Appendix A Survey Report

The welfare effects of different methods of depopulation on laying hens

End-of Lay Hen Catching

Executive Summary

- Sixteen poultry catchers from 4 poultry service companies based in the UK were interviewed to assess their practices, attitudes to poultry welfare and concerns regarding depopulation of egg production poultry houses at end-of-lay.
- All the poultry catchers interviewed had had some form of training for their job. All but one had more than one year's experience and the majority had experience in the 5 types of poultry housing that makes up most of UK egg production.
- The catchers' jobs are arduous but there is a good team spirit in the catching crews with job rotation and rest breaks during house depopulation. Major factors that caused stress to the catchers were poor air quality, high temperatures and poor poultry house design that did not consider depopulation.
- Barn and free range housing were considered to be the best type of housing for catching the birds during depopulation while cage systems were considered to be worst. In cage systems, the maximum number of tiers that catchers could comfortably work with was 3. Cage systems also gave rise to a greater number of occupational accidents.
- The majority of the catchers regarded poultry to be sentient. Where possible, catchers caught poultry using 2 legs and breast support slides, but these welfare considerations could be compromised by time constraints and poor housing design. On average, 6 birds were carried at by a catcher who preferred not to have to walk more than half the length of the house. Lack of consideration for depopulation, either in house design or farm practice, meant that this was often not possible.
- All types of poultry house environment during catching were considered to be too hot, humid, dusty and odorous. Personal protective equipment used by most catchers in their job included boiler suits and protective foot wear. Gloves and scratch sleeves were used by about half of the catchers.
- Poultry services companies generally had to supply equipment such as ladder and breast slides for use in cage system housing and catching pens for use in perchery, barn and free range system housing.
- Personal opinions regarding promoting bird welfare during depopulation included comments on house design and preparation by the farmer. Significant views on house design included wider doors to avoid injury to the poultry being carried, doors at both ends and ideally in the centre, and able to be opened. These and other factors, such as the lorry parking close to the shed, were considered to generally help reduce carrying distances. Improvements to house design included phasing out of cages, and increasing aisle width and access in general. Catchers felt that the farmer should show more consideration for their needs (e.g. provide clean rest rooms and toilet facilities), be more thorough in preparation of the poultry houses prior to depopulation, and provide better access to the houses for poultry transport.

The welfare effects of different methods of depopulation on laying hens

End-of Lay Hen Catching

1. Introduction

Objective 1 of this project was to identify through risk assessment of production units (cage and non-cage units) and depopulation practices, the key features that are likely to have a significant impact on the welfare of laying hens at depopulation. The task undertaken by Silsoe Research Institute was a survey of the personnel involved in depopulation, i.e. catchers, to find out more about their practices and attitudes.

2. Design of study

The purpose of the task was to examine the work practices of poultry catching teams or "gangs" that regularly depopulated egg production hen houses. It was hypothesised that if the job of the poultry catcher became more stressful, then this would result in a reduction of welfare concern for the poultry during their removal from their house.
A number of poultry service companies whose major part of their business was the removal of end-of lay hens from their housing were contacted through major egg production companies in the UK and through Defra.

The job routine of the poultry catcher, its variations and its problems were assessed by initial discussions with poultry service companies, to gain an overview of the industry, and by subsequent interviews of their staff. In addition to obtaining details of the catchers' working practices, aspects of their work that caused them stress such as the incompatibility of old building design fitted with modern cage systems and its effect on poultry welfare at bird removal, or working in inhospitable conditions were also recorded.

The number of catchers interviewed was 16, evenly distributed from 4 poultry service companies. The information presented below constitutes a final report of the results for the catchers interviewed. The information was collected using a questionnaire (see Annex 1) to assist the interviewer in carrying out a semi-structured interview with individual interviewees. The interviewers were Dave O'Neill, Robin Whyte (of SRI) and Victoria Sandilands (of SAC). The interviewees, from Nottinghamshire, Yorkshire, Herefordshire and Fife, participated anonymously (and voluntarily). The information presented covers the major points and issues raised during the interviews (and included in the questionnaires).

3. Interview structure

The questionnaire used to assist the interviewer was developed and analysed using proprietary software, SNAP © (Mercator Computer Systems Ltd., Bristol, UK). SNAP survey software is a suite of integrated software programs designed for surveys of respondents opinions and incorporates questionnaire design, publication, data collection and analysis.

The structure of the questionnaire was divided into sections relating to:

1. Personal job background
   Length of time in this job, and experience and training in this job.
2. Job organisation
   Types of work carried out in the job, work and rest duration, the stresses and difficulties of catching, including shed design and preparation for depopulation.

3. Bird behaviour and welfare
   Type of systems that were considered to be best in the opinion of catchers for bird welfare and for working in, methods of handling EoL hens and the difficulties experienced in different types of housing systems.

4. Equipment and environment

Types of equipment used for bird catching and its provision, the environment concerning the comfort of the poultry catcher and personal protective equipment provided.

5. Personal opinions regarding job
   Major issues that were of concern to the poultry catchers with respect to their jobs.

The questionnaire amounted to 40 questions, and each interview lasted approximately 30 minutes. The interviewee was encouraged to elaborate on aspects of his work, or provide more detail of variations in the work that might deviate from the scope of the questionnaire. As such, the interview was allowed to be as flexible as the interviewee wished as long as an answer was obtained for all the questions posed in the questionnaire.

The results of the questionnaire can be further interrogated using SNAP © software, if required.

Analyses of the responses to a number of questions are indicated in some of the figures below as 'No reply'. In most cases this would have been due to the catcher being unable to answer the question due to a lack of experience and the response box being left blank.

4. Questionnaire analyses

4.1 Personal job background

The catchers interviewed ranged in age from 16 to 56. Only one catcher had less than 1 year of experience in the job, while 13 of the 16 catchers interviewed had more than 2 years experience.

Nearly all the catchers had had experience of the 5 types of cage / alternative housing systems identified as forming the majority of egg production in the UK. This would give useful comparative information on work stresses and hen welfare (Figure 1) between conventional cages, enriched cages, percheries, barns and free range.

All the catchers had had some form of training for their job that was carried out "in-house". The types of training provided by the poultry catching companies are shown in Figure 2. All but one of the catchers were aware of the document 'Laying Hens – Code of recommendations for the welfare of livestock' published by Defra. However, only 4 were familiar with its contents. All the catchers found their training to be useful for their jobs. Other forms of training included fork lift truck use and fire prevention and control.

4.2 Job organisation

The types of work carried during the working day and number of catchers with experience of this work are shown in Figure 3. The majority of tasks concern poultry catching and handling during depopulation. Tasks carried out by fewer catchers are more specialised and include vaccinating and beak trimming. 'Other' tasks included unloading crates and removal of dead birds.

The catchers interviewed generally felt that there was good team spirit with their fellow workers, jobs being rotated to spread the workload unless they were specialist jobs such as vaccinating and beak trimming.

Periods of work between rest breaks last for about 150 minutes, ranging from 120 to 180 minutes, while rest breaks last, on average, for about 20 minutes, ranging from 15 to 30 minutes. After a typical day's work the majority of all the responses (75%) were for "quite tired". Three catchers said they were excessively tired, depending on the job.

Major generic factors that cause stress to the catchers in catching operations included air quality, air temperature, and shed design (Figure 4). Although time of day figured highly with 9 catchers, it was of low importance for the remainder. Examination of shed design features (Figure 5) that caused stress indicates that narrow doors, narrow aisles and pillar obstructions featured strongly in cage system housing while narrow doors, differences in floor levels and floor feeders featured strongly for barn, perchery and free range system housing. 'No reply' type answers arose from catchers that felt unable to give an opinion due to inexperience.

The factors causing delay in carrying out the job, together with an indication of their frequency, are shown in Figure 6. The availability and presence of the farm manager and transport scheduling tended not to be problem, but lack of preparation of the building for depopulation tended to occur more often.

4.3 Bird behaviour and welfare

The hen catchers' personal opinions on which type of housing was best for bird welfare during catching were sought. Figure 7 shows that free range and barn type houses were considered to be the best, while cage systems were the worst. Figure 7 also shows that a number of catchers had no experience ('no reply') in perchery type houses and enriched cage houses, which make up less than 5% of types of housing for egg production. The answers to a supplementary question indicated that the catchers preferred to work in barn and free range housing.

The range and reported incidence of difficulties (number of responses) associated with the five types of housing system are shown in Figures 8 to 12.

Difficulties of significance in conventional cage systems (Figure 8) included the height of the highest cages, cage openings too small, the presence of red spider mite, dustiness of the cages, no platform to reach high cages and cages also being too low. 'Other' difficulties included damaged cage front openings and the aisles between the cages being too narrow.

The maximum number of tiers that catchers thought was suitable for catching birds in the correct manner was 3.

Enriched cage systems also had the same draw backs of conventional cages, being either too high or too low, as well as having different difficulties due to the husbandry system (Figure 9). These included birds hiding in the nesting boxes at depopulation as well as the extra cage furniture getting in the way of bird catching and removal. The number of responses to difficulties with enriched cages was low due to the limited number of catchers that had experience with this system.

In percheries, barn and free range housing (Figures 10 to 12), feeder and drinker systems featured most strongly as causing most difficulties in removing the birds from the houses. Restricted movement between perches also featured strongly in percheries. These difficulties were closely followed in all these 3 types of alternative housing by birds hiding in nesting boxes and the differences in levels between the slats and litter areas. Perches also caused difficulties in setting up pens which hampered catching the birds in percheries and free range houses. These difficulties are reflected in the unequivocal preference of catchers to work in barns or free range houses (Figure 13). 'Other' difficulties in barns and free range housing included the use of wire flooring, rotten slats in the raised slatted areas, no provision of catching frames or pen boards and the electric fence around the edge of the house being left live during the catching process.

The preference for barn systems and the dislike of conventional cages is reflected in the types of system that the catchers associated with accidents and personal injuries An examination of types of housing that were likely to cause accidents and injuries to the catchers shows that conventional cage systems were the worst, while barn housing did not feature at all (Figure 14). The causes are probably very variable, including cage height and condition for conventional cages while causes in free range and perchery type housing were likely to be the perches.

The majority of the poultry catchers, from their observations, were of the opinion that hens recognised colours and familiar sounds and noises, and to a lesser extent, people and specific types of equipment (Figure 15). 'Other' forms of perception included the recognition of rodents. Nine of the sixteen catchers thought that frequent contact with people made their job of catching the birds easier, while 4 thought it made no difference. Two catchers thought it made the job harder (Figure 16). High light levels were considered to make the birds more difficult to catch through increased activity, although too low a light level could make it difficult to see the birds.

The methods used to pick up the birds were influenced by the type of housing and hence difficulty in catching the birds (Figure 17). Breast support slides were only used with conventional cage systems, but not as a matter of course. The catchers understood that catching the bird by both of its legs was better than by just one, but the problems illustrated in Figures 8 to 12 and time constraints sometimes made this method difficult to adhere to. Catchers would catch by both legs under difficult

circumstances when the provision of time to complete the task was generous and when the farm manager insisted upon birds being caught by both legs.

When removing poultry from cages, the preferred maximum distance for carrying poultry is half the length of the house. However, Figure 18 shows that on many occasions the catchers had to walk the whole length of the house or pass the poultry to another person. These two non-preferred means of transporting poultry were generally brought about by poor house design or use. One complaint was the lack of, or the closure of a door at the other end of the house, forcing the catchers to walk the whole length of the house. Passing poultry from one catcher to another occasionally was brought about by obstructions in, or narrowness of the aisles.

The number birds carried at any one time was normally 6 but could vary between 4 and 10, and tended to be a factor of the transport crate capacity. Other means of transporting the poultry included using mobile crates or cages that could be wheeled along the length of the house. Occasionally, the height of the cages necessitated the removal of the bird from the cage by one person, who handed it to another person half way up the tiers, who in turn handed it to the person standing on the floor waiting to carry it to the transport crate.

In barns and free range houses, the birds were shepherded to catching pens, caught and immediately placed in a transport crate.

4.4 Equipment and environment

The equipment used by the catchers in each type of housing system is shown in Figure 21. In cage systems ladders and breast slides were used. 'Other' equipment included standing on crates, boxes or egg trolleys, instead of using a ladder. However, the poultry service companies had to supply the breast slides to ensure that they were to hand at depopulation and on a number of occasions, ladders to reach the highest cages. In perchery, barn and free range housing, catching frames were used by almost all the catchers. Pen boards, for driving the poultry to the catching frames were used by about half the catchers interviewed. Half the catchers had to supply their own catching frames and pen boards due to the poor condition of those on the farm.

The catchers were also asked about the items of personal protective equipment (PPE) they used and approximately how often they used them. Their responses are given in Figure 20. Boiler suits and protective footwear ('Toetectors') were commonly used but not comprehensively and not necessarily all of the time. Wellington boots were only used when necessary. Gloves and scratch sleeves were used by about half of the catchers. Items that were rarely or never used included ear defenders, eye shields and safety helmets.

The catchers were asked to comment on 8 environmental factors that affected their work in poultry housing, 4 of which gave rise to similar numbers of complaints (Figure 19). These were: "too hot", "too humid", "too dusty" and "too odorous. The feeling of the house being too humid was likely to be the result of high work rates and too warm an environment. Although these were categorised according to the type of house the complaint arose in, the differences between the number of complaints for each house type was small. The lower response numbers for enriched cage systems and percheries were again due to the lower numbers of catchers that had worked in these types of housing.

Resting, washing and toilet facilities provided on the farm were acceptable to 11 of the catchers interviewed, but unacceptable to the remainder. These opinions were not related to the poultry service company, nor age or experience.

4.5 Personal opinions regarding catching

Answers to the question "What do you think is needed to promote end of lay hen welfare during catching?" can be broadly split into problems of a) poultry house and husbandry system design and b) access, preparation and facilities which should be provided by the farmer. The numbers of catchers making the comments below are shown in parentheses.

Those comments that fall within the category of poultry house and husbandry system design were:

i. Doors. Should be wider (x 4) Should be at both ends of the house and operational (x 3)
ii. House design. EoL hen removal should be considered at the design stage including reducing the carrying distance of poultry (x 3)
iii. Cages. Stop using cages (x 2). Don't make systems where cages are too high (x1) Cages too small for welfare and catching (x 1)
iv. Aisle width. Wider aisles in houses needed (x 1)
v. Access for modular system for hen removal (x 2)
vi. Barn and free range systems should have light dimming controls (x 1)
vii. More head room in barns (x 1)
viii. Not enough manpower when depopulating a house. Job is rushed which lowers welfare (x 1)

Those comments that fall within the category of access, preparation and facilities which should be provided by the farmer were:

i. Attitude. More consideration and a better attitude towards catchers (x 2)
ii. Better preparation prior to hen removal includes:
    a. removal of house furniture such as feed tracks before catching (x 2)
    b. provision of safe catching area in perchery type housing (x 1)
    c. provision of adequate number of good quality catching frames (x 3)
    d. pen boards should be solid instead of mesh so that the birds do not try to run through them (x 1)
    e. even layering of litter so catchers can see if the birds are being smothered during catching (x 1)
    f. removal of all eggs from egg belts to prevent a slip hazard (x 1)
    g. separate cockerels from pullets to prevent smothering during depopulation of breeder housing (x 1)
iii. Facilities. Improvement in toilets and washing facilities (x 1)
iv. Access includes:
    a. level, safe loading areas for lorry (x 1)
    b. hard standing for poultry transport lorry outside the poultry house at ground level or below house floor level (x 1)

A final comment to this question was "Farmers must take more responsibility. Catchers and livestock hauliers have a code of practice, so should the farmer."

Answers to the final question "Are there any other comments you would like to make concerning your job" included:

i. Long distances travelled and hours worked (x 3)
ii. No new men coming into the profession, more use is being made of untrained illegal immigrants to undercut trained professional catching teams (x 1)
iii. Very hot and dusty work (x 1)
iv. Catching is one of the hardest jobs carried out (x 2)
v. Catching has become more welfare conscious (x 1)
vi. Enjoys the variety of the work (x 1)

5. Preliminary conclusions

5.1. Personal job background

5.1.1 The majority of poultry catchers are experienced in depopulation of the main types of poultry housing systems for egg production.

5.1.2 Reputable poultry service companies take responsibility for training their personnel for the jobs that they undertake.

5.2 Job organisation

5.2.1 Depopulation of egg production poultry housing forms the majority of the work undertaken catchers working for poultry service companies.
5.2.2 There is good team spirit and rotation of jobs within catching crews
5.2.3 Poultry service companies are considerate in the treatment of their employees during depopulation operations.
5.2.4 The majority of stresses imposed on poultry catchers are due to house design that did not consider depopulation as part of its function. These include physical layout of the house and adverse environmental conditions generated during depopulation. To a lesser extent, the lack of preparation and consideration by the farmer of the poultry catchers' needs also imposed unnecessary additional stresses.

5.3 Bird welfare and behaviour

5.3.1 Catchers considered that cage systems were bad in terms of bird welfare during depopulation and also because of the difficulties and personal injuries that affected the catchers.
5.3.2 Poultry welfare was compromised during depopulation of cage systems if the number of tiers of cages exceeded 3.
5.3.3 Catchers preferred working in barn and free range systems, which they also considered to be better for bird welfare.
5.3.4 Poultry are recognised as sentient beings by the catchers. This recognition is reflected in their consideration of the welfare of poultry during catching.
5.3.5 Catchers aimed to use optimum welfare techniques in catching poultry with both legs and breast support slides and carrying no more than 6 birds at any one time, but this could be compromised by poor house design and time constraints.

5.4 Equipment and environment

5.4.1 Poultry service companies generally have to provide their own equipment such as ladders and breast support slides for poultry house depopulation.
5.4.2 Protective footwear and boiler suits are worn generally while more specific personal protective equipment is selected according to the job and the environment.
5.4.3 Environmental factors that have most impact on the job and tend to be unavoidable are air temperature, odours and dust.

5.5 Personal opinions regarding job

5.5.1 Catchers have strong opinions regarding poultry house design. The catchers felt that future designs of poultry housing should take their needs concerning depopulation into consideration in addition to the efficiency of egg production.
5.5.2 The catchers also felt that all poultry farmers should be more aware of the needs of the poultry catchers and carry out thorough, appropriate preparation for depopulation

Figure 2. Training given by company

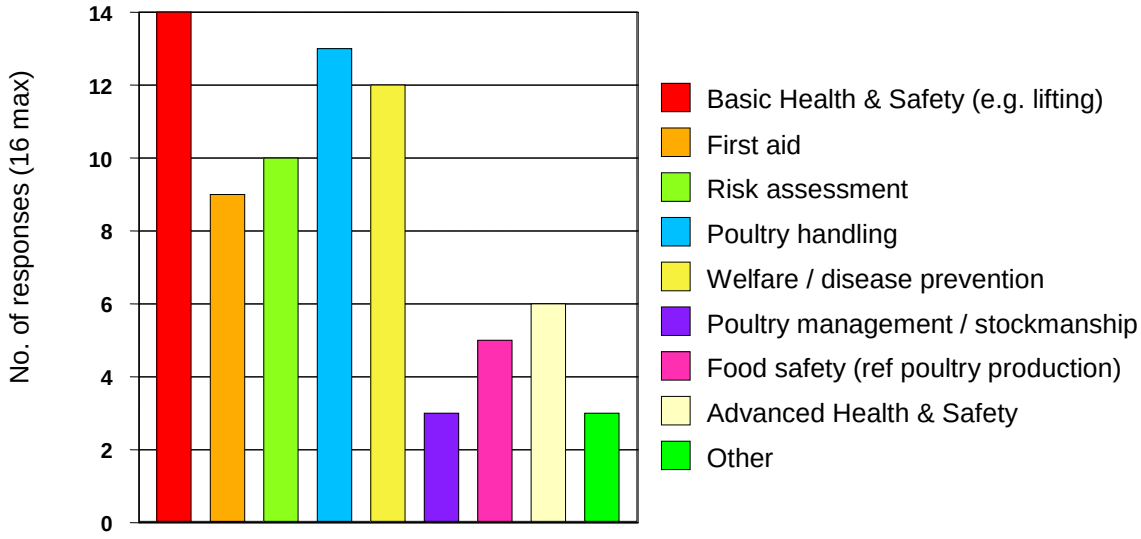


Figure 4. Factors causing stress in catching

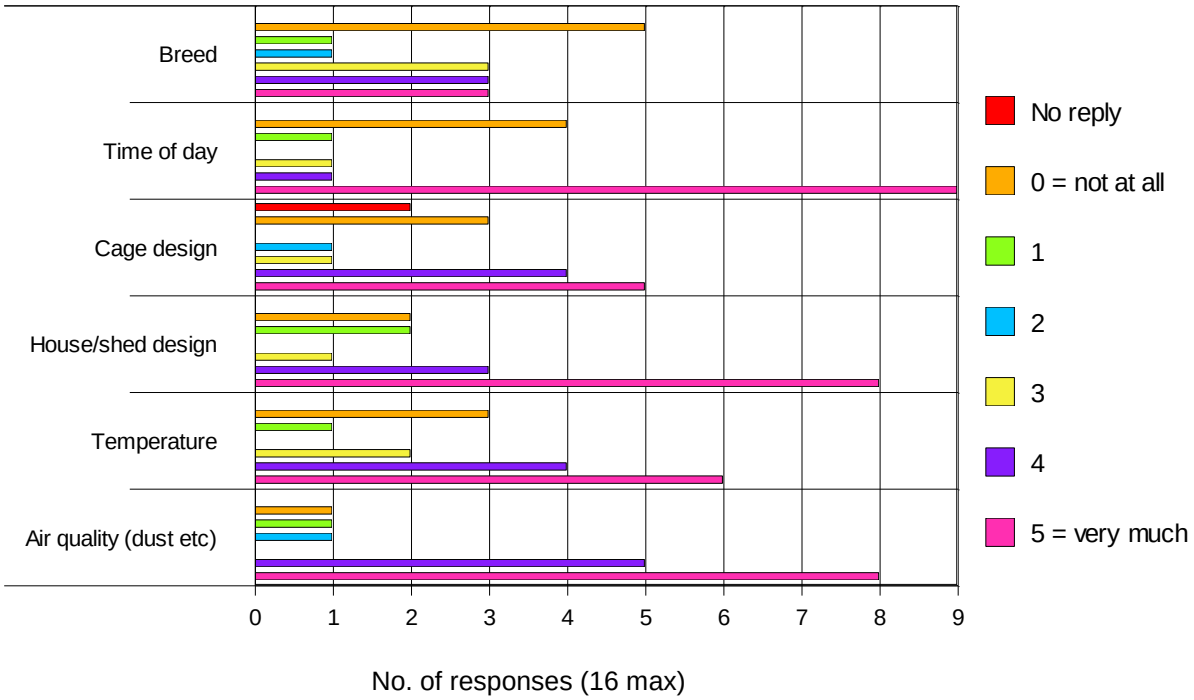


Figure 5. Shed design features that cause stress

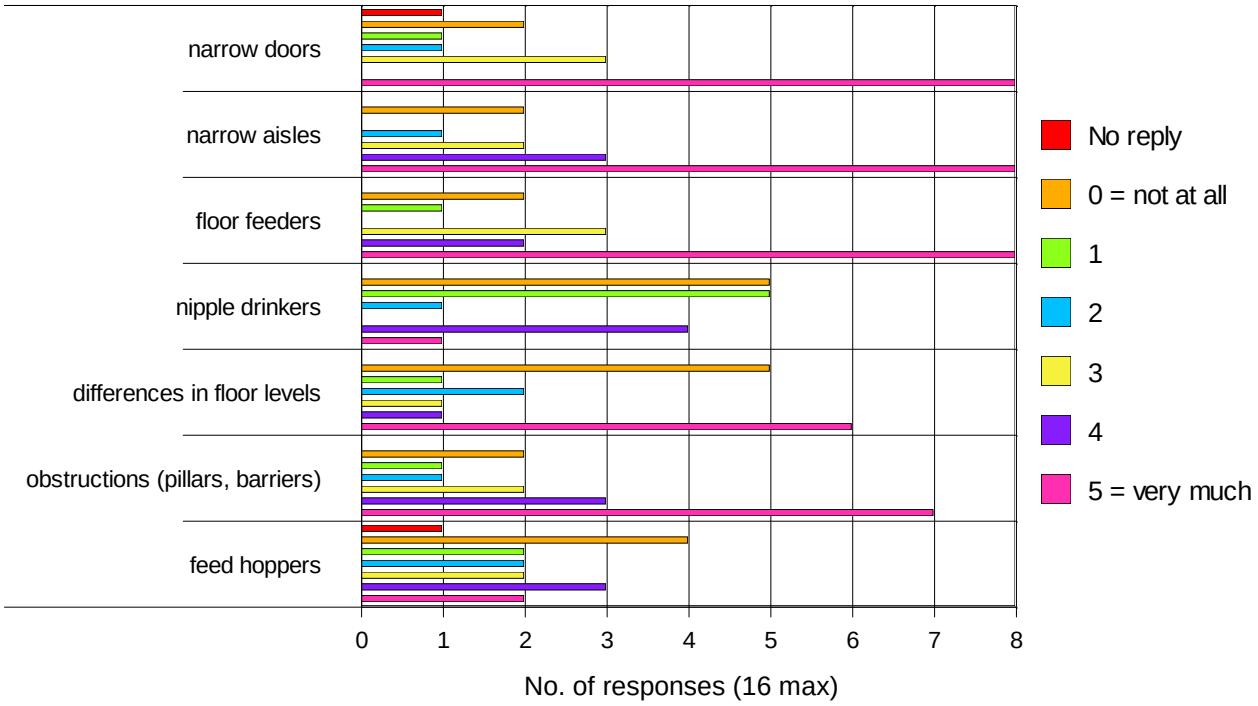


Figure 7. Type of system best for bird welfare during catching

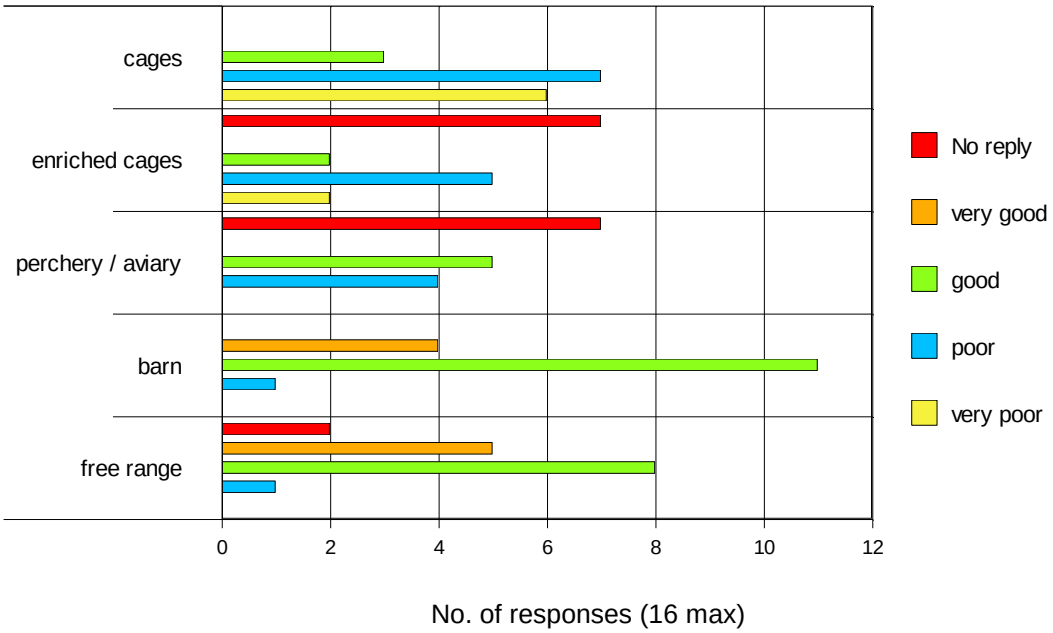


Figure 8. Difficulties experienced in unloading cages

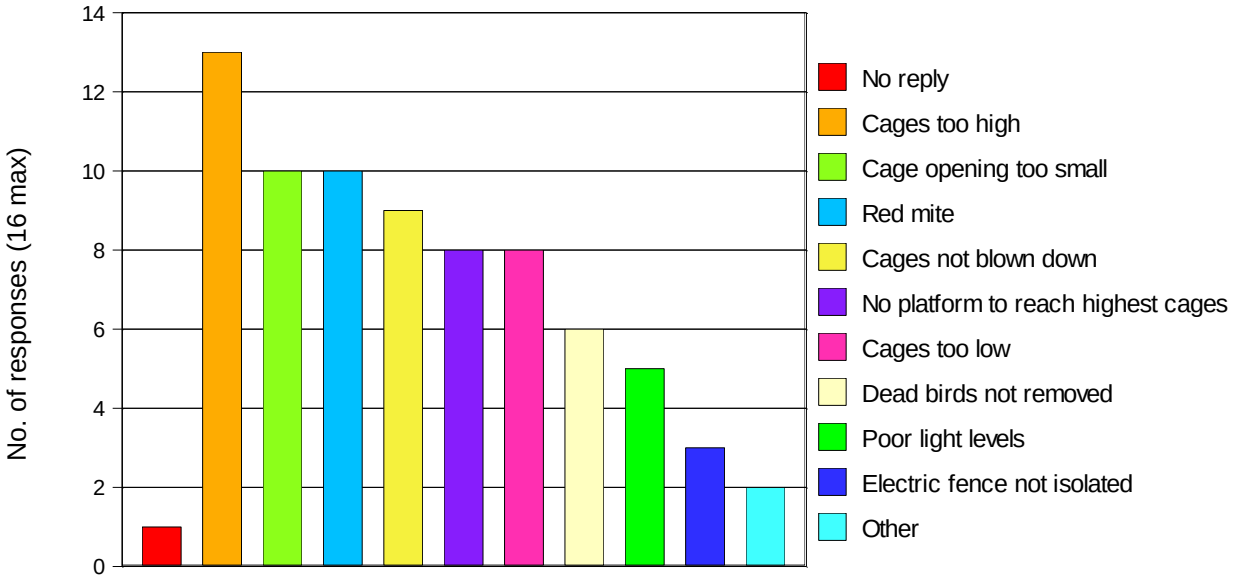


Figure 9. Difficulties experienced in unloading enriched cages

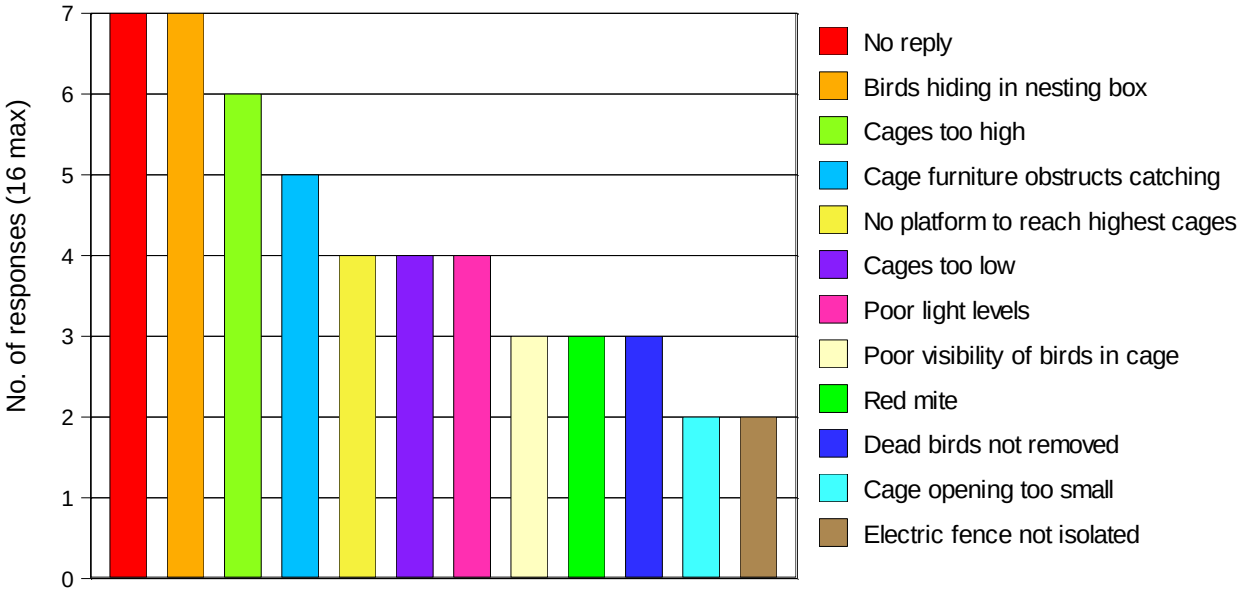


Figure 10. Difficulties experienced in unloading percheries/aviaries

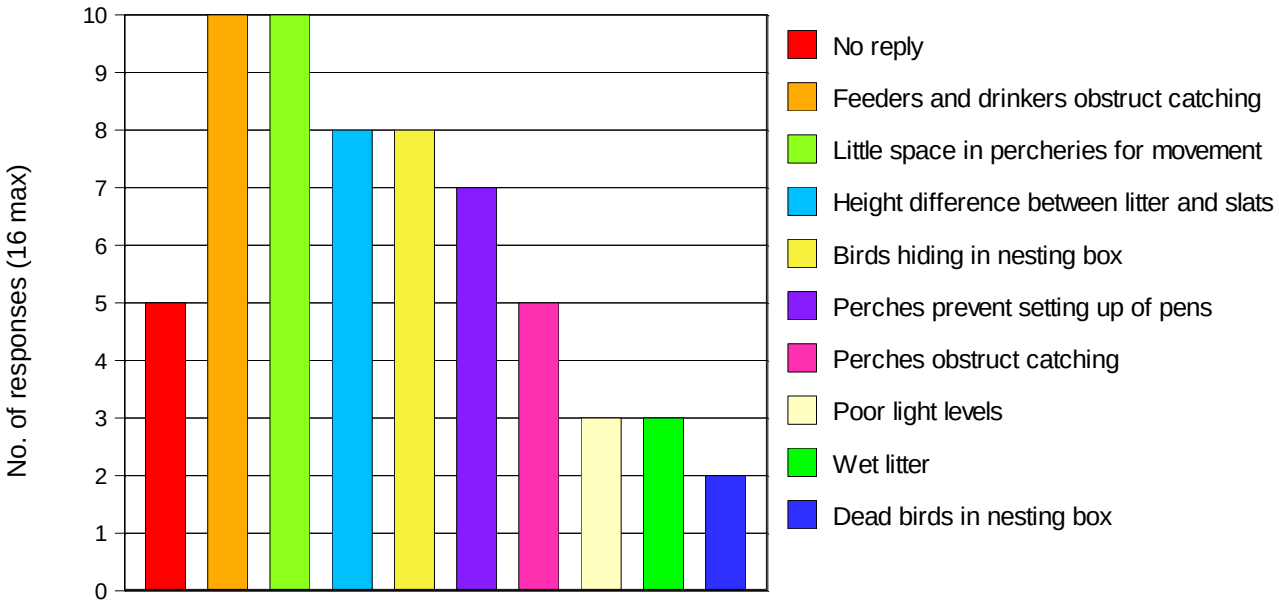


Figure 11. Difficulties experienced in barns

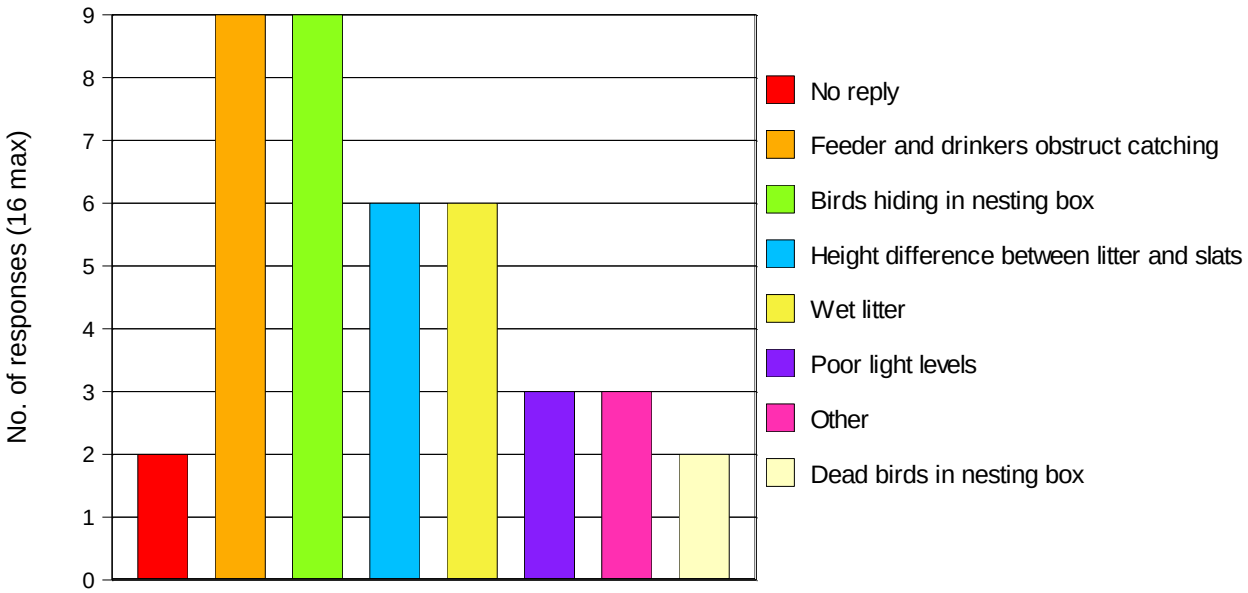


Figure 12. Difficulties experienced in free range houses

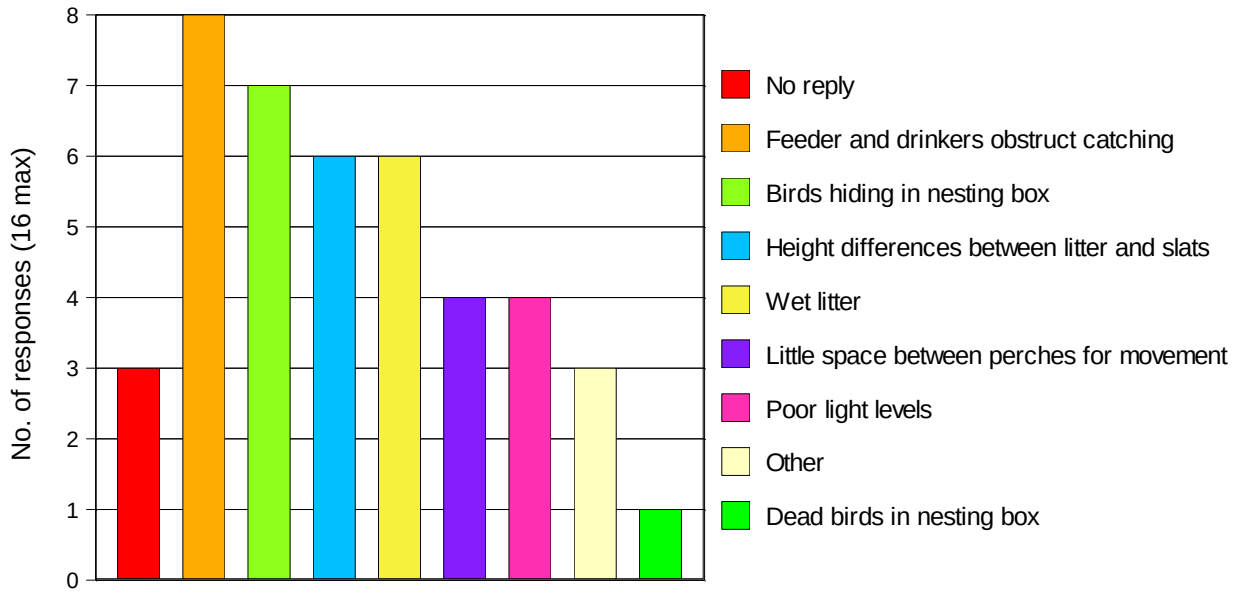


Figure 13. Preferred system for catching hens

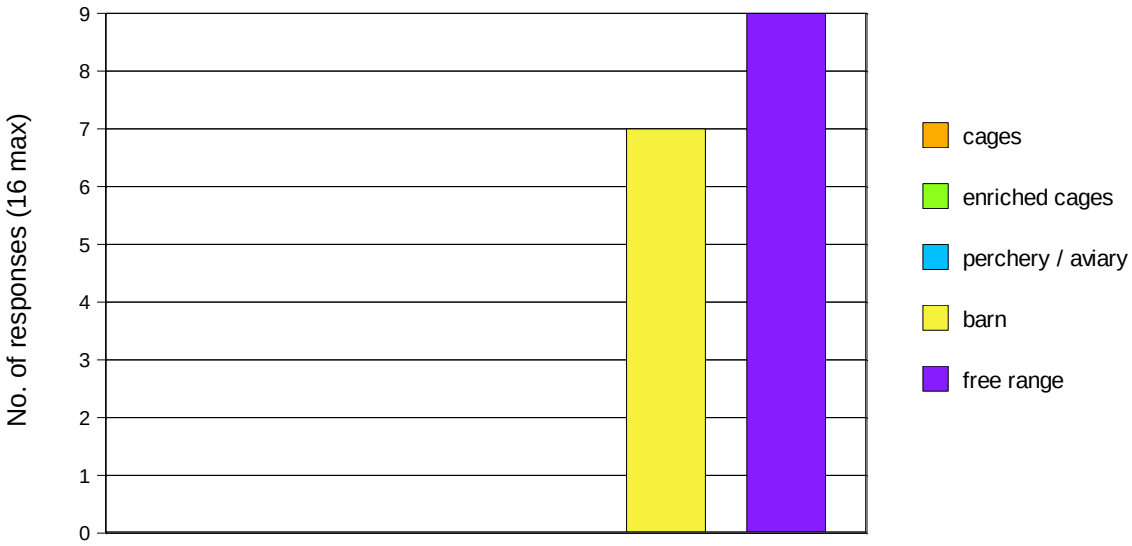


Figure17. Method used to pick up birds

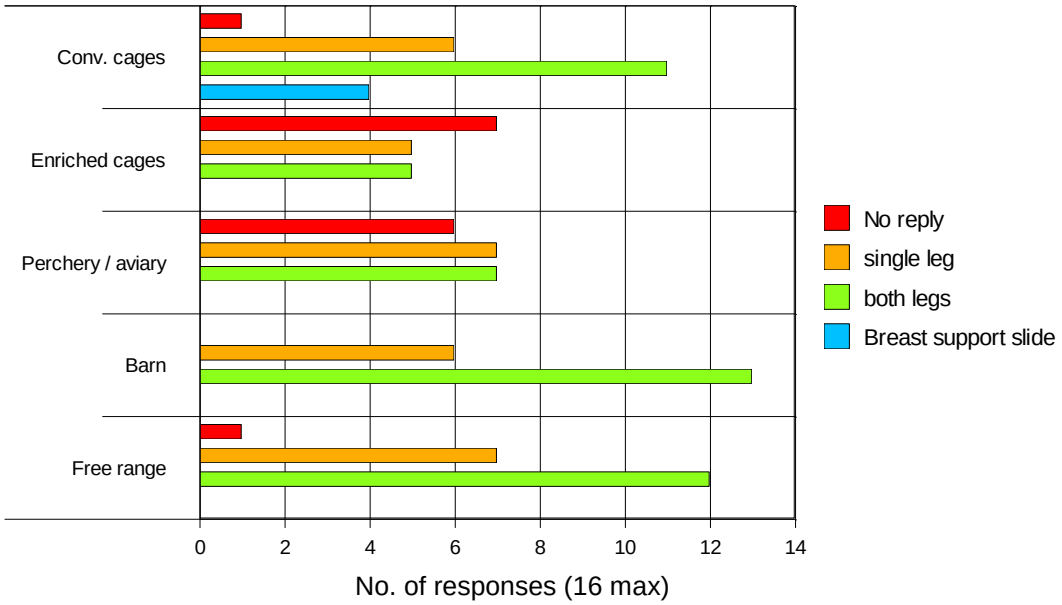


Figure 18. Distance carrying birds in cage system house

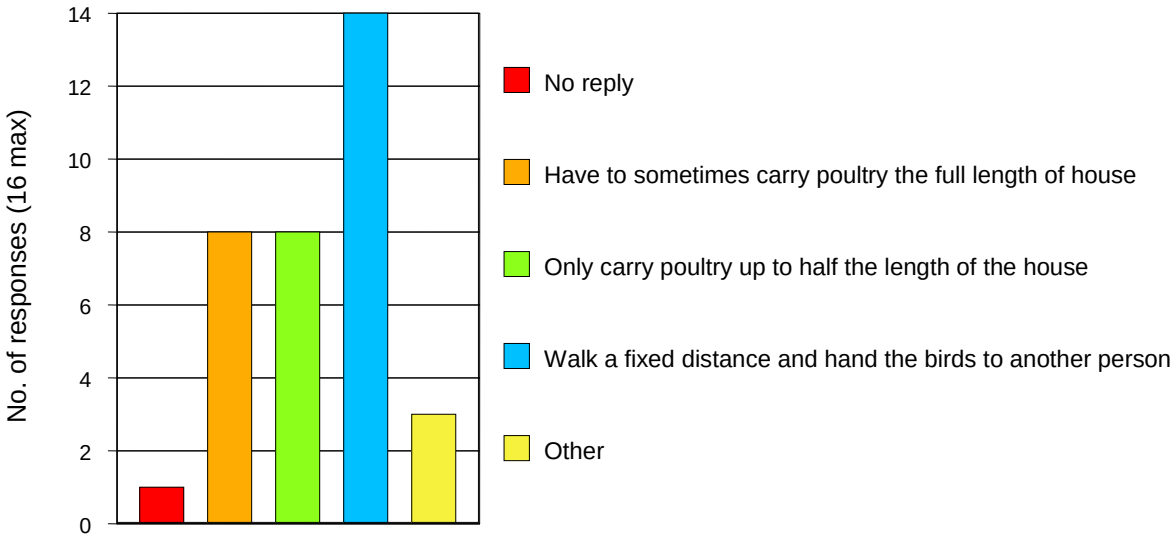
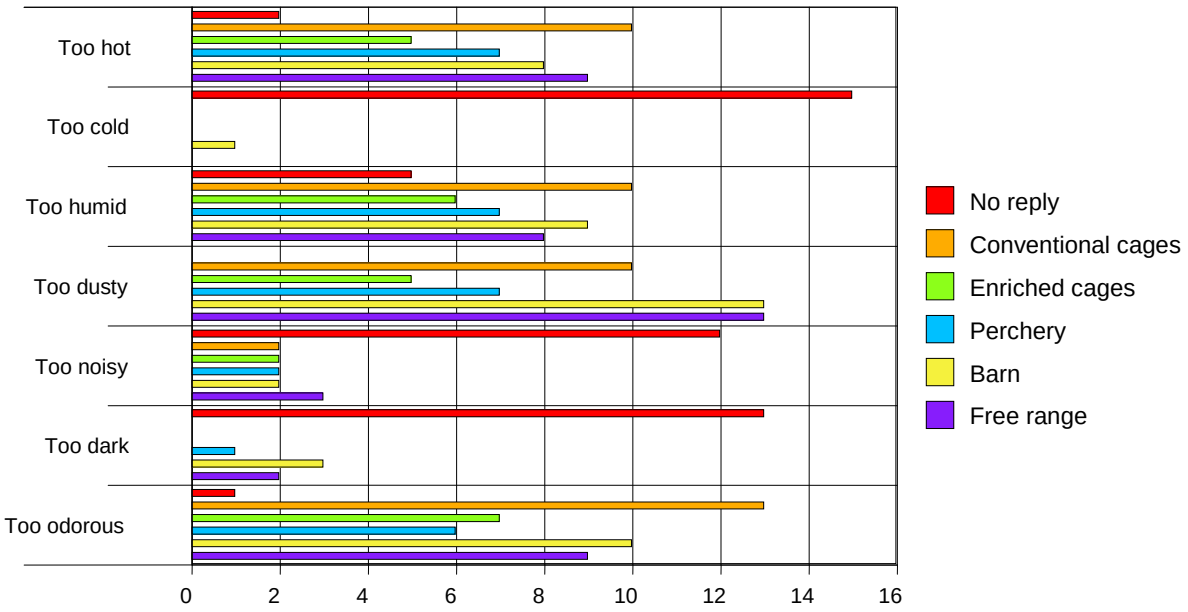


Figure 19. The working environment



Appendix B Improved protocol

Supporting the
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SAC

Protocols to improve the welfare of laying hens at depopulation

Analysis from data collected on 16 commercial laying hen farms during depopulation revealed that some welfare concerns are associated with the housing system, and therefore cannot be changed during the house depletion process. However, the following factors were related to depopulation practices, and therefore may be altered:

- Result: Light intensity levels prior to catching was associated with higher corticosterone levels (which is an indicator of greater stress).
- Solution: Reduce light levels prior to catching for at least two hours. In barn and free range systems, this should be 10 lux or less at bird head height(and the area nearest the catching door can be even darker – i.e. remove the light bulb above this pooling area during catching). In cage systems, an average of 5-10 lux at trough level should not be exceeded.

- Result: The longer time taken to depopulate each bird, the lower the levels of corticosterone that were seen. This may be related to greater time and care in handling each bird.
- Solution: Where possible, slow down. This could be particularly important during catching the bird, i.e. remove one bird at a time from cages, even if the cage opening would appear to allow more than this. In barn and free range systems, take more time to herd birds to the doorways, using less noise and disruption.

- Result: Use of a support slide (in cage systems) and carrying birds by two legs decreased tonic immobility scores (which indicates decreased levels of fear)
- Solution: in cage systems, use a support slide, and in all systems, always carry birds by both legs.

To summarise:

- Reduce light prior to catching for at least 2 hours, to 10 lux or less
- Take more time over catching birds
- Use a breast support slide
- Always carry birds by two legs

By encouraging your catching team to incorporate these methods during our visit, we will be able to assess if the modified techniques have a positive effect on bird welfare or not. Your participation is much appreciated.

Yours sincerely,
Victoria Sandilands

Poultry behaviour and welfare scientist
SAC Ayr
01292 525421 or vicky.sandilands@sac.ac.uk