

Activities of organic farmers succeeding in reducing lameness in dairy cows

Katharine Leach, Zoe Barker, Clare Maggs, Anouska Sedgwick, Helen Whay, Nick Bell, David Main¹

Key words: Dairy cattle, lameness, interventions

Abstract

Sixty-seven organic producers were among 189 dairy farmers completing the "Healthy Feet Project" in the UK. This aimed to reduce lameness in dairy herds by implementing existing knowledge. Participants received input at two levels: monitoring alone, or monitoring with extra support through a single veterinary advisory visit, annual visits from a trained non-veterinary facilitator and materials and contacts to encourage change. On average lameness on organic farms reduced by 12 percentage points over the three year period. On the farms achieving the greatest reduction, the most common changes were improvements to tracks and cubicle comfort, and more frequent footbathing or foot trimming. Practices to improve foot cleanliness, such as more frequent removal of slurry, were less often adopted. Further progress might be achieved by improvements of foot hygiene. Several farms with low lameness that reduced prevalence further improved their handling facilities and treated cows more promptly.

Introduction

Lameness in dairy cows has received considerable attention in recent years. Research and, more recently, practical initiatives, have been aimed at reducing the problem to improve both the welfare and performance of cows. Sixty-seven organic producers were among the 189 dairy farmers completing the "Healthy Feet Project" in the UK between 2006 and 2010. This project aimed to reduce lameness in dairy herds by implementing existing knowledge. Farmers received varying amounts of input from the project team and had considerable freedom in choosing the interventions to apply on their farms. This paper summarises the actions taken on the organic farms which achieved the greatest reduction in lameness during this project, and also the changes made on farms with relatively low initial lameness which improved further.

Material and methodology

Farms largely situated in the west of England and Wales were recruited through two organisations purchasing organic milk. Sixty-seven organic farms completed the project, which began in winter 2006-7 and ended in winter 2009-10. On an initial visit to each farm, a trained researcher assessed the prevalence of lameness by scoring all

¹University of Bristol, School of Clinical Veterinary Sciences, Langford House, Langford, BS40 5DU, UK. katharine.l@organicresearchcentre.com

the milking cows, using the mobility scoring system described by Barker et al. (2010). Cows scored 2 or 3 on this 4-point scale were defined as lame. The incidence of four main types of lesions (sole ulcer, white line lesions, digital dermatitis and foul in the foot) was obtained either from farm records or by carrying out an illustrated questionnaire face to face with the farmer. The researcher carried out an assessment of risks for lameness. All farmers received the results of the mobility scoring including the identity of lame cows. For two-thirds of the farms, the results of the risk assessment were reported to the farmer. This was followed up by one optional specialist veterinary consultation, formation of an action plan, and two further annual visits for prevalence assessment and discussion of progress, approaches and future actions, with a trained non-veterinary facilitator, before a final visit to assess the prevalence four years after the initial visit. This group of farmers were guided towards actions that were most likely to address the causes of the most commonly occurring lesions on their farm, but the ultimate decisions on action were taken by the farmers themselves. Information materials such as appropriate technical information and lesion recognition charts were supplied to the supported farmers. For this group, encouragement was provided between visits through reference materials, newsletters, promoting contact with other farmers and suppliers, and opportunities to attend discussion groups. The remaining one third of the farms did not receive any veterinary or facilitator input during the project, but continued to be monitored with annual mobility scoring, with the results reported to them, and collection of lesion records. On each visit any actions taken in the previous year likely to have an impact on lameness were documented for all farms, based on the results of a questionnaire carried out with the farmer.

The change in lameness prevalence over the course of the project was calculated for each farm. The types of changes made on the farms which achieved the greatest reduction, and those that began with low prevalence and improved further, were summarized for this paper.

Results

Variation in lameness prevalence was high so medians and ranges are reported. Seventy-eight percent of farms reduced the prevalence of lameness during the course of the project, with a median reduction of 12 percentage points, ranging between an increase of nine and a decrease of 52 percentage points. The reduction in lameness was greater for those farms with a higher initial prevalence. The median reduction for the farms in the upper quartile of initial prevalence (above 36%) was 22 percentage points (range: reduced by 52 to increased by 3) while the median change was zero (range: reduced by 9 to increased by 9) for the lower quartile, which were initially below 16% prevalence. Of the 23 farms that began with a prevalence of 20% or less, ten improved further, six of these by more than three percentage points.

To illustrate the types of interventions that were successful on farms with high and low initial lameness prevalence, management changes are summarized for two groups of farms – the ten farms with the greatest reduction in lameness over the project (H), and the six farms where an initial lameness prevalence below 20% was further reduced by more than three percentage points (L). Some initial descriptors and the main management changes for these two groups are shown in Table 1. In Group H in all but one herd the cows were housed in cubicles, with a variety of different bedding materials including straw, chopped paper and sawdust, with or without mats. Six of the farms were using a footbath at the start of the project. In group L all but one of the herds were housed in straw yards and only one farm was using a footbath.

Table 1: Changes made on the ten organic farms achieving the greatest lameness reduction and the six farms with lowest initial prevalence that improved the most

	Group H 10 farms making the greatest reduction in lameness	Group L 6 farms with initial lameness < 20% that improved further
Initial prevalence (%) median (range)	46 (34 - 72)	10 (7 - 19)
Final prevalence (%) median (range)	12 (5 - 35)	4 (2 - 5)
Herd size (mean, sd, range)	125, 56.9 (40 - 200)	112, 78.3 (65 - 250)
Change made:	Number of farms making this change	
Major changes to buildings		3
Changes likely to affect lying time		
Increased lying area in yards		2
Improved cubicle comfort	5	
Shorter milking time	2	1
Cow numbers/grouping	1	1
Changes to underfoot surfaces		
Created or improved tracks	6	5
Improved indoor floors	3	2
Better cleaning of floors	2	3
Treatment and prevention		
More foot trimming	4	
Training in foot trimming or lameness scoring	2	1
New or improved handling facilities	2	4
More frequent footbathing	5	
New footbath/easier system	1	
Other		
Changed diet	1	2
New staff	4	2

In group H the changes most commonly occurring were building or improving tracks, improving cubicle comfort, more frequent footbathing, more foot trimming, and new staff. In group L improving tracks was again the most common activity. Four farmers obtained a new handling crush which made foot treatment and trimming easier, and two specifically mentioned that they succeeded in treating cows more promptly. Three farmers in this group improved the hygiene of the floors in the buildings by increasing the frequency or effectiveness of removing slurry and manure. On three farms there were major changes to buildings incorporating a new milking parlour and/or increased lying area for the cows. Only one of these farms was footbathing at the start of the project and none started footbathing.

Discussion

Organic farmers tackled lameness by a variety of methods, as would be expected given the multifactorial nature of the problem and the different types of lesions causing lameness. In herds with high lameness prevalence, increasing the time cows spent lying down was more commonly attempted by improving cubicle comfort, rather than by reducing standing times around milking. This may have been because farmers found it easier to make a structural change than to change the way in which they grouped and moved cows, which was often dictated by logistics imposed by building design and availability of staff. In contrast, there were some farmers in the group with lowest initial lameness prevalence (more of whom housed cows in straw yards) who built new facilities during the project. These alterations either created more lying space or reduced the time cows spent away from the lying area during milking, increasing the opportunity for cows to lie down, which may have contributed to a further reduction in lameness. Among the activities directed at improving underfoot surfaces, it was more common for farmers (particularly those with high lameness prevalence) to improve outdoor tracks than indoor floor surfaces. As organic farms tend to have a long grazing season access to pasture is frequently needed and the outdoor environment has a large influence on the cows. The risk assessments sometimes detected deficiencies with indoor surfaces, such as rough or slippery floors or broken concrete on yards, as well as risks associated with the tracks, or lack of tracks, but these were less often addressed. A change of staff quite often occurred on farms achieving improvements, and it is likely that this was beneficial, bringing new skills or enthusiasm to contribute to lameness control. Several farmers recognized that investment in equipment which made foot trimming and treatment easier increased the likelihood of prompt treatment, which will prevent development of severe lameness.

The project has shown that it is possible to reduce lameness from a range of initial levels by a combination of farm specific interventions. Further progress might be made if farmers paid more attention to the cleanliness of floors. This was an area where farmers with a large herd problem seemed less likely to take action than those with a lesser lameness problem.

Suggestions to tackle the future challenges of organic animal husbandry

One challenge to reducing lameness in organic herds is the treatment of digital dermatitis. Acceptable agents for use in topical treatment and footbaths are required as alternatives to antibiotics and unpleasant and polluting substances including copper sulphate and formalin. Another simple challenge is to encourage farmers to pay more attention to the cleanliness of floors and cows' feet; there appears to be resistance to this based on perceived difficulties of practicalities.

References

Barker ZE, Leach KA, Whay HR, Bell NJ and Main DCJ (2010): Assessment of lameness prevalence and associated risk factors in dairy herds in England and Wales. *Journal of Dairy Science* 9, 932-941.