**

Commitment is the key for sustaining behaviour change. There are various techniques to encourage more positive commitment. Within the lameness project all participating farmers were given a jacket lapel badge and a car sticker of the project logo and they were encouraged to display them. Although this is a relatively small act, by showing others that they were part of the project they were more likely to go on to implement the more challenging changes. Further areas



where commitment was promoted was through asking farmers to put their signature on the action plan which is drawn up during the facilitation visit and through asking their permission to show others photographs of their farms (with their names clearly identified on them)

#### **e) Providing Prompts as reminders to implement new activities**

Prompts act to remind people of agreed activities and help sustain the new behaviour. Although peoples' intentions to change a particular practice or habit are generally good, new activities can easily be forgotten or slip from mind, especially when they involve making changes to existing routines or when people find themselves under time pressure. Within the project a catalogue of suppliers of equipment, services and materials that were commonly needed when making lameness reducing changes was presented to the farmer at the time when the facilitated action list was generated. The catalogue was intended to prompt picking up the telephone and placing an order or booking a service etc. as a common stalling point for action was farmers saying they didn't know where to buy a material, for example wood shavings to spread on cows beds to increase their lying comfort; the catalogue overcame this.

#### **Selected Results**

Of the 227 farms which joined the start of the study 189 remained in the study throughout the 3 years. Lameness prevalence was lower in both the Intervention (also called Monitored and Supported) Group (n=117) and the

Control (also called the Monitored Only) Group (n=72) at the end of the 3 years when compared to the mean prevalence for each group recorded at the initial baseline visit at the start of the project. In the Intervention Group the initial lameness prevalence was  $33.3\% \pm 1.76$  SEM versus a final prevalence of  $21.4\% \pm 1.28$  SEM. In the Control Group the initial prevalence was  $38.9\% \pm 2.06$  SEM versus final prevalence was  $27.0\% \pm 1.94$  SEM (Main et al. 2012). In the Intervention Group the types of risk factors for lameness that were identified and addressed fell into six broad categories: reducing standing and increasing lying time, improving the underfoot surfaces, implementing or improving footbathing, improving hygiene around the cows feet, implementing early and effective treatment of lameness, and "other" which incorporated a wide range of potential actions from building a new parlour to reducing herd size. Fig. 1 depicts the total number of action points listed in each of the target areas described above, and the number of action points that went on to be implemented on the farm. Improving underfoot surfaces was by far the most common category of action point identified (n=257) and was also the area with the greatest number of implemented action points (n=123). In contrast, improving foot hygiene was the area with the least number of target action points (n=26) and consequently was the area with the fewest implemented action points (n=11).

Changes were not only implemented on the Intervention Group farms; the Control Group farms also implemented numerous changes to management which may have had an impact on



lameness levels. Across all farms the majority of changes were judged by researchers reviewing the farms to be likely to positively benefit lameness management. Table 1 illustrates the numbers and percentage of changes judged likely to be positive in managing lameness; likely to be harmful, i.e. increasing the risk of lameness; and those changes that were

equivocal or the consequences of which were unclear. Overall the Intervention Group made a greater percentage of changes likely to benefit lameness and a lower percentage likely to increase the risk of lameness than the Control Group.

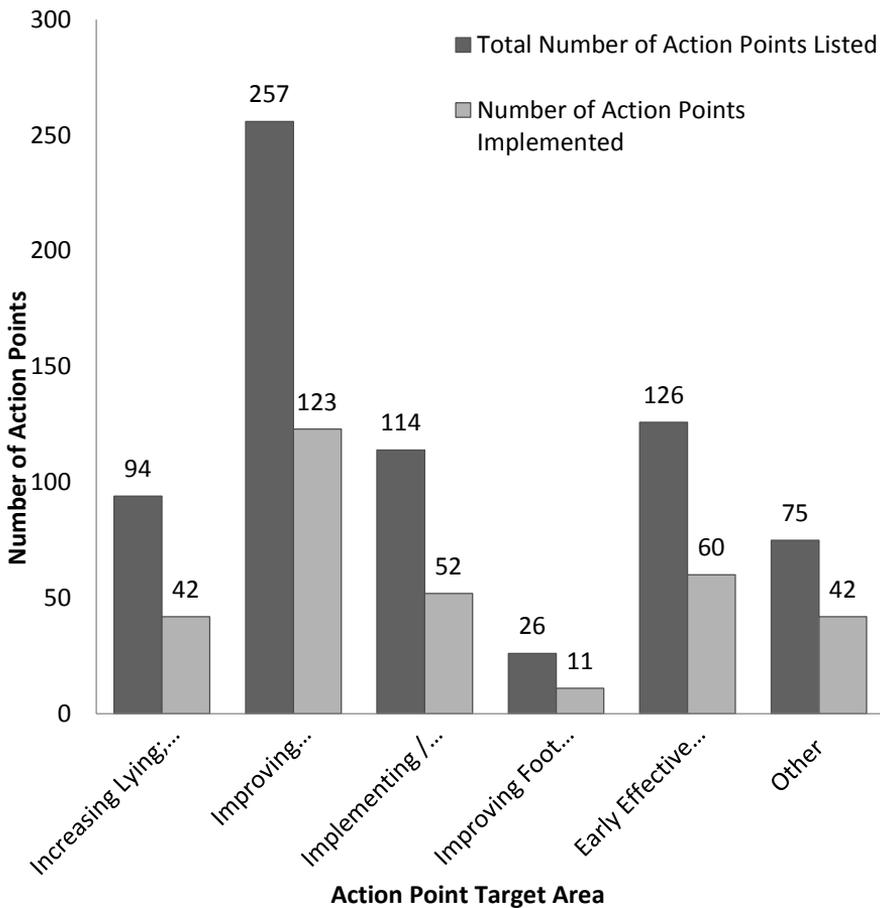


Figure 1  
The total number of lameness reduction action points listed identified by vets and farmers, and the total number that were implemented (reproduced from Whay et al 2012).



	Number (%) of changes likely to positively benefit lameness management	Number (%) of changes likely to increase risk lameness	Number (%) of changes likely to have a minimal effect on lameness (either positive or negative)	Number (%) of changes with unknown effect on lameness
Intervention Farms	757 (78.7%)	82 (8.5%)	65 (6.8%)	58 (6.0%)
Control Farms	329 (70.6%)	77 (16.5%)	27 (5.8%)	33 (7.1%)

Table 1: The likely impacts on lameness of changes implemented on both intervention and control farms, as judged by reserachers visiting the farms.

### Discussion

This study demonstrated that it is possible for farmers to reduce lameness, although notably there was a limit to the amount by which lameness was reduced in both the intervention and control groups. It was noticeable that more potential intervention targets were identified than implemented by farmers. The reason why some types or intervention activity is more readily implemented by farmers is worthy of further investigation as it is currently unclear. Traditional explanations, such as lack of willingness to invest, were not supported by our data which showed that some farmers invested considerable sums of money in their interventions.

The terms ‘Intervention Group’ and ‘Control Group’ are somewhat misleading as the control group received repeated visits and lameness prevalence feedback during the course of the study and consequently also

received some level of intervention effort (Whay 2007). It was noticeable that the more intensive intervention activity encouraged a higher implementation of management changes and fewer of the changes implemented were likely to be detrimental to lameness control.

A key principle behind this project was to work with farmers and to encourage them to manage their own lameness problems. The project recognised that farmers have a great deal of expertise about their own farms and the health problems they have to manage and looked to work positively with this expertise rather than imposing external advice.

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