

# Enabling Behaviour Change in Laying Hen Farmers Using Motivational Interviewing <sup>†</sup>

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**Abstract:** Laying hens with poor feather cover eat more feed, are less productive, and have higher levels of morbidity and mortality. This welfare and sustainability issue is complex, requiring a proactive, multi-pronged approach. The aim of this UK study was to test a support approach for commercial implementation and uptake of evidence-based strategies aimed at reducing injurious pecking (IP) in 29 flocks of free range (FR), aviary and enriched cages (EC). This was accomplished by using motivational interviewing (MI) to facilitate farmer ownership over maintaining feather cover by co-developing bespoke feather cover action plans (FCAP). Recruitment included farmers with a range of initial attitudes, from not regarding IP as a priority, to engaged first adopters. The MI approach resulted in 80% of farmers making changes to their management and resource provision, with 90% of farmers of FR and half of those using EC making changes. Up to nine actions were planned in their FCAP (average 3 on FR farms), and 67% of all planned changes had been achieved on average 9 months later. While some changes were inexpensive and durable, such as providing rope or plastic objects, others were capital investments like verandas, planting trees, renewing and strategically placing artificial shelters, frequently replenishing Lucerne, or removing capped litter, plus adding pecking rings in enriched cages. Reflecting on the value of their FCAP, farmers recognised that being part of the project not only raised their awareness of IP and the importance of maintaining good feather cover, but also motivated them to make changes. They recognised the value of the facilitator and noted that successful outcomes gave incentive to make further progress. Half the farmers felt their FCAP had been successful in reducing IP within their flocks. This approach therefore has potential to improve both the sustainability of egg production and hen welfare.

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## 1. Introduction

Injurious pecking (IP), which comprises vent pecking, cannibalism, and feather pecking behaviours, is seen in all systems of keeping laying hens. IP is a multifactorial welfare issue with several risk factors, such as environment, nutrition, genetics, and breed [1,2]. Birds with poor feather cover due to IP eat up to 40% more feed [3], contributing to reduced productivity. Increased levels of mortality further diminish the sustainability of the enterprise [1,4]. In addressing complex animal welfare and sustainability challenges such as IP, a proactive, multi-pronged approach is required. Yet managing complex issues on a farm does not lend itself to the traditional top-down approach, which reduces the chances of behaviour change [5,6]. The challenge is how best to encourage the adoption

of evidence-based management strategies, including indoor enrichments, outdoor range enhancements, and good litter quality, which have been shown to reduce the risk of IP on laying farms when tailor-made to the situation of each flock [7].

Evidence is growing of the effectiveness within the dairy industry of valuing farmer knowledge, strengths, and ability via new models of veterinary communication that employ motivational interviewing (MI) [8,9]. MI has been used within the medical profession for some time to enhance motivation by allowing the interviewee to take ownership of their problem and retain a sense of autonomy [10].

The aim of this study was to evaluate whether MI-based facilitation would encourage laying hen farmers to take ownership of IP issues, and to co-develop and enact bespoke feather cover action plans (FCAP) for each individual flock to manage IP.

## 2. Materials and Methods

In total 29 commercial laying flocks were used in this study. Farmers were recruited by the British Egg Industry Council (BEIC) from members of its Lion Code assurance scheme (which includes over 90% of commercial production) geographically distributed throughout England and Wales. Participating farmers included those with attitudes ranging from not regarding IP as a priority to engaged first adopters. This was a deliberate strategy to test whether the MI-based facilitatory approach for developing FCAP would be viable in evoking behaviour change in farmers with different attitudes towards IP. Two visits took place between August 2018 and January 2020. A representative selection of three poultry housing systems and nine breeds were included. Four flocks were housed in enriched (colony) cage systems (EC) and one in a barn aviary system (BA) (flock size range 70,000 to 124,000). The 24 free-range (FR) flocks (including one organic) were housed in either single-tier, flat-deck (F/D) ( $n = 11$ ) or multi-tier (M/T) aviary systems ( $n = 13$ ) with flock sizes from 3000 to 16,000 birds. Of the 29 flocks, 27 flocks had been infra-red beak treated at day old, with two intact beak flocks.

Each farmer was interviewed by a trained and experienced facilitator using MI techniques. A fundamental role of the facilitator was to engage and clarify the farmers' strengths and aspirations, evoking motivation for change by promoting their own autonomy in decision making. A structured interview was used at the first visit to determine motives, learning styles, and incentives. The facilitator used open questions, affirmation, reflective listening, and summary reflections. The interview covered: (1) motivation to join the project and maintain feather cover, (2) current sources and support for maintaining feather cover, (3) how they would like to receive future information about maintaining feather cover, (4) attitudes to change, and (5) good practice for managing IP actively on farm. This led to co-developing an individual, bespoke FCAP to reflect the needs of the flock and the capacity of the farmer. Between visits, further support was given to the farmers by providing a written copy of their FCAP and farmer-led information about management strategies, resources, and interventions, with ongoing monitoring and motivating of their progress in adopting their FCAP. The second visit to 26 farms (three were unavailable) again used a structured interview to (1) gather updated information on farmers' attitudes, motivation, reflection, and barriers regarding managing injurious pecking; and (2) measure the uptake of the FCAPs in terms of changed management practices on farm.

## 3. Results

### 3.1. Farmers' Motivation, Attitudes, and Engagement

The responses to the first structured interview revealed that 15 farmers were fully engaged in the concept of developing their FCAP. Of the other 14 farmers, seven were interested in the project and seven did not regard IP as a priority. The facilitator reflected that farmers who appeared to show greater engagement and enthusiasm were generally more motivated and determined to plan changes on their laying farms. However, by the end of the first visit after the MI-based interview and support in co-developing their FCAP

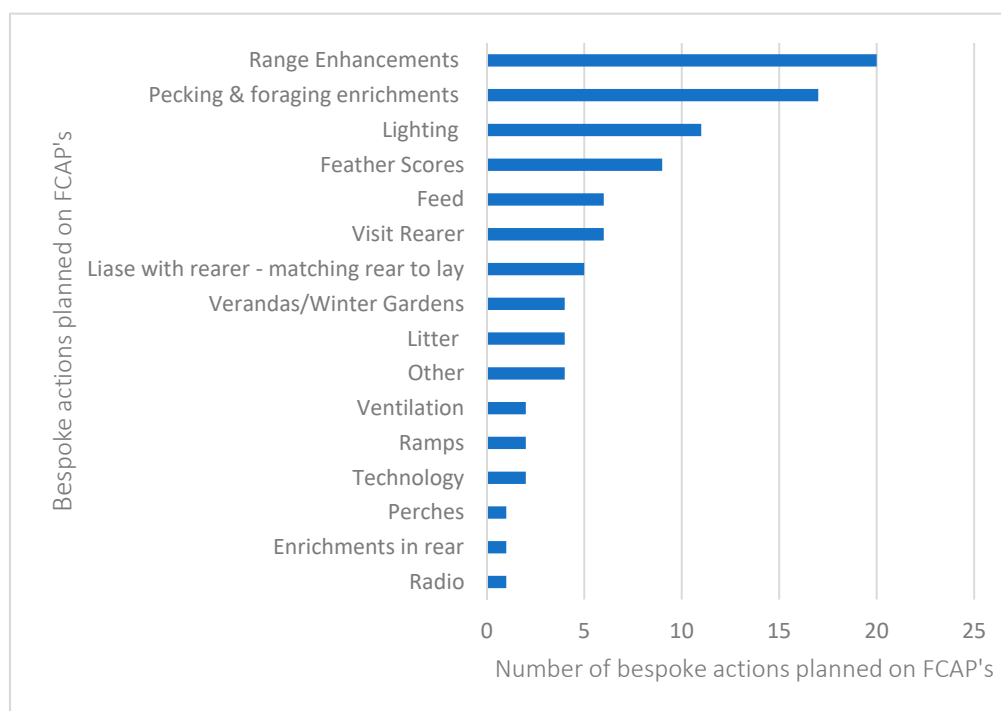
motivation, the number of planned changes was generally high, with more than half of (19/29) farmers planning two or more changes (Table 1).

**Table 1.** Levels of producer motivation to plan changes to manage feather cover in their feather cover action plans (FCAP), compared with levels of engagement at the first visit.

Level of Engagement with FCAP	Number of Farmers	0–1 Changes in FCAP	2 Changes in FCAP	3–9 Changes in FCAP
low	7	5	2	0
medium	7	2	3	2
high	14	3	1	11

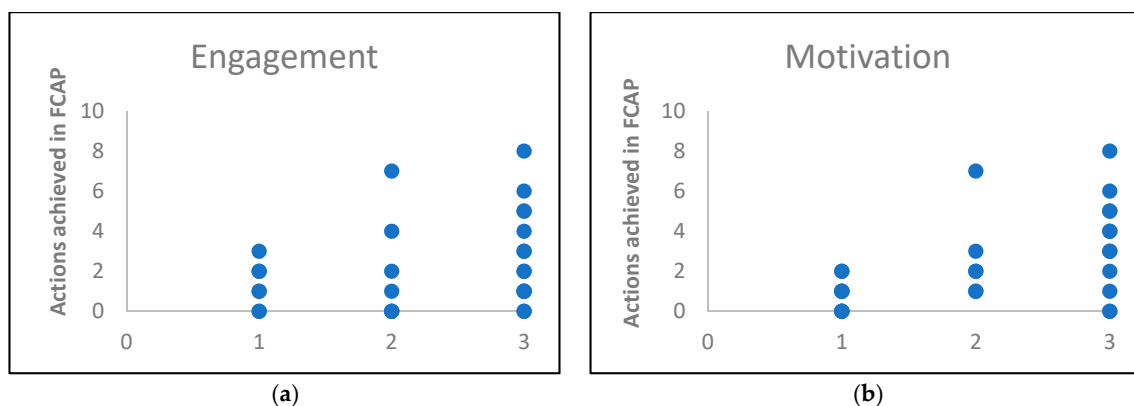
Levels of engagement were subjectively assessed from the structured interview. Farmers denoted “low” had indicated the project and injurious pecking (IP) was not a current priority; “medium” reflected general, open-minded interest; and “high” farmers highly motivated to control IP and develop a FCAP.

All farmers, who were already undertaking some evidence-based measures to control IP, co-created their own FCAP with the encouragement and support of the facilitator. Farmers had many ideas on a range of bespoke actions for their own farms; and were often ambitious in the number of additional actions they planned to make (range 0–9 for all flocks with an average for FR flocks of 3). There were few actions planned in the enriched cages, as this system has limited opportunities for enrichment. However, providing pecking rings was trialled in 1000 intact and beak treated hens in an EC system, and training in feather scoring was adopted by other EC producers. The only barn aviary flock in the study had 10 strategies in place initially and implemented one of their two planned actions. Some of the farmers made additional changes that were extra to their FCAP. However, five farms (including 2 EC) did not plan any bespoke actions because they had already adopted many of the management strategies that have an evidence base [7]. Two of these FR flocks had above average feather cover and the farmers were happy to continue with their current management. The type and frequency of bespoke actions selected by farmers for their own FCAP is illustrated in Figure 1, which shows actions with a range of investments in time and cost.



**Figure 1.** Type and frequency of bespoke actions planned on project farms at the first visit. Note that some farms planned several actions within a category such as “pecking and foraging enrichments”.

Three farms implemented further actions over and above their FCAP. For FR flocks, more than two thirds (67.8%) of planned changes were in place by the time of the second visit, on average 9 months later (range 6 weeks–20 months). Farmers who were initially more motivated and engaged with FCAP tended to implement more actions from their FCAP (Figure 2).



**Figure 2.** Higher levels of initial engagement (a) and motivation (b) tended to be associated with achieving more actions within their FCAP (Score 1 is low, 3 is high—see Table 1).

### 3.2. Factors Influencing Motivation, Implementation, Successes and Barriers of the FCAP

As motivation was a key aspect of the study, farmers were encouraged to share and reflect on their own experiences of the project to include successes and challenges to reduce IP on their own farms. Out of the 26 farmers visited, 17 recognised that the project had motivated and inspired them to adopt new bespoke actions tailored to their own farms.

*“The motivation has always been there, but this project has given us extra tools in the toolbox”*

*“The project has made me think more because of the welfare of the birds. Any information to help the birds is key, so we welcome any help and suggestions”*

Most of the laying hen farmers were motivated to make changes on farm to improve bird welfare, profitability, and customer relations. It was observed that some farmers were already relatively proactive and had many evidence-based management strategies in place. Some of the farmers considered the support and guidance from the facilitator had encouraged and stimulated them to implement more.

*“The project has helped me to be more motivated with the help of the LHWF project research officer”*

*“I’ve always been motivated. The project has just reinforced it. The LHWF project research officer visiting other farms and sharing their knowledge gives us a bigger picture to adopt good practice”*

*“Yes, the LHWF project research officer is useful with ideas and suggestions”*

The MI-based facilitation encouraged behaviour change as over 80% of farmers (21/26) made changes. There were also successful outcomes within the EC systems, with 50% of farmers making changes despite limited options. On FR farms, there was a substantial 90% success rate in accomplishing behaviour change and uptake of their FCAP. Bespoke actions (Figure 1) ranged from indoor enrichments such as providing rope, plastic objects, Lucerne and pecking stones/rings. Outdoor enhancements were planting trees and renewing or strategically placing artificial shelters. Some of the changes were capital investments, like adding verandas, or labour intensive, such as maintaining litter quality. Although the uptake of FCAP and bespoke actions were high, there were common challenges/barriers, such as financial costs and time constraints. In general, 13 farmers felt the

bespoke action(s) employed had been successful in reducing IP in their flocks. However, some farmers indicated that it was too early to say whether the new actions had helped.

#### 4. Discussion (and Conclusions)

The study indicated that motivational interviewing (MI) may facilitate behaviour change in laying hen farmers. The one to one support of a trained, experienced facilitator was likely to be a stimulus for farmers to adopt new management strategies to reduce injurious pecking on their own farms. The MI concept of evoking behaviour change has established use within the medical sphere (e.g., [10]) but is a relevant new approach to communication for the animal sector. Where veterinarians have a more empathetic and engaging relationship with their clients, this is correlated with adopting positive behaviour change. Bard and others [11] found that dairy farmers were more inspired to enact change on their farms if their veterinarian had an empathetic and encouraging approach. Similarly, during a welfare assessment scheme for pigs, the 15 farmers interviewed were more positive towards the “Real Welfare” protocol when the vet was engaging and shared a two-way relationship [12].

In our study, the process of co-creating a bespoke FCAP with MI-based support from the facilitator was demonstrated to be highly successful, motivating, and engaging, even with those farmers who did not think IP was a priority at the start of the project. Many of the farmers had ideas and suggestions but just needed the confidence to take them forward. In FR farms, there was a 90% commitment to trialling bespoke actions, with a mean number of three changes adopted. This result was identical to a study [7], which facilitated farmer ownership of the IP issue and supported farmers in adopting management strategies they had not previously used. Some of the farmers incorporated additional strategies which were not discussed in their FCAP, indicating the enhanced levels of motivation achieved by the project, and reflecting their dedication to hen welfare. Farmers were also aware of the benefits for enhanced productivity and sustainability derived from maintaining a fully feathered flock [1,4].

In conclusion, this project established that FCAPs can lead to positive changes in flock management with the support and encouragement of MI facilitation. This was demonstrated by the participants themselves who showed an interest and commitment by investing time and finances to reduce IP on their own farms. We consider this project as providing further evidence of the value of MI facilitation approaches in supporting farmers to make autonomous changes to improve animal welfare, productivity, and sustainability.

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