

Farmer perspectives on welfare outcome assessment: learnings from four farm assurance scheme consultation exercises

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Abstract

Recently, several farm assurance schemes in the United Kingdom have been adopting innovative approaches, such as welfare outcome assessment, into their routine procedures. In this paper, we present the findings of four consultation exercises, undertaken as part of a review process that examined farmer perspectives on planned or implemented changes to their current certification visits as members of UK-based dairy and laying hen schemes. The changes included the introduction of welfare outcome assessment by assessors, joint-scoring of welfare-outcome measures by farmers and assessors and self-assessment of welfare outcome measures by farmers between assessor visits. This study also explores the challenges that arise when schemes are aiming to adopt a scheme-level continuous improvement approach to promote welfare improvement on participating farms. The key challenges fall under three themes: the purpose and value for the farmer of the assessment of welfare outcomes as part of a farm assurance assessment process; the potential conflict rather than concordance with the role of the farmer in caring for their animals; and finally the technicalities of the assessment process, such as sample sizes for assessment being calibrated for gauging welfare prevalence at a scheme rather than farm level and the role of the farm assurance assessors both to assess impartially compliance against the standards and to provide welfare advice to support improvement. This study highlights that the involvement of farmers at all stages in the development and in the evaluation of outcome assessment initiatives is likely to be beneficial for welfare improvement on-farm.

Keywords: animal welfare, dairy, farm assurance schemes, farmer perspectives, laying hens, outcome-based measures

Introduction

Farm assurance schemes conduct welfare assessment for a variety of reasons (Johnsen *et al* 2001), most commonly to provide assurance to consumers that farms have met minimum standards of welfare and comply with legislation (Main *et al* 2003). Several schemes also use welfare assessment to promote improvement of animal welfare (Johnsen *et al* 2001). However, a number of studies have shown that assurance schemes influence, but do not guarantee, higher welfare outcomes (Langford *et al* 2009; Main 2009; Sherwin *et al* 2010). The Farm Animal Welfare Council (2005) recommended that to increase their potential impact on animal welfare, assurance schemes should include outcome-based measures of animal health and behaviour as part of their monitoring procedures. Outcome-based measures can be measured in conjunction with the provision of resources in order to assess the impacts of such inputs on the animals themselves and provide a basis for any improvements to be made (Main *et al* 2012a, 2014). In 2010, the AssureWel project, a collaborative project between the University of Bristol, the Royal Society for the Prevention of Cruelty to Animals (RSPCA), and the Soil

Association (SA) was initiated. One of the objectives was to promote the uptake of outcome-based measures within UK farm assurance schemes, so the project also worked closely with the Red Tractor Assurance Scheme (RTA), the largest UK farm assurance scheme. As part of AssureWel, robust protocols for assessment of important welfare outcomes have been developed and incorporated into the routine certification visits of UK non-cage laying hens (Main *et al* 2012b) and UK dairy farms (Main *et al* 2012a); with AssureWel working closely with the RTA to determine core measures in dairy cow welfare assessment. Data collected as part of the routine assessment in laying hens have already shown a significant reduction in feather loss after implementation of routine assessment of feather loss during the assessment visit (Mullan *et al* 2016).

The three schemes involved provide certification for the majority of UK dairy and non-cage egg production, with variable degrees of overlap in membership between schemes with some farms being members of one, two or all three schemes. The Freedom Food (FF) scheme is the RSPCA's farm animal welfare assurance scheme which focuses specifically on improving the welfare of farm animals, aiming for

“all farm animals to have a good life and be treated with compassion and respect” (RSPCA 2016). All FF scheme members are required to meet the RSPCA animal welfare standards. The Soil Association scheme certifies organic farmers in accordance with the EU regulation on organic production and prescribes higher — or stricter — standards than the EU, for example, with regards to animal welfare (SA 2016). The Red Tractor Assurance Dairy scheme is an industry-led assurance scheme aiming for high standards of food safety, environmental protection and animal welfare (Foods Standards Authority [FSA] 2012). Members of all three schemes are required to comply with animal welfare legislation and additional scheme-specific higher welfare standards. Although these three schemes are voluntary certification schemes, Main *et al* (2003) indicate that some have become a pre-condition to access certain retail markets and, thus, have become almost mandatory for farmers to be able to sell their produce. Other reasons why farmers participate in these schemes include: to get a price premium for their produce; a source of information and advice for farm management improvement; and to become eligible for certain subsidies (Main *et al* 2003; Fearné & Walters 2004). Scheme members have to pay a yearly membership and inspection fee, which varies between schemes and amongst others depends on the farm size. Fearné and Walters (2004) specify other costs associated with scheme membership including potential costs for making adjustments on-farm to comply with the standards at the time of joining a scheme and ongoing costs to maintain compliance on-farm, including record-keeping.

As part of the AssureWel project a best practice framework was developed that aimed to describe the key features of schemes aiming to achieve a higher impact on animal welfare (Main *et al* 2014). The framework advocates using a scheme management approach to promote ‘continuous improvement’. This includes an internal review process that monitors the likely or actual impact of changes to the certification scheme procedures or standards (Main *et al* 2014); including the impact on the members themselves. Four separate consultation exercises were undertaken with members of each scheme as part of this review process. The consultation exercises were focused upon understanding the farmers’ perspective on planned or implemented changes to their current certification visits as a result of the inclusion of welfare outcome assessment. The changes included:

- The compulsory implementation of welfare outcome assessment by scheme assessors into routine certification visits as part of the AssureWel project;
- The introduction of two novel initiatives designed to increase farmer engagement with welfare assessment:
 - (i) ‘joint-scoring’, whereby the farmer scores and compares certain welfare outcome measures on a sample of animals in conjunction with the scheme assessor during inspection; and
 - (ii) use of a form of ‘self-assessment’, whereby farmers used the AssureWel project protocols to score a certain welfare outcome measures on a sample or all of their animals and record the results.

The two novel initiatives, joint-scoring and self-assessment, were introduced to provide a chance to standardise assessment methods between assessors and farmers, to increase farmer engagement in the assessment process and encourage the use of welfare outcome assessment as an innovative management tool for farmers. Currently, joint-scoring has been included as part of the SA and FF schemes’ routine farm certification visits, and self-assessment has been embedded in the assessment standards in case of FF (RSPCA 2013). During an annual visit, the FF assessors check that monthly feather-scoring (self-assessment to monitor feather loss) has been carried out and documented in the farm records.

How farmers perform on the welfare outcome assessment does not have any impact on the market value of the product, beyond any premium that scheme membership might reasonably be expected to yield. Membership of a scheme is not, currently, contingent upon a farmer’s welfare outcome performance (RTA 2013); however, poor performance does have consequences as farmers are required to take appropriate and corrective action to improve if performing either below specified thresholds on particular measures or where a welfare outcome supports non-compliance with a standard.

This paper presents the findings of four consultation exercises, undertaken by assurance schemes and aims to explore farmers’ perspectives on the use of welfare outcome assessment, and the two associated initiatives (self-assessment and joint-scoring) within an annual certification visit. Whilst it is acknowledged that the four consultations are not uniform in design, analysing the consultation results in combination provides a unique opportunity to explore farmer views on the potential benefits and challenges that arise when certification schemes use these tools to measure compliance with their standards as well as provide farmers with a means for identifying areas requiring improvement in animal welfare.

Materials and methods

This paper reports the views of laying hen and dairy farmers from three schemes towards either planned or implemented changes to the relevant certification scheme. The views reported here arise from four different internal consultation exercises (See Table 1 in the supplementary material to papers published in *Animal Welfare* on the UFAW website: <https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>) conducted as part of an internal review process by each scheme:

- Red Tractor Consultation (RTC): a survey of dairy farmers certified by the RTA scheme undertaken prior to the planned implementation of welfare outcome assessment by scheme assessors into the routine certification visits;
- Joint-Scoring Producers Survey (JSS): a survey of dairy farmers certified by the SA and FF schemes focusing on recent introduction of joint-scoring as part of their welfare outcome assessment process;

Table 2 Summary of frequency of qualitative comments related to specific themes.

Themes	Comments			
	RTC	JSS	SAS	FGD
1 Value of process	201	77	86	58
2 Assessment method	27	22	18	47
3 Farmers' role and ability	58	5	13	33
4 Profitability and market	46	1	5	17
5 Performance	6	1	4	74
6 Communication	5	4	0	36
7 Trust in and use of data	16	1	1	25
8 Wider considerations and others' comments	20	2	10	5
Total	379	113	137	295

This table only presents the number of times a comment or part of a comment was counted within a specific theme, comparison between studies is not valid as different questions were asked in the four studies.

- Self-Assessment Producers Survey (SAS): a survey of laying-hen farmers certified by the FF scheme focusing on the recent introduction of a mandatory requirement within their standards for farmers to self-assess feather cover;
- Focus Groups Discussions (FGD): group discussions with hen or dairy farmers certified by either SA or FF schemes to assess their views on the value of the inclusion of formal welfare outcome assessment within their routine certification visits, and the value of formal self-assessment in between routine certification visits.

Table 1 (<https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>) provides an overview of the four consultations, including the objectives, methodology, number of respondents, the species involved and the specific time-frame for each study. A convenience sampling technique was used in all consultations based on willingness of members to participate to provide a cross-section of the perspectives of different farmers.

This mixed method study combines qualitative and quantitative results of the surveys and focus group discussion (Östlund *et al* 2011). The main focus of this paper is to report the analysis of the qualitative data. Where relevant, quantitative results are presented across the four different consultations to triangulate the qualitative results and support or contradict this analysis. The qualitative data included comments from the surveys as well as focus group discussion transcripts (Table 1; <https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>). The qualitative data in each study were analysed through thematic analysis, in total 924 comments across the four consultations (Joffe & Yardley 2004). The comments, or part of the comments in each study, were categorised into a total of 58 short phrases or words that captured the text (codes). This coding process was repeated for each study to ensure no data were omitted. A coding manual was developed jointly by the researchers describing

the dimension of each code. This manual was tested on a sample of the transcripts before use to ensure reliability. Once this process had been completed, the codes were compiled and aggregated into eight key themes (Table 2) relevant to the aim of this paper. The eight themes resulting from analysis of the qualitative data were: 'Value of the process', 'Assessment method', 'Farmers role and ability', 'Profitability and market', 'Performance', 'Communication', 'Trust in and use of the data' and 'Wider considerations and other comments'.

Results

The numbers of participants in each consultation exercise is shown in Table 1 (<https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>). Looking across the four consultations the themes 'Value of the process', 'Farmers' role and ability' and (technicalities of the) 'Assessment method' accounted for the vast majority (70%) of the comments and are explained in greater detail below. First, farmers' responses related to the introduction of welfare outcome assessment in general are explored, followed by responses specifically to the introduction of the two associated initiatives (self-assessment and joint-scoring). Examples of qualitative comments are included throughout the paper to highlight particular points.

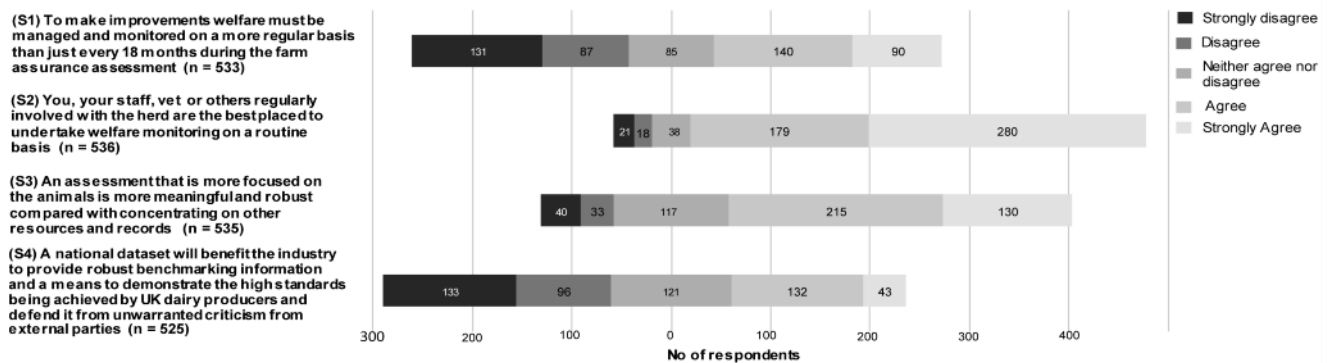
Welfare outcome assessment

Values of the process

Many of the comments related to the value of the assessment process to animals, scheme and farmers.

In line with the ethos behind the AssureWel project, ie that you cannot manage animal welfare if you are not measuring and monitoring appropriate welfare parameters, farmers recognised the benefit obtained from objectively observing animals to get a direct picture of the effect system inputs are having on their welfare.

Figure 1



RTC survey respondents' view on a series of statements connected with welfare outcome assessment.

Useful to get an independent set of eyes monitoring welfare on our and other farms within an accurate protocol system (JSS)

Quantitative survey responses appeared to support this; 64% (n = 535) of the farmers in the RTC agreeing or strongly agreeing that an assessment that is more focused on animals is more meaningful and robust compared with one concentrating on inputs and records alone (Figure 1; S3). However, across all of the consultations farmers raised concerns over increases in both paperwork and time associated with the use of welfare outcome assessment or self-assessment. This concern was particularly strong when individuals could not see a financial benefit.

This looks like it's only going to add to the useless record-keeping that we already undertake. Are people going to pay more for this? I think not. Especially in the current economic climate (RTC)

Clearly, assurance schemes have a role in ensuring farms in the scheme are complying with their animal welfare standards. It is, therefore, not surprising that some comments highlight the tension arising from the possibility of welfare outcome assessment performance being used to determine compliance in future.

If an inspector goes to a farm where standards are good then let the producers get on with what they are doing. Do not burden all producers with extra red tape. Focus on the problem farms and leave the rest of us alone (RTC)

I think the main outcome of these proposals would be to push more producers over the brink (RTC)

Farmers also questioned how their data were going to be used by the schemes, if not in individual compliance decisions. A national database of welfare outcome assessment data could be used at scheme level, eg guiding and communicating animal welfare policies. However, many RTC farmers appeared not to support this goal with nearly half of all farmers (Figure 1; S4; 44%; n = 525) disagreeing or strongly disagreeing with a statement outlining the industry benefits arising from a national dataset. Several farmers responding to the RTC were in favour of having welfare data available for on-farm

decision-making on farm level and to be able to present a positive picture to the public. However, others were fearful that the data would just be used as another stick to beat them with, and were concerned over how it would be presented and interpreted in light of what they felt was already a negative perception of the industry.

These days if you have bad feather cover there is the concern that you will end up on YouTube (FGD)

It's too easy for a lobby group to get a film of a [sic] badly cow and blast it round the media and state that this is normal (the BSE cow). If we as an industry are going to collate this information, we must also put enough resources (primarily pulled out of the producers pockets) into having a professional offensive defence blasted round the media the moment anything is released attacking the industry..... (RTC)

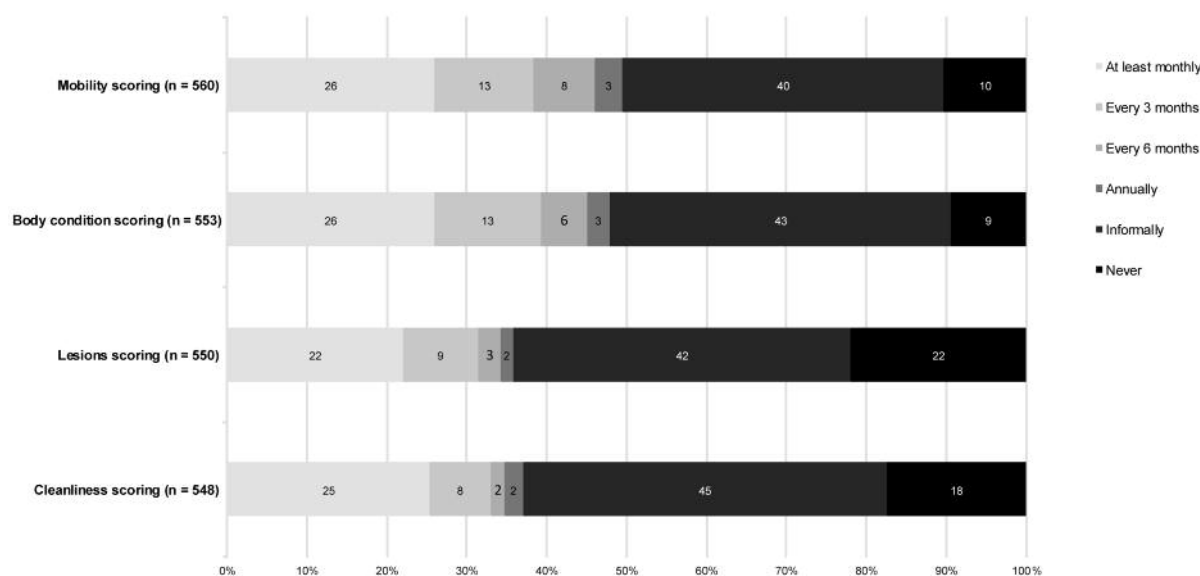
However, some dairy and hen farmers indicated that they found value in benchmarking on farm level and comparing this to a national benchmark at scheme level. Some hen farmers also indicated that they already benchmark themselves, comparing the current flock to the last flock, and trying to improve each time. Despite concerns, farmers did want the data collected during routine certification visits to be used to improve animal welfare. They would like to see that the data are shared more widely so that they, researchers in the area, and industry can learn from them and improve understanding of risk factors and provide solutions to welfare issues.

We want to keep improving and to do this we need to know what is and isn't working (FGD)

...whereas I normally only see my cattle, and know what's typical here. This is a subjective form of benchmarking, but it did reassure me that there were no particular problems to worry about. I suppose I was pretty sure everything was in order anyway, but it's nice to know that a competent 'outsider' thinks so too (JSS)

You mostly only need to benchmark if there is a problem. And, it just takes my time away from the cows I never look at the results or compare with others. I find it all a waste of time (RTC)

Figure 2



Current measures and frequency of welfare outcomes scoring by the RTC survey respondents.

Farmers' role and responsibility

Comments relating to the farmers' role and responsibility included discussions on the responsibility for welfare outcome assessment and improving animal welfare standards on-farm. Many farmers commented upon their personal responsibilities for animal health and welfare:

Ourselves and our vets are best placed to monitor all aspects of herd health. Farm assurance should merely establish that we have a plan in place (RTC)

A desired shift in responsibility for welfare assessment away from schemes was clear in RTC survey results with 86% (n = 536) of farmers agreeing or strongly agreeing that they themselves, their staff, veterinarian, or others regularly involved with the herd, are best placed to undertake welfare monitoring on a routine basis (Figure 1; S2). Across the consultations, farmers expressed the view that their daily role as a stockman, came with professional obligations and responsibilities that made them best suited to assessing and ensuring their stock's welfare. Farm assurance scheme assessments were, in contrast, perceived to be a bureaucratic exercise with no welfare benefit:

I am afraid to say that another name for this is called stockmanship, which has been practiced on farms for many years (RTC)

I feel we are several steps ahead of the inspector having scored for some time. What is really important is: why are we getting these particular results, what do they mean and how can we change the animals' management and environment to make improvements (JSS)

Formalising this into a formal exercise will be seen as a burden, which does not add anything to cow welfare, and takes time and attention away from caring for our animals. It will change from actively looking at the cows to assess their welfare on a daily basis, to a box-ticking exercise (RTC)

For some farmers, this responsibility and pride for their role in animal welfare was associated with a strong objection to farm assurance assessment of their animals:

This is really an insult to stockmen who respect their cattle. I would expect every one of my milkers to be inspected for all problems every day without fail. We don't need inspectors coming around to check (RTC)

Farmers' monitoring of welfare outcomes themselves on-farm level was also highlighted in the quantitative results. As part of the RTC, farmers were asked if (and at what frequency) they monitored each of four measures (mobility, body condition, lesions and cleanliness [Figure 2]). Between 91 and 78% of farmers reporting that they already monitored these parameters either formally or informally before introduction of a formalised assessment within the Red Tractor Scheme. Although between only 22 and 26% of the RTC dairy farmers indicated they conducted these assessments every month. Their variability in the value placed on frequent formal welfare assessment is highlighted by the following comment:

If the point of scoring on a monthly basis is to pay more attention it is only beneficial for people who don't already take notice of their bird. If producers are interested in welfare already then they are already looking at things like feather loss (SAS)

Dairy farmers in the RTC held mixed views as to whether, in order to make welfare improvements, welfare must be managed and monitored on a more regular basis than every 18 months during the farm assurance assessment. Forty-three percent of farmers (n = 533) agreed or strongly agreed that more regular monitoring would be needed but, equally, 41% disagreed or strongly disagreed that this is necessary (Figure 1; S2). Similarly, the RTC showed that almost 75% of all dairy farmers, who carry out their own welfare outcome scoring, assess the whole herd rather than sampling within a herd (Table 3).

Table 3 Proportion of RTC survey respondents who currently conduct scoring of welfare outcomes measures on either the milking herd, the whole herd or a sample of the herd.

Answer options	Milking herd (%)	Whole herd (%)	Sample (%)
Mobility scoring (n = 505)	23	71	6
Body condition scoring (n = 500)	13	77	10
Lesions scoring (n = 434)	16	73	11
Cleanliness scoring (n = 450)	17	75	8

Technicalities of the assessment method

Comments related to the technical aspects of the welfare assessment procedures included aspects such as the selection of measures, definitions within the protocol, frequency of assessment, sampling strategies and competencies of the farm assurance assessors.

Some farmers commented positively on the selection of measures.

Everything that is suggested in these proposals are common sense, a healthy happy herd is a more profitable herd (RTC)

In the RTC, farmers were asked to comment on four specific measures (mobility, body condition, lesions and cleanliness) (Figure 3). The proportion of farmers that agreed or strongly agreed ranged from 66.6% for mobility (lameness) to 48.4% for cleanliness with relatively fewer farmers stating that they disagreed or strongly disagreed (range: 17.4% for mobility and 25.1% for cleanliness).

However, comments reveal that there was some disagreement about the relevance of thin/fat cows (body condition scoring) due to the relationship with production stage, ie it's perceived as normal for dry cows to be fat:

If it is a barren cow you expect it to be fat and in fact want them to be fat! (FGD)

Similarly, laying hen farmers in the FGD generally agreed that mortality and feather loss are relevant measures but that dirtiness was not a significant issue in their industry.

Opinion on the details of the assessment protocols, including sample size, assessment scales, and visual versus physical assessment were also expressed. For example, there was discussion around the ability of a sample size of 20 cows or 50 hens to give a fair representation on farm level. During the laying hen FGD there was also a discussion around the relative merits of a three-point scale, included in the AssureWel protocol, or a five-point scale used by some industry groups. Though the three-point scale did map onto the five-point scale, the latter was preferred by farmers. There was some debate amongst dairy farmers around the need to handle animals for the assessment of thin/fat cows. The proposed assessment for assurance schemes did not require handling, for safety reasons, even though some farmers argued that this compromised the validity of the measure. Similarly, there were debates around the usefulness of cleanliness assessment:

It felt the cleanliness assessment used was too harsh and when we assessed a group of cows that had recently been out dry they all scored high I think it should focus on udder cleanliness (RTC)

Farmers across consultations commented on the competency of assessors. Comments described how assessors could help them maximise animal health and welfare. However, other's comments indicated the competency of the assessors to be a key factor in ensuring credibility of welfare outcome assessment. Some respondents felt that assessors were already very capable and able to score measures on-farm during the certification visit, and had value in helping maximise health and welfare.

The inspector sees a lot of animals in different situations, and so could explain what he was looking for, and could give me an idea of how our cattle matched up to other cattle (JSS)

If I were left with some cards for each part of the scoring explaining what was being looked for this would be helpful for passing on to others within our business (JSS)

Others stressed the need to provide experienced assessors with high quality specific training on welfare outcome assessment with some hen and dairy farmers indicating that they had witnessed variation between farm assurance assessors in scoring the welfare measures, and between assessors and farmers.

It [benefit] depends very much on the assessor and how much practical knowledge they have about dairy cows! (JSS)

There MUST be vocationally competent, experienced and credible people undertaking this part of the RTA audit or it will undermine the whole process from all perspectives (RTC)

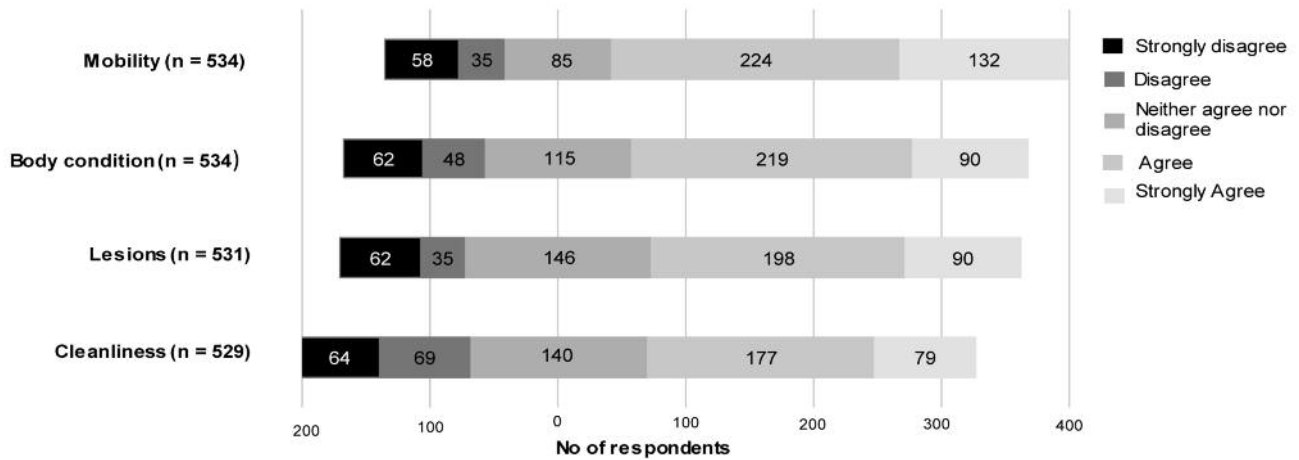
Response to self-assessment initiatives

In order to increase ownership and engagement with the assessment process it had been proposed that producers formally assess and record certain welfare outcomes on their own farms (self-assessment). The SAS aimed to gather the views of hen farmers in response to the introduction of an RSPCA welfare standard requirement to self-assess feather loss (Table 1; <https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>). The RTC also explored the potential reaction of dairy farmers to the proposed introduction of self-assessment requirement in future Red Tractor standards.

Values of the process

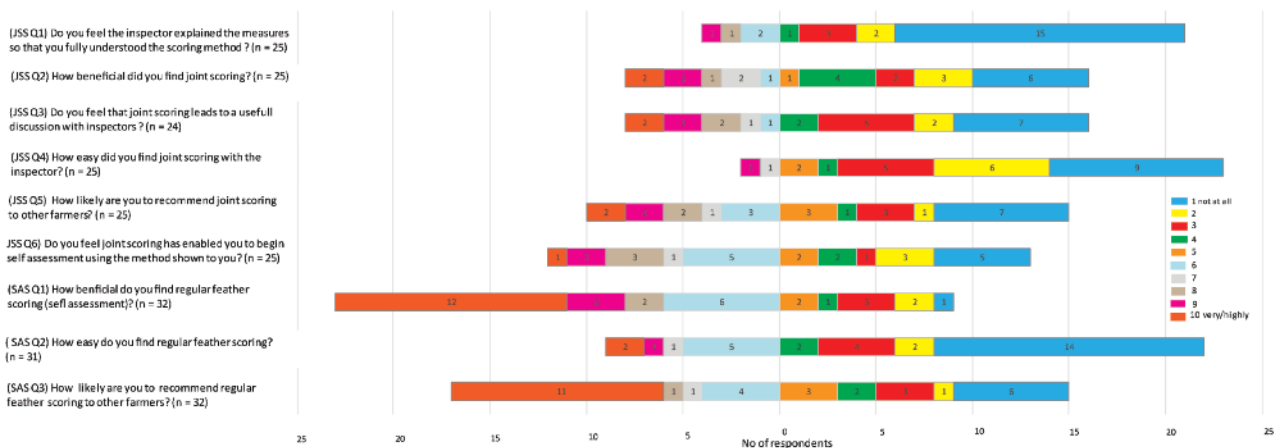
All laying hen farmers in the SAS, bar one, indicated that laying hen farmers had started formal feather-scoring as defined by the RSPCA standards. Fifty percent of respondents (n = 32) indicated that they used the AssureWel method, 25% used a method required by the egg packer

Figure 3



The RTC survey respondents' view on whether the measures short-listed for inclusion within the RT scheme are relevant indicators of the extent to which the welfare needs of their stock are being met.

Figure 4



The distribution of farmer responses to a series of questions in the JSS and SAS related to joint-scoring and self-assessment.

(industry) they sell to, 16% used their own method, and 9% used 'another' method provided by their veterinary surgeon or farm advisor. Several farmers discussed the benefits of formal self-assessment in the detection of problems; keeps them 'on their toes' and makes sure they go that 'stage further'. In terms of the process, 71% farmers suggested that they generally did find regular feather-scoring easy (Figure 4; SAS Q2). In the SAS, 23% of the hen farmers indicated they had made changes on-farm as a result of carrying out the self-assessment. Changes made included: to the lighting, adjusting and red light tubes, tightening red mite checks and new treatment routines, diet/feed changes, environment enhancement and more regular recording.

Overall, hen farmers were ambiguous about recommending regular feather-scoring; 47% scored 5 or more on a ten-point Likert scale (1 not at all and 10 very likely) indicating they would recommend regular feather-scoring to other farmers but 53% indicate they would not

(Figure 4; SAS Q3). Some farmers felt powerless to improve feather cover in a flock once birds have started to develop feather loss, and so did not see the point in monitoring it so formally.

But each flock is so different there is no point recording everything on a flock of birds — you always get different results even if you don't change anything in management (SAS)

When asked how often scoring was undertaken on their farm, the tension between the management benefits of scoring and the compulsory nature of the assurance standards was highlighted:

Monthly on paper, as we have to satisfy the paper work. Practically every day visually when walking though the birds (SAS)

A good farmer will already be doing these things daily, by observation. Though it's never recorded, and none of us need more paperwork. Also, its one thing to notice a problem and another to sort the problem on our very busy dairy farms (RTC)

Farmers' role and responsibility

Comments from the RTC suggest that the proposal to introduce self-assessment was seen as an insult to, and both an interference into and a negative judgment of, their stockmanship and professional ability to make decisions on-farm. Maintaining good welfare was highlighted as something farmers worked for as a matter of course, and were both proud and passionate about:

As a dairy farmer, I keep my cows in top condition and health to make a living I do not need someone else telling me how to run my business (RTC)

There was also recognition that farmers could just write down what they wanted when undertaking self-assessment. Thus, the record on which assessors potentially make compliance decisions may not be honest or accurate in all cases. For this reason, it was felt that routine certification visits or spot-checking would be an essential additional element to validate self-assessment.

Just because you make people record data will not mean they will (a) put constructive realistic figures down and (b) act upon them (RTC)

Response to joint-scoring initiatives

As another potential mechanism to increase ownership and engagement with the assessment process it had been proposed that assessors undertake formal scoring of some animals with the producer (joint-scoring). Assessments on the SA and FF schemes had included a joint-scoring on three out of the 20 animals observed (Table 1; <https://www.ufaw.org.uk/the-ufaw-journal/supplementary-material>).

Values of the process

The vast majority (84%) of dairy farmers completing the JSS indicated that in their last certification visit they had experience of joint-scoring with a farm assurance assessor. Many farmers were able to remember a range of the individual measures that were looked at: 96% mobility, 93% cleanliness, 87% body condition, 81% lesions, 78% swelling, 74% hair loss. Although 26% also mentioned that the assessor looked at measures not included on the protocol. The process of joint-scoring was reported to be easy to complete by 92% of the JSS dairy farmers (Figure 4; JSS Q4).

The majority (65%) of farmers found the process of joint-scoring with the assessor beneficial (Figure 4; JSS Q2). On a score of 1 (not at all) to 10 (very), 60% of the farmers ($n = 25$) scored 6 or higher in terms of their likelihood of recommending joint-scoring to other farmers (Figure 4; JSS Q5). However, some farmers felt that joint-scoring was an unnecessary duplication, as it was already something undertaken as part of daily stockmanship, or something completed as part of a milk supply contract. Sixty-four percent of dairy farmers ($n = 25$) in the JSS who had previously undertaken joint-scoring, had done so with their veterinary surgeons, who were considered as important sources of advice and information on welfare assessment.

Farmers' role and responsibility

It is encouraging that the majority of farmers (64%) also reported that the process led to a useful discussion with the assessor (Figure 4; JSS Q3). Comments related to the latter question indicated joint-scoring, with an assessor, offered

learning opportunities and a chance for farmers to discuss both problems and solutions. It also provided the opportunity to discuss and agree the scores allocated by the assessor, which was found useful in avoiding conflict and building rapport:

Benefits are that I was able to understand what was being looked for. Also, I could discuss the decisions he came to (JSS)

Again, being able to discuss scores was most useful. Part of my discussion included how certain cows walk, and how this can cause uneven wear on their hooves, and hence the need for regular, preventative paring (JSS)

Dairy farmers in the JSS provided mixed feedback on how they perceive assessor competency and practical knowledge. Sixty percent of the JSS farmers indicated that the assessor had explained the measures to them very well, such that they fully understood the scoring methods shown to them (Figure 4; JSS Q1). However, some suggested that assessors were trying to find problem animals when sampling for assessment.

Out of a herd of 120 cows we had to 'find' a lame cow! This was marked lame even though it was walking downhill at the time which the inspector even commented on (JSS)

Discussion

This study presents the results from four different consultation exercises conducted by three farm assurance schemes as part of their review process. This paper is the first to present the perception of farmers on the value of outcome measures and associated initiatives, such as joint-scoring and self-assessment, before, during and after its introduction in farm assurance assessments in the UK. Even though the consultations were undertaken in different species, across different schemes, using different methodological approaches, and at different stages of introduction, it is striking that the farmers' comments tended to focus on similar issues. The quantitative and qualitative methods were specific to each study, not uniform in design, and not designed to provide a comparison between the various applications. However, by reviewing the similarity in qualitative response, in particular, it is possible to determine the key themes from the farmer's perspective. Three common themes emerge relating to the purpose and value for the farmer of the assessment of welfare outcomes as part of a farm assurance assessment process, the potential conflict rather than concordance with the role of the farmer in caring for their animals and finally the technicalities of the assessment process, such as sample sizes and the role of the farm assurance assessors.

For many farmers, the principle of endeavouring to evaluate a farm based on physical and behavioural observation of animals, rather than relying upon the assessment of resources and husbandry facilities provided to animals, was well received. Many farmers highlighted the positive management benefits of welfare outcome assessment and reported they were already undertaking self-assessment

scoring, such as mobility and feather-scoring. There were, however, also significant criticisms of the approach, especially self-assessment, such as the perceived bureaucracy and unnecessary duplication of something they feel they are already doing. Whilst the introduction of welfare outcome assessment is a well-intended and necessary initiative there may be a perception amongst some farmers that the approach does not value their efforts to care for livestock. A similar issue was described by Escobar and Demeritt (2017; p16) within the context of record-keeping they suggested that “farmers understand keeping records and caring for their animals as two distinct and largely unrelated areas”. The authors describe the problem as a “de-coupling of audit and animal welfare” with farmers regarding “paperwork as burdensome” whilst “inspectors and animal welfare experts frame record-keeping and analysis as central to good animal husbandry...”.

The results show that farmers questioned some of the technicalities of the assessment protocols used, such as relevance of measures, the sample size for self-assessment for farmers and how data are shared for on-farm decision-making. Previous studies have shown that uptake of a new approach and related welfare improvements on-farm are more likely if tools are co-developed in a collaborative process with farmers (Chambers *et al* 1989; Pretty 1995; Haggmann *et al* 1999). Some of the issues raised by farmers were expected as the protocols were not originally developed for joint-scoring or self-assessment, therefore sample sizes were calculated to provide scheme-, rather than farm-level, prevalence of welfare issues. The results also reveal a potential need for better communication to all farmers as to why certain decisions were made in terms of, for example, sample size and why certain measures were included. However, farmers were consulted in the development process of the welfare assessment protocols for each scheme (Main *et al* 2012a,b).

The decision to include a welfare measure in the welfare outcome assessment (WOA) protocols is based upon welfare concern as well as other factors, such as the relevance to the current standards, feasibility of assessment and repeatability of the measure (Leeb *et al* 2004; Main *et al* 2012a). Measures that work on scheme-level in terms of practical implementation in farm assurance protocols might not provide the relevant information for farmers to improve welfare concerns on-farm (Johnsen *et al* 2001). An assurance scheme implementing a continuous improvement approach that focuses both on compliance and welfare improvement faces a more complex negotiation process in selection of measures: considering not only the priorities of the animal and of the scheme, but also of the farmers who need relevant and trusted information to manage the outcome measures on-farm to improve the welfare of their animals.

The trade-offs made in designing the protocol to make it work on scheme-level might have reduced the value of the protocol for farmers. For example, Main *et al* (2012b) indicates that the (reduced) sample size of the assessment protocol for laying hens works on scheme-level but less so for interpreting welfare issues on individual farms and indi-

vidual farm comparison. The results show that farmers prefer a larger sample as they perceive that as more representative and relevant to their individual situations.

Of the two initiatives introduced, joint-scoring appeared to be received more positively than self-assessment. Although both initiatives make use of outcome measures, the critical difference between the two is that joint-scoring is conducted as part of the routine certification visit and is a novel opportunity to share views and learn, whilst farmers are required to do self-assessment on their own every month, something they may already do. The aim of introducing self-assessment was to increase farmer engagement in the assessment process and to allow them to monitor welfare at regular intervals enabling them to take action if any welfare issues are identified. However, the result suggests that farmers may see limited value in self-assessment as a management tool. One of the reasons for this could be that the tool does not build sufficiently on farmers' existing practices (Haggmann *et al* 1999), both in terms of welfare assessment of their animals and their internal record-keeping practices. Doubtlessly, farmers already conduct outcome assessment of their animals on a daily basis to a greater or lesser extent and some do it more effectively than others. However, there is limited understanding of current practices of individual farmers, and practices are likely to be highly diverse amongst farmers. The introduction of outcome measures within routine farm certification visits increases the complexity in the relationship between scheme and farmer; welfare outcome assessment increases the attention on the ability and skills of the farmers compared with an assessment that looks at resource provision only (Roe *et al* 2011). And may even create a negative response from farmers if perceived as a lack of trust in their ability and judgement of their performance (Hemsworth *et al* 2009).

In order to pursue a continuous improvement approach it is important that the scheme should ensure that appropriate technical advice is available (Main *et al* 2014). The results show that some farmers would like the farm assurance assessor to provide advice during their visit. They perceive the assessor has valuable knowledge on how to overcome common welfare problem on-farm as they visit a large number of farms. Thus, should the role of the assessors in the assessment process be to advise and support or inspect for compliance only, or to do both? Engaging in dialogue with farmers could provide an opportunity to motivate farmers to make welfare improvements on-farm (Anneberg *et al* 2013). Although assessors are restricted from providing farm-specific advice due to accreditation requirements (Main & Mullan 2012), they can provide more generic advice and direct farmers to find the resources they need. An additional mechanism could be established to utilise the knowledge of the assessor, for example, by providing opportunities for knowledge exchange between assessors and advisors. Another aspect to consider is that advice to farmers based on the results of welfare outcome assessment might not be as straightforward as providing advice to change certain aspects of resource provision (Roe

et al 2011). Welfare outcomes can be related to a combination of risk factors including animal and farm context-specific factors; this makes providing effective farm specific advice much more challenging.

Animal welfare implications and conclusion

Welfare outcome assessment is a practical and scientifically informed method of outcome assessment that aims to provide an objective, accurate and direct picture of animal welfare. As such, farm assurance schemes see an important role for its use in both confirming and continuing to strengthen and improve their animal welfare standards. However, unless individuals caring for the livestock on-farm can see a value in engaging with such assessments, they are unlikely to result in any enduring change in farm animal welfare and, in fact, may drive farmers to push back against any initiatives of this type. As farmers drive welfare improvements on-farm, the involvement of farmers at all stages in the development and in the evaluation of approaches is likely to be beneficial for improvement of animal welfare. The results presented here provide insights into farmers' perspectives, which schemes can use to ensure that the current and future implementation of welfare outcome assessment, and associated initiatives, within farm assurance schemes, is utilised and targeted where it is needed most to benefit schemes, farmers and animals.

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