

6th European Symposium on Poultry Welfare Zollikofen, Switzerland, 1-4 September 2001

**A Report presented to the Australian Egg
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By

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Summary

Dr. Barnett attended the 6th European Symposium on Poultry Welfare at Zollikofen, Switzerland from the 1st-4th September 2001. He was author of the following collaborative papers "the scientific assessment of animal welfare and its application to some issues in the egg industry" and "the development of a comprehensive welfare audit for the Australian chicken meat industry" and coauthor of the following paper "developing an accreditation system for beak trimming in Australia" which he presented to the meeting. Furthermore, Dr. Barnett participated in 2 workshops on furnished cages and organic farming prior to the commencement of the conference. He also took the opportunity of a post-conference tour to visit aviary egg production systems and a free-range broiler production facility.

Attendance at the meeting enabled Dr. Barnett to meet with overseas colleagues, talk to industry personnel and obtain up to date industry information that is relevant to the current RIRDC welfare audit project (DAV-162A) and research information relevant to the RIRDC project currently under development on conventional and alternative egg production systems and a planned project on furnished cages.

The conference reinforced my views that there is not a scientifically rational basis to the emphasis on alternative production systems for the egg industry in Europe. Nevertheless, the European philosophy is that they have a strong belief in the correctness of their approach, and thus pressure on the Australian egg industry will not disappear. While the conference was well attended and there were a number of younger scientists in attendance, unfortunately some of the research being undertaken was confounded in experimental design and in my opinion some of the projects are thus unsuitable for post-graduate training. The lack of questioning and lack of scientific method reinforces my opinion that we need to provide our own scientific information in Australia to counter influences from Europe based on both non-rigorous philosophies and some acceptance of poor scientific methods.

Itinerary

August 27 th 2001	Travel from Melbourne to London.
August 31 st 2001	Travel to Zurich and then to Bern.
September 1 st 2001	Participate in two workshops on furnished cages and organic farming.
September 2 nd -4 th 2001	Attend conference and hold discussions with colleagues at Zollikofen.
September 4 th 2001	Visit aviary egg production systems and a free-range broiler production facility.
September 5 th 2001	Travel from Switzerland to Melbourne.

Report of Travel

Purpose of Travel

Attendance at the 2001 6th European Symposium on Poultry Welfare, September 1st-4th, to present papers based on current RIRDC supported projects (DAV-185A on implementing a chicken meat industry welfare audit and SAR-36A on developing a beak-trimming accreditation programme) as well as present my perspective on welfare assessment and its implications for the egg industry.

Both papers were very relevant to the meeting because of the sessions on alternatives to conventional cages and monitoring welfare via audits. The post-conference tour allowed me to view alternative egg production (aviary) systems and a free-range broiler facility.

Major Achievements

Dr. Barnett was able to meet a large number of colleagues with an interest in both the poultry industry and welfare. While the views of our research group in Australia on welfare assessment and its implications for the egg industry are not in step with European views that are based more on the philosophical approach of the '5 freedoms', it is important to take opportunities, such as this meeting, to reinforce to Europeans that their views are not the only ones with merit. It must be appreciated that this is a difficult message to get across, as it is one that many people 'do not want to hear'. Nevertheless, our message may slowly be having an impact as David Fraser (University of British Columbia, Vancouver, Canada) has recently commented on the very positive contributions of our research group to the international welfare debate.

A general comment is that the European view of welfare based on the concept of the 5-freedoms is very strongly held and there is little interest or acknowledgement of the limitations of this approach to a scientific assessment of welfare. Furthermore, there were a number of young scientists presenting papers at the conference and disappointingly, a number of the experiments were confounded. In my opinion, they were unsuitable topics for training in scientific methods. This lack of questioning and lack of scientific method reinforces my opinion that we need to provide our own scientific information in Australia to counter influences from Europe based on both inadequate philosophies and some acceptance of poor scientific methods.

Topics Covered at the Conference

A range of topics relevant to both layer and broiler production were covered at the conference. Those considered of interest included:

- Furnished cage workshop: there appeared to be general agreement that welfare was improved as a consequence of furnished cages compared to conventional cages. There was also some comment that welfare was probably better in furnished cages than non-cage systems. Other papers on this topic indicated improved feather scores in furnished cages and that in furnished cages for larger numbers of birds (20+ per cage) with internal (vs. trough) feeders, there is no obvious place to put a 'claw shortener' and in such cages they are not very effective.
- Non-cage housing: papers included the experiences in Switzerland where their early experiences with furnished cages (it was eventually agreed that these were different from current furnished cages) were unsuccessful and led them to focus on aviary systems. The poultry industries are subsidised and the prices are high (approximate A\$15 for a 1.2 kg chicken in the supermarket). A post-conference tour included a visit to 2 aviary farms. While it is assumed that the tour include 'good' farms, at the first farm there was a high incidence of foot lesions (Ragnar Tauson from Sweden, indicated the farm would probably fail Sweden's welfare assessment based on both the incidence of foot lesions and dirty feathers) and at the second farm the birds did not appear 'alert and healthy'.

- Broiler production: an EU Scientific Committee report (2000) raised the following welfare issues: stocking density, light, feeder/drinker space and distances between feeders and drinkers, climatic conditions and litter quality, inspection frequency and culling. Other papers discussed manipulating leg problems and lameness by feeding strategies and environmental enrichment to encourage movement and exercise.

A post-conference tour included a visit to an idyllically situated free-range broiler farm with snow-covered mountain views including The Eiger. The farm uses a brown 'naked neck' (French) breed of broiler chicken. There was a deep-litter shed that provided 5 cm of perching space per bird, a shaded verandah area and a free-range area. The number of birds per farm is limited to 4200 in Switzerland and production is subsidised with a high product price (approximate A\$15 for a 1.2 kg chicken in the supermarket). The average weight at 56 days is 1.7 kg with slaughter between 56-63 days. The interesting aspects were the majority of birds were either in the free-range or verandah area (it was estimated that less than 10 % of birds were in the shed when I visited at about 4-5 pm), the entire range area was used, the owner reported that approximately half of the birds perched at night and leg condition appeared excellent. Using a specific breed of bird may have merit in Australia for free-range broiler production, to provide a premium product, compared to the current and recent situation where in the majority of farms birds do not make extensive use of the range.

- Odours: an interesting paper by Bryan Jones (Roslin, Scotland) on odours (vanillin and soil substrate or litter from own housing or nest) indicating the possibility of reducing potential stressors e.g. at pick-up and transport.
- Welfare scoring systems: There was a paper on welfare scoring in Germany in which scores are ascribed to predominantly physical features of the environment and farms are audited to determine if they meet the 'cut-off' score. While these appear to be popular, perhaps in part because of the associated bureaucracy they engender that appears attractive to EU regulators, it is extremely difficult to determine both what to score and how to score it. For example, freedom of movement is generally given a considerably higher priority than no beak-trimming. A criticism by Swedish researchers of some of these scoring systems, in contrast to their own which is used to permit the 'better' cage farms to continue until furnished cages are approved, is that there is a predominant focus on the physical environment rather than the health, condition and vigour of the birds.
- Feather pecking and cannibalism: there were a number of papers on genetic aspects of feather pecking, differences in production capabilities of cannibals, victims and control hens (no effects on production variables when subsequently individually housed), attempts to predict feather pecking, rearing effects on feather pecking behaviour and feather eating and its consequences on feather pecking. There was recognition of the work at Purdue University on selecting birds for low cannibalism.

The most interesting paper on feather pecking was a survey by Christine Nicol of 50 free range 5000 bird flocks where more than 2 % of birds had feather damage due to feather pecking vs 50 control flocks where 0 % of birds had feather damage. The use of the range area was negatively associated with feather damage. If more than 20 % of a flock used the range on a sunny day, the risk of feather pecking was reduced 9-fold. A reason was thought to be that increased use of the range both lowered stocking density and increased foraging opportunities. It was also indicated that most farmers in the survey were reluctant to consider methods of increasing range use.

Benefits to Grantee

Attendance at the symposium enabled Dr. Barnett to meet with conference delegates and be brought up to date with the latest issues in poultry production overseas. It was of great value to be able to spend time with Dr. Tauson (Sweden). We had brief discussions about the proposed RIRDC project on furnished cages and it would be of great benefit to obtain Dr. Tauson's participation in this project, perhaps as a consultant. The benefits would accrue from his considerable knowledge in the development and application of these systems. He has expressed an interest in participating in such a project, if it is to be developed.

Benefits to Rural Industry

The issues focussed on at the conference that are relevant to the Australian egg and chicken meat industries and other items of relevance were:

- Alternative housing for poultry production. The 2 systems being pursued are furnished cages and aviary systems. The major work on furnished cages is in the UK and Sweden. In the UK there is a trial underway at Gleadethorpe where a number of cage designs and factors, particularly cage height and stocking density, are being evaluated. It is unfortunate that conventional cages were not included in the experimental design. At the completion of the trial, 3 of the most promising designs are to be evaluated on a commercial farm. The data from these studies will complete the UK's efforts on furnished cages and are to be provided in 2003 for the EU review of the directive that is to be completed in 2005. Comments at the meeting indicated that neither Germany nor The Netherlands would accept furnished cages as an alternative to conventional cages.
- Organic systems. There is a considerable interest in organic production, particularly because of the price premium. However, it was shown that while this type of production may be viewed by consumers as 'welfare friendly' there are serious welfare concerns, particularly in some countries (e.g. Germany, Switzerland) that do not allow the use of synthetic amino acids. Thus, there can be considerable difficulties in balancing diets and there can be high (> 25 %) mortality. Different countries seem to interpret the EU Directives on organic farming in different ways. The system in Australia, based on the Code of Practice requirement for food to maintain health and vigour (i.e. to provide nutritionally balanced diets) seems a much more reasonable approach and does not directly compromise welfare, as can occur in Europe. If this became an issue in Australia, I imagine the more pragmatic nature of the Australian consumer would accept the need to supplement the diet to maintain bird health.
- Beak trimming. Beak trimming is now banned in The Netherlands (from 01/09/01) (Thea Fiks-van Niekerk, personal communication).
- Humane Society, USA. Dr. Mike Appleby, from Edinburgh University, has joined the Humane Society, with the responsibility for farm animals. The Humane Society has 7 million members and is considered the only national welfare organisation in the USA. Mike has strong views on bird welfare in conventional cages and believes consumers in western countries should pay more if this is what is required to improve welfare. He is highly literate and a compelling speaker and his views are likely to further impact on the Australian industry.
- Compassion in World Farming. This is a UK based organisation and they intend to conduct an international campaign next year (2002) to increase awareness of leg problems in broilers, particularly to put pressure on breeder companies.

Recommendations

- Opportunities need to be made and taken to expose policy makers in Australia and their support staff to the concepts involved in welfare assessment.
- Efforts should be increased in Australia to attract Australian and overseas graduate and post-graduate students to undertake degrees or work-experience at the Animal Welfare Centre. Based on recent experience, this has considerable impact on their thinking on welfare issues and is one way to slowly have an impact on European thinking in relation to welfare and welfare assessment. Industry needs to be informed that for very limited funding (<\$12,000 per year) by industry, post-graduate scholarships can be obtained from the University of Melbourne to undertake poultry research in the Animal Welfare Centre. It was reported that Edinburgh Agriculture School will either be drastically downsized or closed, along with an end to the MSc in Animal Welfare, which to date has had about 250 graduates. This provides an opportunity for the Animal Welfare Centre, through its University collaborations, to increase its intake of overseas students. This matter has been raised with the Director, Animal Welfare Centre, to pursue with the University of Melbourne and Monash University.
- As indicated previously, work needs to be undertaken on furnished cages, particularly whether the items of furniture have any impact(s) on welfare.
- Work needs to be undertaken on the incidence and severity of lameness in the Australian broiler flock.
- The collaborations between industry and research in Australia should continue. It was of interest that few industry people attended the conference in Switzerland and this is largely because research appears to be totally independent of industry.
- EU Directives appear to be developed on the basis of perceived public opinion. However, as there does not appear to be a strong relationship with buying behaviour, one must query the strength of the opinions believed to be held. In line with one of RIRDC's (egg industry) key R&D issues for 2002-2003 on assessing the long term impact of recent welfare-related changes in the industry to consumers and the community, research should be undertaken to obtain information on behavioural attitudes (i.e. those that are predictive of, for example, buying behaviour or lobbying intention). This will provide information on how strong some of the so-called public perceptions are and permit targeted changes in industry or the community, depending on the need.
- A recent EU Scientific Committee report on the welfare of chickens kept for meat production suggests there are welfare problems if stocking density exceeds 30 kg/m². There is a need for stocking density research under Australian conditions, where temperature control is probably better and ventilation rates are probably higher than in Europe.

Papers presented at 6th European Symposium on Poultry Welfare, 2001

BARNETT, J.L. and HEMSWORTH, P.H. (2001). The scientific assessment of animal welfare and its application to some issues in the egg industry. Eds. Oester, H. and Wyss, C. *Proceedings 6th European Symposium on Poultry Welfare, Zollikofen, Switzerland*, pp. 64-70.

BARNETT, J.L., GLATZ, P.C. AND ALMOND, A. (2001). The development of a comprehensive welfare audit for the Australian chicken meat industry and its evaluation. Eds. Oester, H. and Wyss, C. *Proceedings 6th European Symposium on Poultry Welfare, Zollikofen, Switzerland*, pp. 272-274.

GLATZ, P.C., BOURKE, M., BARNETT, J.L. and CRITCHLEY, K.L. (2001). Developing an accreditation system for beak trimming in Australia. Eds. Oester, H. and Wyss, C. *Proceedings 6th European Symposium on Poultry Welfare, Zollikofen, Switzerland*, pp. 232-237.

Appendix

The scientific assessment of animal welfare and its application to some issues in the egg industry

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Summary

In this review we utilise the homeostatis approach to assess welfare in which difficult or inadequate adaptation is viewed as generating problems with animal welfare. Functioning of the body repair systems, and immunological, physiological and behavioural responses provide an assessment of coping attempts by the animal, while lack of biological costs to the animal, reflected in fitness variables such as deterioration in growth efficiency, reproduction and health and freedom from injury provide an assessment of the extent to which these coping attempts are succeeding. Applying this approach to furniture in cages shows there is a welfare benefit from incorporating perches into conventional cages, based on the likely fewer "injuries" due to improved bone strength. There is no similar evidence for the incorporation of nest boxes or dust baths. While non-cage systems may be intuitively appealing, there is no evidence, based on fitness variables, that welfare is improved.

Introduction

During the last 18 months there have been discussions by the Agriculture and Resource Management Council of Australia and New Zealand on options for a national approach to layer hen housing systems. At the meeting, in August 2000, there were a number of resolutions that have implications for housing of poultry. Most importantly, these included a recommendation for research and development to be conducted in Australia by 2005 on furnished cages and on non-cage alternatives such as barn and free-range. To help put this resolution in perspective, this paper examines some of the literature on cage modifications and alternative systems within the broader framework of the scientific assessment of welfare.

The assessment of welfare

In deciding whether an animal's welfare is seriously compromised, individuals integrate moral views with biological facts. Thus the role of science is to establish the facts on the biological responses of animals to the practices in question. Within scientific disciplines, variations in definitions of animal welfare exist and combined with variations in methods and in turn interpretation, lead to disagreement (Hemsworth and Coleman, 1998). We favour the following definition of Broom (1986): The welfare of an individual is its state as regards its attempts to cope. This refers to both how much has to be done by the animal to cope with the environment and the extent to which the animal's coping attempts are succeeding. Attempts to cope include the functioning of body repair systems, immunological defences, physiological stress responses and behavioural responses. The "extent to which coping attempts are succeeding" refers to the lack of biological costs to the animal, reflected in fitness variables such as deterioration in growth efficiency, reproduction and health and freedom from injury. Therefore, using such a definition, the risks to the welfare of an animal by an environmental challenge can be assessed at two levels, the magnitude of the behavioural and physiological responses and the biological cost of these responses (Broom and Johnson, 1993; Hemsworth and Coleman, 1998). Thus the rationale underpinning this approach to welfare assessment is that difficult or inadequate adaptation generates problems with welfare.

Many scientists have proposed that animal welfare ultimately concerns animal emotions. Emotions are often considered to consist of visceral responses, cognitive processes and the associated

sensation of emotion and their antecedents are some discrepancy or conflict between the state of the world and the expectations of the individual (Barnett *et al.*, 2000). This notion of emotions in animals is predicated on the view that animals probably only have emotions to deal with certain kinds of survival problems, for which there is some strong evolutionary benefit (McFarland, 1981). While there are obvious difficulties in studying emotions, emotions clearly have an adaptive role and are part of the biological responses that animals use to cope with the environment. Thus, there is no reason not to incorporate animal emotions into this homeostatic approach to welfare assessment. Other approaches to welfare assessment have been reviewed by Duncan and Fraser (1997).

We favour the homeostasis approach, as outlined above, in assessing animal welfare and this is the approach utilised in this brief review. An attribute of this approach that provides it with credibility within scientific circles is that it also contains some widely accepted criteria of poor welfare such as stress, health, immunology and injuries. Furthermore, there are some excellent examples of the value of this "homeostasis" approach in assessing animal welfare (see Hemsworth and Coleman, 1998).

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The development of a comprehensive welfare audit for the Australian chicken meat industry and its evaluation

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Introduction

Quality Assurance (QA) programmes within the animal industries in Australia predominantly focus on food safety and biosecurity. While the chicken meat industry in Australia has not been a major target of animal welfare groups, the industry nevertheless considered that there was a need, coinciding with a more informed and demanding customer base, to expand their quality assurance to include animal welfare issues. Thus, the industry has been a proactive partner in preparing the audit documentation in this project. Chicken meat companies already provide information on animal welfare and growers/unit managers already largely implement this information. One purpose of audit documentation is to provide some certainty for all staff involved, so that they, the company, consulting veterinarians, the public and any internal or external auditors are asking the same questions. This project has put together all the welfare information from the literature and experts in Australia to provide the first comprehensive welfare audit, based on agreed questions, for an animal industry. This paper also describes a small evaluation trial of part of the documentation.

Materials and Methods

The documents were developed over 2 years by a Management Group comprising representatives of industry, animal welfare groups, and teaching and research organisations. Documentation has been prepared in separate booklets for the hatchery, broiler, breeder rearer, breeder layer and pick-up, transport and processing sectors of the chicken meat industry. To ensure ownership of the project there were terms of reference that had clear objectives and a dispute resolution procedure, regular meetings with minutes and documented actions, provision of updated documentation, ample opportunity for input by members both at meetings and outside of the meetings, inputs from relevant colleagues and organised visits by welfare group representatives to see all aspects of production and processing. It was not the purpose of the audit either to require change to current industry practice or to resolve controversial issues, rather it was to identify and encourage best practice for each sector of the industry.

To evaluate part of the broiler documentation, 24 broiler farms contracted to one company were used. The company provided production data and the farms were ranked according to their Performance Indicator Factor (PIF). $PIF = [(weight\ (kg)/age\ in\ days\ at\ a\ standardised\ pick-up\ age/FCR\ \{kg\ feed/kg\ liveweight\}) * Live\ \% \ (birds\ alive\ at\ the\ end\ of\ grow\ out/birds\ housed)] * 100$. The farms were ranked from 1 (best) through to 24 (worst) and from this ranking, farms with similar production performance for the previous 3 batches of birds were paired and randomly allocated to either the treatment group or the control group. The 12 treatment farms received the audit document and were asked to complete the recording sheets. The 12 control farms did not receive a copy of the audit document and were asked to continue recording what they normally would have done such as mortalities, culls, feed supplied and body weight.

Growers participated in the study for 3 batches of birds. The treatment farm participants were asked to complete the recording sheets for all three batches from placement to pickup. At the end of the third

batch, the audit was conducted for the period from 2-5 weeks of age; this time period was chosen to avoid variation due to pick-up schedules. Each grower would have received three visits during the study in addition to the initial visit when the study was explained and they were asked to sign a consent form. The audit involved asking the growers a sub-set of 31 audit questions from the documentation (Barnett et al., 2001) that referred to farm activities from weeks 2-5 of production. Questions 1-24 related to routine husbandry procedures, equipment and housing and questions 25-31 related to staff issues. Data were obtained for 2 sheds at each farm and the results were averaged for the farm. Each audit question was recorded as either a "yes" or "no" (or not applicable) on the basis of the recorded evidence that the grower was able to provide via a record sheet (e.g. the batch card) or a diary entry.

The proportion of farms complying with an audit question was analysed using the Chisquare test and the production data were analysed for treatment effects by analysis of co-variance using the data from the previous 3 batches of birds as the co-variate.

Results

Each booklet is comprised of audit questions, background information on the purpose of the questions and how the questions relate to welfare and the Codes of Practice for welfare for the poultry industry (Standing Committee on Agriculture and Resource Management, 1995; 1998). Examples of record sheets are also included to help demonstrate compliance with the audit process. The audit questions include both critical questions, which were defined as those where "if something goes wrong the welfare of the birds is irrevocably damaged" and good practice questions which reflect current knowledge and its practical implementation in the industry. Compliance can be for targets at the same level or a higher level than the Code of Practice.

The on-farm evaluation showed a number of differences ($P < 0.001$) between the treatment and control farms based on improved record keeping by the treatment farmers. There were 6 questions for which the control farms were unable to provide evidence of their actions. At the control farms there were no diary entries or records to confirm the frequency of checking birds or water pressure. At the control farms, culls were not recorded, despite the company batch card requiring culls and mortalities be recorded separately. Instead they were recorded under the category of total mortalities. Similarly, there was no written evidence that the control farms were regularly adjusting feeders and drinkers to the correct height or checking water availability at the drinkers each day. Analysis of co-variance showed a lower mortality (1.37 vs. 1.74%; $P < 0.01$) in the first week after placement.

Discussion

The audit documentation has several aims. Most importantly, that of demonstrating high standards of animal welfare by providing documented evidence of quality animal care and by identifying and monitoring equipment, animal problems and human resource issues. Introduction of a welfare audit can result in positive production effects and welfare benefits. There was a significant reduction in mortality in the first week after placement at the treatment farms. While there was no effect on overall mortality, this variable was lower in the treatment farms (5.05 vs. 5.35%). It is interesting to speculate that the closer attention to detail required by the audit procedure may have been in part responsible for this lower mortality in the first week. For example, it is possible that both more regular checking of birds and adjustment of feeder and drinker height contributed to the reduced mortality.

Other aims include improved awareness by industry personnel of the interactions between production and welfare, a recognition that welfare must be continually improved. Other more intangible benefits include a training aid focussing on welfare and improvements in stockperson characteristics such as job satisfaction by taking a professional approach to the job. A number of lessons have been learned or their importance reinforced during the period of development of the industry package. These include, the need for the Management Group to include wide industry representation, the involvement of non-industry stakeholders such as credible animal welfare groups, terms of reference, a confidentiality agreement for participants, a national rather than a regional focus and ensuring

industry ownership and feedback which is considered an essential part of the process. Finally the whole process cannot be rushed as the stakeholders have to learn a degree of trust and this takes time. The challenge remains to implement the welfare audit in industry.

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Developing an accreditation system for beak trimming in Australia

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Summary

The Australian Egg Industry is developing a national quality assurance (QA) system with inclusion of national accreditation for beak trimming staff, which is likely to lead to improved standards of bird management and welfare.

Introduction

In April 2001, the Egg Program of the Rural Industries Research and Development Corporation (RIRDC) in Australia provided funds for a project to develop accreditation and training manuals for beak trimmers. The impetus was a recommendation by State and Territory Agriculture Ministers that beak trimmers in Australia be accredited. Beak trimming has considerable welfare problems and in Sweden the procedure is banned. In the Australian Egg Industry, however, where light intensity within many poultry sheds cannot be controlled, beak trimming is regarded as an essential practice to control cannibalism, bullying, and feather and vent pecking (Glatz, 2000). The outcome of the beak trimming accreditation project is QA and training documentation for use in the Australian Egg Industry to support the industry's commitment to maintaining high standards of beak trimming. The documentation covers biosecurity, equipment set up, equipment maintenance, catching birds, holding birds, cutting and retrimming beak, handling after trimming, quality of trimming, beak trimming assessment and occupational, health, safety and welfare. Development by the Egg Industry of documentation that recommends best practice procedures and training courses to accredit beak trimmers will raise the beak trimming standards in Industry and help to improve the profitability of egg farming. Documentation to improve beak trimming covers critical and best practice procedures in all aspects of the beak trimming process. Utilisation of the QA documentation and training manuals will give confidence to operators when undertaking beak trimming and result in improved standards of beak trimming.

Management committee

A beak trimming management committee comprising researchers, RIRDC, beak trimmers, egg producers and welfare groups is involved in developing the beak trimming audit documentation. The approach used in this beak trimming audit was modelled on a RIRDC project on a chicken meat industry welfare audit (Barnett et al., 2001). The role of the management group is to develop audit questions relating to all aspects of beak trimming that can be completed by a yes/no answer and the required record keeping and oversee the production of training materials. The project is utilising the seven principles of the "HACCP-based" quality assurance systems approach in that it is, i) identifying potential risks that contribute to poor beak trimming ii) identifying the critical risks iii) establishing appropriate targets for the risk area iv) establishing a monitoring system v) establishing contingencies to be used in association with deviations observed during monitoring vi) establishing a verification program and vii) developing documentation that accurately depicts risk, critical limits and corrective action.

HACCP-based protocol

The documentation will be set out as follows for each aspect of the beak trimming process using the HACCP protocol:

1. Audit questions and implications relating to each part of the beak trimming process that can be completed by a yes/no answer. Critical issues are identified and defined as processes in the beak trimming protocol that if they go wrong will cause permanent damage to the beak resulting in poor bird health, production and welfare.
2. Record keeping checklists.
3. List of targets to be achieved.
4. Score sheets for auditors to monitor, evaluate and verify beak trim standards.
5. Fact sheets that provide more detail on the questions and the implications.
6. Training manuals for use in accrediting beak trimmers.

Major issues and objectives associated with beak trimming being addressed in the accreditation documentation.

Each stage of the beak trimming process, commencing with the responsibilities of the beak trimmer concerning biosecurity through to an assessment of the quality of the beak trimming operation will be addressed with the following specific objectives;

Biosecurity

1. Prevent the introduction and spread of infectious agents to a flock.
2. Implement routine high standard operational and personnel standards to achieve high levels of biosecurity.

Equipment Set Up

1. Establish stable position for beak trimming machine.
2. Ensure timing of automatic cam is correct.
3. Ensure blade is correct type, temperature and sharpness for age of bird being trimmed.
4. Availability of back up equipment.

Occupational Health and Safety

1. A short break for the beak-trimming operator every hour.
2. Clothing to cover arms and legs to protect against injuries and scratches from birds.
3. Finger guard to protect against burns whilst beak trimming.
4. Fully adjustable ergonomic chair with back and foot support to avoid back injuries.
5. Bench of suitable working height with adequate working space.
6. Adequate ventilation of dust and fumes away from the operator and comfortable air temperature.
7. Full-face masks with fresh air supply to prevent ill health from poor air quality.
8. Retractable extension cords conforming to electrical safety standards.
9. Beak trimming apparatus confirmed to be electrically safe.
10. Cool water and first aid kit for treating burns and scratches.

Penning Birds

1. Minimise the stress on birds during penning or catching.
2. Provide adequate ventilation.
3. Ensure birds are kept in appropriate containers prior to beak trimming.

Holding Birds

1. Ensure birds are held correctly according to the age group of birds being trimmed.
2. Angle the beak at 15-30° from the horizontal onto the cutting bar or into the holes in the gauge plate.

Cutting and cauterising beak

1. Determine beak hardness.
2. Use directed light source to identify tip of quick or position halfway along upper beak.
3. Cut both beaks simultaneously in chickens up to 6 weeks of age at the tip of the quick or half way along the upper beak.
4. Cauterise hard beaks for 2 seconds, soft beaks for 1.5 seconds.
5. Cut beaks to achieve an inward V slant.
6. For birds aged 8-14 weeks of age cut at the tip of the quick or half way along the upper beak. Lower beak should be 2-3 mm longer.
7. Retrim beaks if necessary at 12-14 weeks. Maintain upper beak length at 12-14 mm and lower beak at 14-16 mm.
8. Round sharp edges on beaks.
9. For pullets and adult layers not previously trimmed cut no more than 5 mm of upper and lower beaks.
10. To reduce persistent cannibalism trim beaks such that at maturity 8 mm of upper beak and 11 mm of lower beak remains.

Equipment maintenance during the day of trimming

1. Regular cleaning of blades and change blades if necessary.
2. Checking blade temperature and timing of automatic cam.
3. Ensure trimming equipment is level after being moved.
4. Check water-cooling of cutting bar.

Handling and care after trimming

1. Gentle handling of birds after beak trimming.
3. Ensure birds can eat and drink after trimming, particularly from nipple lines.
4. Dip beak in ice water after trimming on hot days.

Records

1. Maintain qualitative and quantitative records of the beak trimming process.

Quality of beak trimming

1. Correct length of upper and lower beaks depending on age.
2. Correct gap between upper and lower beak depending on age.
3. Beaks sealed and rounded at edges.
4. Less than 1% mortality in first week of beak trimming.
5. Normal feeding, drinking and social behaviour.
6. Less than 1% of birds with bleeding after beak trimming.

Assessment of beak trimming

1. Appropriate beak length.
2. Minimal imperfections.
3. Normal feeding, drinking and social behaviour.
4. Ninety five % grade A standard for beak trimmed birds.

Training Model

The Australian Egg Industry has a choice regarding the implementation of beak trimming training - whether or not to use the Australian vocational education and training system? The training system in place across Australia provides a quality system consisting of Registered Training Organisations (RTOs), national competencies, accredited training and competency-based assessment. It is set up to ensure that industry can access people with the skills it requires. If this system is not used, the Egg Industry will need to set up its own system to accredit people and maintain records.

A beak trimming training course will be developed whichever system is used. The course will be competency-based and designed to be delivered as a short course or as workplace training. Initially,

industry experts will deliver short courses to experienced beak trimmers from major enterprises. These train-the-trainer short courses will provide best practice skills and knowledge and assess participants in an off-the-job setting. The courses will also help prepare participants to deliver and assess the course to others in the workplace. Workplace training is flexible, cheap to deliver, minimises time spent off the job and can be customised to suit each enterprise. For example, some beak trimmers may need minimal time to reach the standards required while others will need more intensive training.

To complement the train-the-trainer short course it is proposed that those who become workplace instructors/assessors must have satisfactorily completed appropriate trainer/assessor qualifications before they can deliver training to other beak trimmers. Workplace trainer/assessor qualifications will be specified and can be obtained locally throughout Australia from a range of training providers. Alternatively this training could be incorporated into the beak trimming train-the-trainer short course. The majority of beak trimmers will be trained and assessed in the workplace to ensure they have reached the required standard. This requires the availability of workplace assessors who will determine which staff are competent and those who are not yet competent. It is essential that a thorough assessment be carried out if the beak trimming qualification is to be of value. Participants will be assessed against the learning outcomes and assessment criteria specified for the course.

It will be recommended that industry only allow accredited beak trimmers to trim birds. A person will need to be deemed competent by a workplace assessor to become accredited. An initial assessment will be carried out after the completion of training and remain valid for a period to be decided by industry. Beak trimmers will need to be re-assessed after this period. The assessor will focus on the skills and underpinning knowledge for beak trimming as well as activities relating to a flock recently beak trimmed and a flock that had been trimmed at least 10 and 30 weeks previously. The assessor will require access to records and to visually inspect and take measurements of the beaks of birds. The assessor will use an audit score sheet to evaluate beak trimming quality and if there are areas of concern the assessor will discuss with the beak trimmer the time lines to evaluate and rectify beak trimming procedures.

The course will be accredited through the New South Wales Vocational Education Training and Accreditation Board if it is delivered as part of the vocational education and training system. Accredited training is nationally recognised and increases the opportunities for gaining funding for course delivery. With this system workplace instructors will deliver the beak trim course through a Registered Training Organisation (RTO). In some cases the RTO may be the company the trimmers work for or it might be an educational institution. All RTOs throughout Australia submit training records to a central database that can be interrogated to provide industry with a profile of the training that has occurred.

Training Materials

A resource manual for students and an instructor/assessor handbook will be developed to support the beak trim course. The materials will assist those delivering workplace training and help to ensure these standards are maintained. The resource manual will be written in plain English and kept simple to meet the needs of those with low literacy skills. Case studies, exercises, photographs and graphics will enhance the learning process. The instructor/assessor handbook will describe options instructors have for delivery and assessment of the course. This will contain more detailed technical information, suggested delivery strategies and assessment tools. It will provide guidelines that will assist instructors to provide relevant training that meets the needs of the local enterprise. The resource manual and instructor/assessor handbook will be used as resources for the train-the trainer short courses.

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