# Improving stockperson attitudes to chickens: A novel clicker training approach 

Final Project Report

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## Foreword

This project was conducted to determine if improvements in attitudes to chickens occur among stockpeople working with layer hens, if they participate in a workshop designed to learn how to train chickens using a training bridge (clicker). If positive changes in attitude occur, they may lead to changes in the behaviour of these stockpeople when working with chickens, leading to improved animal welfare and higher productivity. This would have economic benefits and also potentially social benefits, as workers may find their work less frustrating if they recognise the mental abilities of chickens and utilise effective methods of training the animals they work with.

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Professor Graham Coleman has followed a research career in aspects of human and animal behaviour. Current research interests focus primarily on human-animal interactions in farm, and companion animals and public attitudes to animal welfare.

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## Abbreviations

## df <br> SARDI <br> SEM

Degrees of freedom
South Australian Research and Development Institute Standard error of the mean

## Executive Summary

In this study stockpeople working in the layer hen and broiler chicken industries participated in a workshop in which they learnt to clicker train chickens. This training was based on a class run for first year animal science and veterinary students at the University of Adelaide, where survey results indicated that post-class students were more likely to think that chickens are intelligent, have individual personalities, and to believe that chickens can experience boredom, frustration and happiness (Hazel, O'Dwyer and Ryan, 2015). The aim of the present study was to determine if the attitudes to chickens of stockpeople in the chicken industry would also change following a clicker training workshop.

We ran three workshops for a total of 12 stockpeople, and surveyed their attitudes to chickens pre- and post-workshop. Following the workshop, stockpeople were more likely to believe that chickens can experience frustration and were more likely to believe that it is easy to teach chickens to do tricks, that chickens are intelligent animals, and that it's easier to work with chickens if you understand how to train them (all $\mathrm{p}<0.05$, paired t -test $\mathrm{df}=11$ ). They were also more likely to disagree that chickens are slow learners ( $p<0.01$, paired t -test, $\mathrm{df}=11$ ). Stockpeople enjoyed the workshops, with comments including that 'chickens are smarter than I gave them credit for in the past' and 'it's amazing knowing they can learn just like us.'

This training methodology has the potential to change existing attitudes to chickens, as significant changes were found even with a small sample size. Improved attitudes to chickens and their capacity to learn may translate to more positive interactions with the chickens in the workplace but further study is required to determine whether the changes identified immediately post-training translate to stockperson attitudes and behaviours in the workplace.

## Overall Conclusions

Stockpeople from the chicken industry participated in workshops to learn to clicker train chickens. Following the workshops they were more likely to believe that chickens are intelligent, can learn quickly, and that it is easier to work with chickens if you understand how to train them. These improved attitudes to chickens are likely to translate to more positive interactions with them in the workplace. Further work is required to determine if these initial changes following the workshops translate to longer term behavioural changes of stockpersons.

## 1 Background

Positive stockperson attitudes to the animals they work with have been shown to lead to improved animal welfare, higher productivity, and happier work environments. Conversely, poor attitudes can increase animal fear, reducing productivity and contributing to high staff turnover (Coleman and Hemsworth, 2014). Successful programs have previously been developed to improve stockperson attitudes and behaviours in both the pig and dairy industries (Hemsworth, Coleman and Barnett, 1994; Hemsworth et al., 2002), but to date there have been no programs developed for the chicken industry. A priority issue raised at a recent Hen Welfare RD\&E stakeholder workshop was stockpersonship for all poultry systems. This project addresses this priority area in a novel way.

During the last three years, first year animal science and veterinary students have been taught in class to train chickens using positive reinforcement with a secondary reinforcer (clicker training). In the second year of running this class we surveyed student attitudes to chickens pre- and post-class. Post-class students were more likely to think chickens are intelligent, have individual personalities, and to believe that chickens can experience boredom, frustration and happiness (Hazel, O'Dwyer and Ryan, 2015). This study is continuing with the 2016 cohort of animal science and veterinary students to determine if attitudinal changes identified post-class persist for six months following the class.

The current project aimed to determine if changes in attitudes to chickens occur in stockpeople working with chickens after they participate in a clicker training workshop. It was hypothesised that if positive attitudinal changes do occur, these may lead to changes in the behaviour of these stockpeople, and associated improved animal welfare and higher productivity. This would in turn have economic benefits, and significant social benefits as the working environment would be expected to be a happier one if workers interact more positively with the animals they are working with.

## 2 Methods

### 2.1 Chickens

The chickens used for the training workshops were Hyline Brown layers of approximately 25 weeks of age. They were housed in a biosecurity unit on Roseworthy Campus, University of Adelaide, in single tier cages ( $545 \mathrm{~cm}^{2} /$ bird) and at the conclusion of the classes were re-homed in small free range holdings. There were five chickens used for each workshop. Use of the chickens for the workshops was approved by the University of Adelaide Animal Ethics Committee.

In the week prior to each workshop, the chickens were habituated to the training cup and clicker (see below). Each hen was taken out of its cage and placed on a table in the biosecurity unit, where the clicker was pressed and food (pellets) offered. Each bird would usually take up to five minutes to eat from the cup initially, but then would subsequently eat from the cup within seconds following the 'click'.

On the day of the workshop, the hens were removed from the biosecurity unit and placed in open wire pet collapsible crates ( $61 \times 42 \times 48.5 \mathrm{~cm}$ ) with newspaper on the base and a water bowl attached to the side of the crate. One or two hens were then taken out and trained using the coloured targets (see below) to peck on the red circle. For each workshop at least one hen was pecking on the red target prior to the workshop beginning; with experienced trainers this could take as little as a single training session of five minutes. Having a hen available that was already pecking on the target meant that the stockpeople could see the end result, even if their own training skills did not result in their hen pecking the target within the time frame of the workshop.

Birds were not provided food from the time they were removed from the biosecurity unit, meaning they were fasted for up to three hours prior to the workshop beginning. A short period of fasting ensures birds are a little hungry and motivated to participate in the training.

### 2.2 Workshops

Three workshops were run for stockpeople working on local layer hen and broiler farms. The workshops were run on Fri 6 May, Fri 13 May and Fri 1 July 2016, and at each workshop there were four participants, giving a total of 12 participants. Prior to the study commencing, approval was provided by the Human Research Ethics Committee at the University of Adelaide for the involvement of the stockpeople.

The workshops were run in available teaching spaces on Roseworthy Campus, University of Adelaide. All workshops ran for approximately two hours ( $1-3 \mathrm{pm}$ ) with participants arriving for lunch from 12 midday, giving them time to complete the pre-workshop surveys, and then having afternoon tea at the conclusion of the workshop to enable them to complete the post-workshop survey.

Of the total of 12 participants, five were from Farm 1, two from Farm 2, and four were from Farm 3, together with one participant who works with chickens in a research capacity at SARDI. Farms 1 and 2 were layer hen farms, and Farm 3 was a broiler farm.

It was difficult to find stockpeople with time to attend the workshop, and also to allow for biosecurity guidelines. The target was for 28 participants. The best day for running workshops was on a Friday, because if a stockperson is not working on the weekend they
can then attend the Friday workshop with time to comply with biosecurity requirements for their own farm.

### 2.3 Workshop protocol

Participants worked in pairs throughout the workshops. The schedule for the workshops included the following information and actions:

- Outline the reasons for running chicken clicker training workshops. They are run to teach people about how to train animals - chickens are very fast so people have to improve their motor skills to keep up with them, chickens do not care if they please you or not (unlike dogs) so you have to get your cues right, and people have not trained chickens before so they don't come in with any 'baggage' about the training method that should be used.
- Develop Technical Skills 1 - practice in holding the cup and clicker, and clicking and then placing the cup over a target on the table.
- Clicking and feeding a chicken - practice in working out how quickly the chicken will peck, and clicking and feeding.
- Develop Technical Skills 2 - one person to deal out cards and the other person (the 'trainer') to click when a specific card appears. The criterion (e.g. red card, picture card) changes during the 45 second training sets. This practice improves both speed and accuracy of clicking for an appropriate behaviour.
- Clicking and feeding a chicken - the member of the pair who did not feed above then clicks and feeds the chicken.
- Demonstrate shaping a behaviour. Initially a volunteer leaves the room, and then a trainer lets the participants remaining in the room know what behaviour they want the person to perform (e.g. putting hands on head). The trainer then works with the person using the clicker alone to try to train them to perform the behaviour. This illustrates to everybody how difficult it can be for animals to know what behaviour you want, and provides the volunteer with a direct experience of what this is like for the animal.
- Pairs of stockpersons shaping each other's behaviour. The pairs take small toys (e.g. plastic rings, toy soldiers) and write down what they want their partner to do and then shape their partner's behaviour using a clicker to display the behaviour. This gives all participants first hand experience in how confusing it can be for an animal, and how to use a clicker to shape behaviours.
- Chicken training - based on the previous steps, pairs work to shape a chicken's behaviour to peck on a red circle. Up to three training sets of 45 seconds each are used, with breaks in between to discuss how the training is going, ask questions, and provide feedback.


### 2.4 Surveys

Surveys were used to assess participant attitudes to chickens and the workplace immediately pre- and post-workshop. These were completed in a room adjacent to the training room, where refreshments were also provided. Each participant completed the paper-based survey questions as an individual without discussion with other participants.

The first four questions asked about participant's previous experience with training animals. Attitudes to the ability of chickens to experience affective states (e.g. boredom) and their intelligence used the same questions as for the study of student attitudes to chickens (Hazel, O'Dwyer and Ryan, 2015). Participants were asked if they believed chickens could experience hunger, pain, fear, boredom, frustration and happiness by placing a cross on a
line ( 75 mm in length). The distance on the line from the left is measured in mm. A smaller number means the participant is more likely to believe the chickens can experience that state. Participants were asked if they disagreed or agreed with statements relating to chickens, using a Likert scale of 1-5 where 1 was strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree.

Additional questions relating to attitudes to chickens and the workplace were adapted from a survey used by Lauren E. Edwards, Paul H. Hemsworth and Grahame J. Coleman on human-animal interactions in the layer hen industry. These were measured on the same Likert scale described above. For the survey questions for the broiler stockpeople, the words 'layer hen' were replaced with 'broiler'.

For the full questionnaire see the Appendix. The post-workshop questionnaire was the same, except that the demographic questions at the beginning were not included (Q1-3).

### 2.5 Statistical analysis

Data are presented as mean $\pm$ SEM. Pre- and post-workshop measures were compared using a paired t -test. Statistical significance was accepted at $\mathrm{p}<0.05$.

## 3 Results

### 3.1 Changes in attitude to whether chickens experience various affective states

Participants in the pre-workshop survey placed their cross closer to the left side of the line for hunger, pain and fear compared to boredom, frustration and happiness (see Table 3-1 and the Appendix). Mean pre-post scores for the ability of chickens to experience affective states were compared using t-tests. Of the different affective states participants were significantly more likely to believe that chickens can experience frustration following the workshop ( $\mathrm{p}<0.05$ ).

Table 3-1 Changes in attitudes to chickens feeling affective states pre- and postworkshop ( $\mathrm{n}=12$; paired t -test, $\mathrm{df}=11$ )

| Do you think that most <br> chickens can feel the <br> sensation of ... | Pre- <br> (Mean $\mathbf{m}$ SEM) <br> $\mathbf{m m}$ | Post- <br> (Mean $\pm$ SEM) <br> $\mathbf{m m}$ | P value |
| :--- | :---: | :---: | :---: |
| hunger | $7.75 \pm 2.86$ | $7.42 \pm 2.94$ | 0.504 |
| pain | $8.08 \pm 3.53$ | $5.25 \pm 0.72$ | 0.426 |
| fear | $13.25 \pm 5.80$ | $8.75 \pm 2.51$ | 0.535 |
| boredom | $29.33 \pm 6.18$ | $22.67 \pm 6.20$ | 0.117 |
| frustration | $35.33 \pm 6.79$ | $15.75 \pm 3.90$ | $\mathbf{0 . 0 2 7}$ |
| happiness | $20.00 \pm 5.11$ | $22.83 \pm 6.00$ | 0.709 |

Measures are mm from the left edge of a 75 mm line.

### 3.2 Changes in attitudes to chickens

After the workshops, participants were more likely to agree that it is easy to teach chickens to do tricks, that chickens are intelligent animals, and that it's easier to work with chickens if you understand how to train them following the workshop (all $p<0.05$ ). Participants were more likely to disagree that chickens are slow learners following the workshop ( $p<0.01$ ) (Table 3-2).

Table 3-2 Changes in attitudes to chickens pre- and post-workshop ( $\mathrm{n}=12$; paired t -test, df=11)

| Question | Mean $\pm$ SEM <br> Pre- | Mean $\pm$ SEM <br> Post- | P value <br> (Paired t-test) |
| :--- | :---: | :---: | :---: |
| I think that chickens are a <br> difficult animal to train | $2.75 \pm 0.18$ | $2.17 \pm 0.37$ | 0.171 |
| It is easy to teach chickens to do <br> tricks | $3.00 \pm 0.17$ | $3.92 \pm 0.23$ | $\mathbf{0 . 0 0 9}$ |
| Chickens are intelligent animals | $3.75 \pm 0.18$ | $4.33 \pm 0.14$ | $\mathbf{0 . 0 1 2}$ |
| Chickens are slow learners | $3.00 \pm 0.23$ | $1.55 \pm 0.21$ | $\mathbf{0 . 0 0 1}$ |
| Chickens all have individual <br> personalities | $3.83 \pm 0.21$ | $4.08 \pm 0.26$ | 0.191 |
| I feel confident in my ability to <br> train animals | $3.83 \pm 0.11$ | $3.92 \pm 0.08$ | 0.339 |
| Chickens are frustrating to work <br> with | $2.50 \pm 0.31$ | $2.25 \pm 0.22$ | 0.491 |
| I think it's easier to work with <br> chickens if you understand how <br> to train them | $3.67 \pm 0.23$ | $4.33 \pm 0.23$ | $\mathbf{0 . 0 1 3}$ |
| I think it's easier to work with <br> chickens if you understand their <br> behaviour | $4.25 \pm 0.25$ | $4.58 \pm 0.15$ | 0.104 |
| Chickens are a pleasure to work <br> with | $4.08 \pm 0.15$ | $4.17 \pm 0.17$ | 0.723 |

Measures are from a five-point Likert type scale from 1=Strongly Disagree to 5=Strongly Agree.

### 3.3 Changes in attitudes to the workplace

Participants were statistically more likely to disagree with the statements 'It's just a fact of life that layer hens have a tough existence' and 'Moving birds is dirty work' following the workshop (Table 3-3, p<0.05).

Table 3-3 Changes in attitudes to the workplace pre- and post-workshop ( $\mathrm{n}=12$; paired t -test, df=11)

| Question | Mean $\pm$ SEM <br> Pre- | Mean $\pm$ SEM <br> Post- | P value <br> (Paired t-test) |
| :--- | :---: | :---: | :---: |
| I feel bad if the hens go <br> without food or water | $4.33 \pm 0.26$ | $4.42 \pm 0.26$ | 0.674 |
| It is kinder to handle the birds <br> gently | $4.75 \pm 0.13$ | $4.58 \pm 0.15$ | 0.339 |
| Layer hens are easy to <br> manage | $3.33 \pm 0.29$ | $3.56 \pm 0.24$ | 0.347 |
| It's just a fact of life that layer <br> hens have a tough existence | $2.50 \pm 0.26$ | $2.08 \pm 0.29$ | $\mathbf{0 . 0 1 7}$ |
| Layer hens are easy animals <br> to work with | $3.42 \pm 0.23$ | $3.58 \pm 0.19$ | 0.504 |
| It is important to ensure that all <br> dead birds are collected every <br> day | $5.00 \pm 0.00$ | $4.92 \pm 0.08$ | 0.339 |
| Layer hens are frustrating to <br> work with. | $2.58 \pm 0.26$ | $2.42 \pm 0.19$ | 0.438 |
| Layer hens are a pleasure to <br> work with. | $3.67 \pm 0.23$ | $4.08 \pm 0.15$ | $\mathbf{0 . 0 9 6}$ |
| Removing deads' is the best <br> job on the farm | $2.00 \pm 1.21$ | $2.08 \pm 0.23$ | 0.754 |
| Little time is required to <br> manage layer hens. | $2.08 \pm 0.31$ | $1.92 \pm 0.15$ | 0.551 |
| Laying hens don't really learn <br> much | $2.33 \pm 0.28$ | $1.83 \pm 0.11$ | 0.139 |
| Little experience is required to <br> work with layer hens | $2.25 \pm 0.25$ | $2.58 \pm 0.15$ | 0.104 |
| Older hens are easier to work <br> with than pullets | $2.75 \pm 0.25$ | $2.50 \pm 0.27$ | 0.351 |
| If I do anything often enough, <br> the birds will get used to it | $4.08 \pm 0.23$ | $4.08 \pm 0.26$ | 1.000 |
| Moving birds is dirty work | $3.42 \pm 0.29$ | $2.92 \pm 0.29$ | 0.026 |
| Ilike handling live birds | $4.00 \pm 0.19$ | $4.27 \pm 0.20$ | 0.192 |
| I whistle when I am having a <br> good day | $3.17 \pm 0.27$ | $3.33 \pm 0.36$ | 0.339 |
| I only talk to the birds to shut <br> them up | $1.67 \pm 0.19$ | $2.33 \pm 0.40$ | 0.194 |
| Birds get over a fright quite <br> fast | $3.25 \pm 0.31$ | $2.92 \pm 0.23$ | 0.266 |
| A bird can become quite <br> friendly if handled correctly | $4.42 \pm 0.19$ | $4.42 \pm 0.15$ | 1.000 |
| Layer hens are dirty animals | $2.42 \pm 0.23$ | $2.33 \pm 0.38$ | 0.754 |
| I must be careful when <br> handling the birds so that they <br> will be calmer in the future | $4.25 \pm 0.18$ | $4.25 \pm 0.22$ | 1.000 |
| Layer hens are entertaining to <br> watch | $4.18 \pm 0.18$ | $4.27 \pm 0.20$ | 0.724 |
| Layer hens have an ugly <br> appearance | $2.00 \pm 0.27$ | $2.18 \pm 0.30$ | 0.341 |
| Layer hens are greedy | $3.25 \pm 0.35$ | 1.000 |  |


| Layer hens require respect | $4.33 \pm 0.14$ | $4.42 \pm 0.19$ | 0.674 |
| :--- | :---: | :---: | :---: |
| Layer hens are aggressive to <br> their own kind | $3.33 \pm 0.40$ | $3.00 \pm 0.33$ | 0.166 |
| Layer hens are frightened of <br> humans | $2.09 \pm 0.63$ | $2.27 \pm 0.24$ | 0.506 |
| Layers hens have feelings <br> Layers hens are made out to <br> have more feelings than they <br> really do | $2.92 \pm 0.29$ | $3.83 \pm 0.24$ | 0.564 |
| Layer hens don't remember <br> like humans do | $2.75 \pm 0.22$ | $2.42 \pm 0.29$ | 0.132 |
| Layer hens are unfriendly | $2.17 \pm 0.21$ | $2.08 \pm 0.23$ | 0.30 .33 |
| Layer hens are sensitive | $3.58 \pm 0.23$ | $3.25 \pm 0.31$ | 0.763 |
| Layer hens are cruel | $2.45 \pm 0.37$ | $2.36 \pm 0.31$ | 0.414 |
| Layer hens are frightened of <br> humans | $3.25 \pm 0.22$ | $2.25 \pm 0.22$ | 0.655 |
| Layer hens like humans | $2.33 \pm 0.31$ | $2.50 \pm 0.34$ | 0.17 |
| Layer hens panic for no <br> reason | $3.33 \pm 0.19$ | $3.75 \pm 0.28$ | 0.577 |
| Layer hens are friendly <br> towards people | $3.25 \pm 0.22$ | $3.08 \pm 0.29$ | 0.096 |
| Layer hens are noisy animals | $4.33 \pm 0.26$ | $4.42 \pm 0.19$ | 0.480 |
| Layer hens are curious <br> animals | $2.58 \pm 0.19$ | $2.42 \pm 0.23$ | 0.783 |
| Layer hens are smelly animals | $4.25 \pm 0.25$ | $4.17 \pm 0.11$ | 0.317 |
| I am very thorough in my work | $1.45 \pm 0.16$ | $1.45 \pm 0.16$ | 0.705 |
| find working with layers <br> boring | 2.000 |  |  |

### 3.4 Other feedback

The feedback we have had from participants has been excellent. They have all expressed enjoyment of the workshop and interest in learning how animals learn. In response to the question 'What did you learn about training animals during the class?' responses included:

- 'How intelligent they are. It is quite enjoyable.'
- 'How fast chickens learn.'
- 'Birds are smart and can be trained in a short period of time.'
- 'How good the positive reaction was, to how quick it was to do it.'
- 'That chickens are smarter than I gave them credit for in the past.'
- 'Learnt that you can train chickens to peck a colour of choice and reward them as a positive reinforcement.'
- 'I learnt when the animal trys to do what you want you have to reward them no matter what.'
- 'I learnt that chickens learn quite quickly and can distinguish between different shapes and colours quite easily.'
- 'Best to do it in short sessions. Be VERY observant.'
- 'To do short sessions. Be very patient with the animals.'
- 'I learned that it is not as hard to train a chicken as I thought.'
- 'How intelligent they really are. How frustrating it can be for the chicken when you confuse it.'

In response to the question 'What was the most interesting or satisfying part of the clicker training for you?' participants wrote:

- 'The most interesting thing was actually seeing the chicken respond to the clicker and watching them learn ... it's amazing knowing they can learn just like us.'
- 'It was satisfying when the chicken accomplished what we set out to train her and she pecked the target.'
- 'Seeing how fast they can be trained.'
- 'Chickens learn fast and remember.'
- 'That I could train the bird to perform a certain task.'
- 'Getting the birds to do what you want them to and how quick it was for the bird to learn.'
- 'That training chickens is something anyone can do. Sense of achievement in getting the bird to do what it was trained to do.'
- 'Achieving and getting result of ensuring the chicken will just focus on one colour.'
- 'Getting Victoria to peck the red disc and knock the soldier over.'
- 'When we got the chicken to peck the red dot.'
- 'Watching how quickly the chickens learn a new task.'
- 'Getting to see how smart chickens really are. How quickly they can be trained.'

The other unexpected feedback has been regarding how training chickens may help stockpeople in their management of birds on their farms. We have discussed using training skills to teach layer birds to use laying boxes instead of the floor, and to encourage birds outside. The broiler stockpeople who came to the workshops did so specifically to find out more about training chickens to teach them to eat the correct food, for use in weighing and moving birds around the shed, and in free range systems to encourage them outside.

## 4 Conclusions

This pilot study has confirmed the feasibility of running chicken clicker training classes for stockpeople working in the chicken industry. The most promising result is the positive changes in attitudes of the stockpeople post-workshop given that only 12 participants have so far participated. It is possible that with a larger group, more statistically significant changes would be detected as the variation in measures is high between stockpersons. Stockpeople were more likely to believe that chickens are intelligent, and that it is easier to work with chickens if you understand how to train them, following the workshop.

The stockpersons in the current study rated the ability of chickens to experience affective states in a similar way to the first year undergraduate students whom we have studied. Values for hunger ( $7.8 \pm 2.9$ vs. $7.3 \pm 8.2 \mathrm{~mm}$ ), pain ( $8.1 \pm 3.5 \mathrm{vs} .5 .3 \pm 6.5 \mathrm{~mm}$ ), fear ( $13.3 \pm 5.8$ vs. $6.7 \pm 7.9 \mathrm{~mm}$ ) and happiness ( $20.0 \pm 5.1$ vs. $20.4 \pm 16.9 \mathrm{~mm}$ ) for the stockpersons vs. undergraduate students, respectively. The ratings for chickens experiencing boredom ( $29.3 \pm 6.2$ vs. $15.9 \pm 16.2 \mathrm{~mm}$ ) and frustration ( $35.3 \pm 6.8$ vs. $19.8 \pm 16.8 \mathrm{~mm}$ ) appeared numerically higher for the students than for the stockpeople, although both scores were highly variable between participants. In the previous study there were also no changes in the participant ratings of pain and fear post-class as most students already believed chickens could experience these affective states prior to the class. This may be the same for the stockpeople, who rated the ability of chickens to experience hunger, pain and fear pre-workshop higher than they did boredom, frustration and happiness.

Due to the difficulty in recruiting stockpersons, we included people working in both the layer ( $\mathrm{n}=8$ ) and broiler ( $\mathrm{n}=4$ ) industries. Due to the limited numbers it was not possible to determine if attitudes to chickens differed between these industries. However, future work should recruit either people working in a single industry (layer or broiler) or sufficient numbers to determine if attitudes to chickens of stockpeople within these industries vary.

We had hoped to achieve up to 28 stockpeople participating in the workshop, and only managed to recruit 12 participants. It was difficult to recruit enough stockpeople from the layer farms around Roseworthy campus, and we had an expression of interest from a broiler farm and so included these stockpeople in the study. The main difficulties were for stockpeople to have time around busy schedules on their farms, and biosecurity. We were also restricted to the farms within two hours travelling time of the Roseworthy campus to enable participants to attend the workshop. It will be feasible to run future workshops but will require careful planning to optimise the number of participants.

We believe further workshops recruiting a greater number of participants are warranted, and that enabling attitudinal changes leading to more positive human-chicken interactions and greater productivity is a reachable goal.

## 5 References

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## 6 Appendix

Pre-Workshop Questionnaire
Name: $\qquad$ Age: $\qquad$

For the following questions, please circle the most appropriate response.
Q1. Have you ever had any formal lessons on how animals learn?
Yes No
If yes, please specify where $\qquad$
Q2. How much animal training have you previously done?
None at all Occasional Regular Substantial
Q3. What species have you previously trained (please circle all applicable)?
Dog Horse Chickens Rat/Mouse Other (please specify)

## The following questions and statements relate to chickens and animal training.

For the following questions, please mark a cross on the line that best represents your response for each question. For example, if your response to a particular question is closer to 'Yes' than to 'No', then your response may look like this:
$\qquad$

Q4. Do you think that most chickens can feel the sensation of hunger?
Yes.....................................................................No, not at all

Q5. Do you think that most chickens can feel the sensation of pain?
Yes. No, not at all

Q6. Do you think that most chickens can feel the sensation of fear?
Yes $\qquad$ No, not at all

Q7. Do you think that most chickens can feel the sensation of boredom?
Yes.....................................................................No, not at all

Q8. Do you think that most chickens can feel the sensation of frustration?
Yes.
No, not at all

Q9. Do you think that most chickens can feel the sensation of happiness?
Yes. $\qquad$ .No, not at all

Please put an ' $\boldsymbol{X}$ ' in the box that most appropriately fits your response for each question or statement.

| Statement | Strongly <br> disagree | Disagree | Neither <br> agree or <br> disagree | Agree | Strongly <br> agree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I think that chickens are a difficult <br> animal to train |  |  |  |  |  |
| It is easy to teach chickens to do <br> tricks |  |  |  |  |  |
| Chickens are intelligent animals |  |  |  |  |  |
| Chickens are slow learners |  |  |  |  |  |
| Chickens all have individual <br> personalities |  |  |  |  |  |
| I feel confident in my ability to <br> train animals |  |  |  |  |  |
| Chickens are frustrating to work <br> with |  |  |  |  |  |
| I think it's easier to work with <br> chickens if you understand how to <br> train them |  |  |  |  |  |
| I think it's easier to work with <br> chickens if you understand their <br> behaviour |  |  |  |  |  |
| Chickens are a pleasure to work <br> with |  |  |  |  |  |

Please put an ' $\boldsymbol{X}$ ' in the box that most appropriately fits your response for each question or statement.

|  | Strongly <br> disagree | Disagree | Neither <br> agree or <br> disagree | Agree | Strongly <br> agree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I feel bad if the hens go without food or <br> water |  |  |  |  |  |
| It is kinder to handle the birds gently |  |  |  |  |  |
| Layer hens are easy to manage |  |  |  |  |  |
| It's just a fact of life that layer hens have <br> a tough existence |  |  |  |  |  |
| Layer hens are easy animals to work <br> with |  |  |  |  |  |
| It is important to ensure that all dead <br> birds are collected every day |  |  |  |  |  |
| Layer hens are frustrating to work with. |  |  |  |  |  |
| Layer hens are a pleasure to work with. |  |  |  |  |  |
| Removing 'deads' is the best job on the <br> farm |  |  |  |  |  |
| Little time is required to manage layer <br> hens |  |  |  |  |  |
| Laying hens don't really learn much |  |  |  |  |  |
| Little experience is required to work with <br> layer hens |  |  |  |  |  |
| Older hens are easier to work with than <br> pullets |  |  |  |  |  |
| If I do anything often enough, the birds <br> will get used to it |  |  |  |  |  |
| Moving birds is dirty work |  |  |  |  |  |
| I like handling live birds |  |  |  |  |  |
| I whistle when I am having a good day |  |  |  |  |  |
| I only talk to the birds to shut them up |  |  |  |  |  |
| Birds get over a fright quite fast |  |  |  |  |  |
| A bird can become quite friendly if <br> handled correctly |  |  |  |  |  |
| Layer hens are dirty animals |  |  |  |  |  |

Please put an ' $\boldsymbol{X}$ ' in the box that most appropriately fits your response for each question or statement.

|  | Strongly <br> disagree | Disagree | Neither <br> agree or <br> disagree | Agree | Strongly <br> agree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I must be careful when handling the <br> birds so that they will be calmer in the <br> future |  |  |  |  |  |
| Layer hens are entertaining to watch |  |  |  |  |  |
| Layer hens have an ugly appearance |  |  |  |  |  |
| Layer hens are greedy |  |  |  |  |  |
| Layer hens require respect |  |  |  |  |  |
| Layer hens are aggressive to their own <br> kind |  |  |  |  |  |
| Layer hens are frightened of humans |  |  |  |  |  |
| Layers hens have feelings |  |  |  |  |  |
| Layers hens are made out to have more <br> feelings than they really do |  |  |  |  |  |
| Layer hens don't remember like <br> humans do |  |  |  |  |  |
| Layer hens are unfriendly |  |  |  |  |  |
| Layer hens are sensitive |  |  |  |  |  |
| Layer hens are cruel |  |  |  |  |  |
| Layer hens are frightened of humans |  |  |  |  |  |
| Layer hens like humans |  |  |  |  |  |
| Layer hens panic for no reason |  |  |  |  |  |
| Layer hens are friendly towards people |  |  |  |  |  |
| Layer hens are noisy animals |  |  |  |  |  |
| Layer hens are curious animals |  |  |  |  |  |
| Layer hens are smelly animals |  |  |  |  |  |
| I am very thorough in my work |  |  |  |  |  |
| I find working with layers boring |  |  |  |  |  |

Please put an ' $\boldsymbol{X}$ ' in the box that most appropriately fits your response for each question or statement.

|  | Strongly <br> disagree | Disagree | Neither <br> agree or <br> disagree | Agree <br> Strongly <br> agree |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| I work quickly on a boring job to get it <br> out of the way |  |  |  |  |  |
| Yelling at the birds quiets them down |  |  |  |  |  |
| I get frustrated doing tedious work |  |  |  |  |  |
| How quickly I work doesn't affect <br> layers' production |  |  |  |  |  |
| So long as I'm quiet, I don't disturb <br> the birds |  |  |  |  |  |
| I stop what I am doing if I hear a <br> change in the noises that the birds <br> are making |  |  |  |  |  |
| A good work ethic is required to work <br> with laying hens |  |  |  |  |  |
| The first thing I do every day is check <br> that the automatic systems (feed, <br> water, lights) are working correctly |  |  |  |  |  |
| It's easy to become careless when <br> doing repetitive work |  |  |  |  |  |
| My work is determined by the fact <br> that I have to do many routine tasks |  |  |  |  |  |
| I try to make the hens as comfortable <br> as possible |  |  |  |  |  |
| Removing 'deads' is someone else's <br> job |  |  |  |  |  |
| Productivity is determined by how <br> much food and water the hens have <br> access to |  |  |  |  |  |
| It is important to cull the inferior birds <br> from the flock |  |  |  |  |  |
| Good husbandry determines the final <br> productivity of layers |  |  |  |  |  |
| I find the shed too noisy |  |  |  |  |  |
| Laying hens panic when held upside <br> down |  |  |  |  |  |
| Layer hens are sensitive to changes <br> in the daily routine |  |  |  |  |  |
| It is difficult to care for layer hens |  |  |  |  |  |
| A laying hen cannot hurt a human |  |  |  |  |  |

Please put an ' $\boldsymbol{X}$ ' in the box that most appropriately fits your response for each question or statement.

|  | Strongly <br> disagree | Disagree | Neither <br> agree or <br> disagree | Agree | Strongly <br> agree |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Giving the birds a fright doesn't <br> have any long term effects on <br> production |  |  |  |  |  |
| I try to remove dead birds as <br> quickly as possible |  |  |  |  |  |
| Birds are easier to handle if they <br> aren't scared |  |  |  |  |  |
| Keeping the birds healthy has the <br> greatest effect on productivity |  |  |  |  |  |
| If the flock gets a 'bad start' at the <br> hatchery, nothing I do will change <br> that |  |  |  |  |  |
| Layer hens aren't affected by the <br> way they are treated |  |  |  |  |  |
| Layer hens are capable of showing <br> how they feel |  |  |  |  |  |
| I try to understand layer hens by <br> imagining how things look from <br> their point of view |  |  |  |  |  |
| When I see a contented layer hen I <br> feel good |  |  |  |  |  |
| I should act carefully around layer <br> hens so as not to scare them |  |  |  |  |  |
| I notice differences in the way layer <br> hens respond to me |  |  |  |  |  |
| I will often sit or stand and just <br> watch the hens |  |  |  |  |  |
| Human contact is the highlight of a <br> layer hen's day |  |  |  |  |  |
| Layer hens behave differently <br> toward strangers than they do to <br> me |  |  |  |  |  |
| Making a lot of noise while <br> cleaning disturbs the birds |  |  |  |  |  |
| I let the layers know who's boss to <br> avoid being pecked |  |  |  |  |  |
| It doesn't matter much what I do <br> because some flocks are more <br> flighty than others |  |  |  |  |  |

I will often make a noise just to see the response of the birds

Thank you for completing this questionnaire.

## 7 Plain English Summary

| Project Title: | Improving stockperson attitudes to chickens: <br> A novel clicker training approach |
| :--- | :--- |
| AECL Project No | 1UA153 |
| Researchers Involved | S.J. Hazel, L. O'Dwyer and G. Coleman |
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## Key Words

Chicken; hen; clicker training; human-animal interactions; stockperson; hen behaviour; affective states; animal welfare

