The 'Five Point Plan': A successful tool for reducing lameness in sheep

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The ‘Five Point Plan’: a successful tool for reducing lameness in sheep

R. H. Clements, S. C. Stoye

The infectious bacterial diseases, footrot and scald, are still the most prevalent causes of lameness in sheep flocks in the UK, with an estimated 3 million sheep being lame at any one time (Farm Animal Welfare Council (FAWC) 2011). Lameness constitutes a major animal welfare and economic challenge across the sheep sector, costing an estimated £24 million to the industry (Nieuwhof and Bishop 2005), and can be seen as a considerable barrier to sustainable production. The 2011 FAWC opinion on sheep lameness set a target of reducing lameness to less than 5 per cent by 2016, and to less than 2 per cent by 2021 (FAWC 2011). The aim of this study was to develop and validate an achievable farm-level solution, the Five Point Plan, to reduce lameness levels to FAWC targets.

The Five Point Plan was developed using existing published science on sheep lameness, and practical experience from farmers who had achieved sustained low levels of lameness. The Five Point Plan has five action points that support the animal in three different ways: building resilience, reducing disease challenge and establishing immunity (Fig 1, Table 1). The Five Point Plan was then implemented on a UK sheep farm over a four-year study period (2009–2013). The length of the study period allowed for naturally occurring seasonal and annual variations in lameness levels.

The study farm has a breeding flock of 1000 Cotswold ewes, as part of a mixed farm covering a range of land types from flood plain to parkland. The flock is managed in an extensive, outdoor lambing system, and produces commercial fat lambs. It has been a closed flock for several years.

Prior to the study, the farm reported significant challenges with lameness confirmed to be primarily due to footrot in ewes, and scald in lambs. A seasonal peak in lameness levels was present during the late summer period. This is reflected in the data from the year prior to implementation of the Five Point Plan, which is shown in Fig 2. The farm used the plan to identify specific areas of weakness and, consequently, began by implementing a strict culling policy, culling 4 per cent of ewes for lameness in the first year, and beginning a biannual vaccination programme. The farm also improved mobile and permanent handling facilities, and focused on reducing the number of handling events throughout the year.

Lameness prevalence across the flock was measured monthly by a single observer, during the first week of each month, using a simple 6-point locomotion score where 0 indicates sound mobility, 1 indicates very mild lameness, 2 indicates obvious lameness in an animal that stands and walks on all four legs, 3 indicates obvious lameness in an animal that walks on four legs but stands on three legs, 4 indicates obvious lameness in an animal that stands and walks on three legs only, and 5 indicates obvious reluctance to bear weight on multiple limbs. Ewes were considered lame with a locomotion score greater than or equal to 1. Mean lameness prevalence for year 0, prior to implementation of the Five Point Plan, was 7.4±4.9 per cent, with the seasonal peak reaching 19.1 per cent. The farm achieved the FAWC lameness level target of less than 5 per cent within the first year, with a mean prevalence of 2.6±2.9 per cent (Fig 2). During the four-year period, the farm maintained the commitment to all five points of the Five Point Plan, and achieved lameness levels less than 1 per cent each month in years 2–4.

The Five Point Plan was also implemented on two other farms, and although no prevalence data was available for these flocks prior to implementing the plan, they both maintained mean prevalence levels below 3 per cent for the duration of the implementation period and, anecdotally, the farmers suggested this was a notable improvement on previous levels.

The results of this case study show that lameness reduction is achievable within a relatively short time scale, but does require long-term commitment in order to sustain success. While the Five Point Plan was primarily designed to tackle lameness due to footrot and scald, the principles are likely to be relevant where there is infection with contagious ovine digital dermatitis (CODD) within a flock, since this is also thought to be an infectious bacterial disease (Davies 2011).

A plan that requires multiple action points can be difficult to communicate to farmers. Clear timelines associated with the overall production calendar need to be provided for each of the action points to ensure that the whole plan is achievable. An understanding of the economic impact of lameness in terms of reduction in ewe and lamb performance, and the time and resource required to treat clinical cases can be a key driver in motivating farmers to implement such a strategy.

Another crucial factor for the sector as a whole is the high volume of antibiotic currently used to tackle the estimated 9 million lameness cases that occur annually in the UK (FAWC 2011). Widespread implementation of the Five Point Plan has the potential to substantially reduce the number of doses used against this disease. On this farm, in the year prior to implementation of the plan, the mean number of monthly lameness treatments was 3.8±2.1 per 100 ewes. In the first year of...
Short Communication

While lameness is a complex disease, there is a genuine desire among sheep producers to tackle it. On this farm, the implementation of the Five Point Plan had significant benefits in lameness reduction with associated benefits in welfare and productivity.

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References

TABLE 1: Description of the relevance and methods of implementation for each point of the Five Point Plan

<table>
<thead>
<tr>
<th>5 Point Plan</th>
<th>Relevance</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>1. <strong>CULLING</strong> of badly or repeatedly affected animals</td>
<td>By removing worst offenders, flock resilience to disease is increased. Ewes with chronic misshapen feet likely to be a source of infection.</td>
<td>Ewes treated more than once for footrot or scald should be cull tagged. “Two strikes and you’re out” policy. Cull ewes with misshapen chronic feet.</td>
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<tr>
<td>2. <strong>QUARANTINE</strong> incoming animals</td>
<td>Minimising overall disease challenge for incoming and existing animals, allowing time for inclusion to vaccination and management programme.</td>
<td>Develop robust quarantine procedure to protect both existing ewes and the newcomers.</td>
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<tr>
<td>3. <strong>TREAT</strong> clinical cases promptly</td>
<td>To alleviate disease in the individual animal, and to reduce disease transmission to others.</td>
<td>Identify and rapidly treat lame animals in the whole flock. Use a simple scoring system to regularly select animals and target treatment.</td>
</tr>
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<td>4. <strong>AVOID</strong> propagation of infection on farm</td>
<td>Reduce the opportunities for the disease to spread sheep to sheep via the ground, periods of close contact are high risk. Build immunity in breeding stock, vaccination gives additional protection at high-risk times.</td>
<td>Identify opportunities for improvement in underfoot conditions, both in the field/barn and in the handling set-up and frequency. Initially vaccinate all breeding stock biannually, timing doses to coincide with high-risk times, such as housing and late summer.</td>
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<tr>
<td>5. <strong>VACCINATE</strong> biannually</td>
<td>Build immunity in breeding stock, vaccination gives additional protection at high-risk times.</td>
<td>Initially vaccinate all breeding stock biannually, timing doses to coincide with high-risk times, such as housing and late summer.</td>
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FIG 2: Lameness prevalence and number of ewe treatments per 100 ewes per month, prior to and during the implementation period
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