

Impact case study (REF3b)

<p>Institution: University of Edinburgh and SRUC, Scotland's Rural College</p>
<p>Title of case study: Aerial perches improve the welfare of laying hens and are now recommended by the European Union.</p>
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Impact: Policy / animal welfare. Policy implementation changed and bird welfare improved.</p> <p>Significance: Our research informed welfare guidelines impacting upon housing of around 200 million laying birds in the EU. Our work has been adopted in EC regulations, and they are pushing all EU member states to ensure all their producers install aerial perches over slatted surfaces.</p> <p>Beneficiaries: Laying birds, welfare organisations, egg producers, and the general public.</p> <p>Attribution: Prof. Sparks, Dr. Sandilands (SRUC). Involved collaboration with Prof. Green at Heriot Watt University acting as a vision specialist.</p> <p>Reach: Guidelines have been adopted in EU legislation.</p>
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>There are 320-330 million egg-laying hens in the European Union alone and, since 2007 and 2012 for hens in extensive and cage systems respectively, all of these birds now need to have access to aerial perches.</p> <p>Research from 1993 to 2009 at SRUC (with a team involving Prof. Sparks (Team Leader, employed 1989-onwards), Drs Sandilands (Behavioural Scientist, employed 2001-onwards), Moinard (Researcher, employed 2004-onwards), Scott (Researcher, employed 1993-onwards)) initially focused on identifying optimal perch heights and angles [3.1, 3.2], plus preferred perch materials [3.3], which influence the safety of a hen's landing (and likelihood of injury). This was followed by:</p> <ul style="list-style-type: none"> • A study to examine small commercial-style systems and how perches could affect social behaviour and dominance hierarchies in hens [3.4]. • A study to examine how crowded perches (often found in commercial systems) can influence the accuracy of hens' landing. <p>A range of scientific approaches have been used in the work ranging from training small numbers of birds to move/fly when required between perches through to the use of pressure load cells to measure forces expended when hens land on perches. This work combined ethology, ergonomics and physiology with engineering to provide optimal access to perches, and then to optimise perch design whilst ensuring that the perch design/installation did not unduly compromise the ability of stock workers to move around the facility.</p> <p>This work has most recently been followed up by examining the relationship between aerial perches and bone fracture in laying hens [3.5, 3.6]. The contentious view that aerial perches promote keel bone fracture has led to various interpretations of what is permissible as a perch within the UK, and has led to a divide among the devolved governments as to their requirements.</p>
<p>3. References to the research (indicative maximum of six references)</p> <p>3.1) Scott, G. B. and Parker, C. A. L. (1994). The ability of laying hens to negotiate between horizontal perches. <i>Applied Animal Behaviour Science</i>. 42: 121-127. http://dx.doi.org/10.1016/0168-1591(94)90152-X</p> <p>3.2) Lambe, N. R., Scott, G. B. and Hitchcock, D. (1997). Behaviour of laying hens negotiating perches at different heights. <i>Animal Welfare</i>. 6: 29-41. (Copy available on request.)</p> <p>3.3) Scott, G. B. and MacAngus, G. (2004). The ability of laying hens to negotiate perches of different materials with clean or dirty surfaces. <i>Animal Welfare</i>. 13: 361-365. (Copy available on request.)</p>

Impact case study (REF3b)

- 3.4) Cordiner, L. S. and Savory, C. J. (2001). Use of perches and nestboxes by laying hens in relation to social status, based on examination of consistency of ranking orders and frequency of interaction. *Applied Animal Behaviour Science*. 71: 305-317. (Copy available on request.)
- 3.5) Moinard, C., Rutherford, K. M. D., Haskell, M. J., McCorquodale, C., Jones, R. B. and Green, P. R. (2005). Effects of obstructed take-off and landing perches on the flight accuracy of laying hens. *Applied Animal Behaviour Science*. 93: 81-95. <http://dx.doi.org/doi:10.1016/j.applanim.2004.11.016>
- 3.6) Sandilands, V., Moinard, C. and Sparks, N. H. C. (2009). Providing laying hens with perches: fulfilling behavioural needs but causing injury? *British Poultry Science*. 50: 395-406. <http://dx.doi.org/10.1080/00071660903110844>

4. Details of the impact (indicative maximum 750 words)

The major impact of this work has been to inform EU policy and improve the welfare of laying hens. The SRUC research was instrumental in underpinning the decision of policy makers in the EU, and subsequently administrations in member states, to enshrine in legislation the requirement that the ca 200 million laying hens housed annually in extensive systems in Europe have access to perches when in the laying house.

SRUC research has been used by member states to justify to producers the need to install aerial perches over slatted surfaces. So for example, in Scotland the work we have done has enabled Government to be even more specific in interpreting relevant EU legislation, with the Government requirement being that hens have access to aerial perches (Welfare of Farmed Animals (Scotland) Amendment Regulations 2002 (SSI 2002 No. 334)) while continuing to use literature that we have produced in 2007 to guide producers as to the requirements and benefits of aerial perches. More recently, producers have attempted to argue against the installation of perches on the basis that they increase the incidence of bone fractures in laying hens. Our work has demonstrated that careful design of perches can address welfare issues and increase productivity without increasing bone fracture in laying hens.

Further national impact on policy is demonstrated in the Farm Animal Welfare Council's (now Farm Animal Welfare Committee) (FAWC) opinion paper on osteoporosis (Dec 2010), which referred to work done by SRUC (on the association between bone fracture and housing system), and concluded that *'the design and layout of perches can be improved to prevent bone fracture. If this is achieved, the different interpretations of the relevant European Directive within Great Britain could be eliminated, favouring provision of aerial perches.'* FAWC advises the UK Government on animal welfare issues. The work is regularly cited by welfare bodies and producers alike outside the EU, and remains highly topical with bodies ranging from the International Egg Commission to New Zealand's National Animal Welfare Advisory Committee citing the work in support of requirements to use perches in extensive and, increasingly, in cage systems (now mandatory within the EU).

SRUC research in this area also has an impact on animal welfare, as perching is a highly motivated behaviour in hens. The system based on our research is cited by animal welfare organisations such as Compassion in World Farming (2012) as an archetypal high welfare system.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 5.1) Andrew Voas Veterinary Advisor, Scottish Government <http://tinyurl.com/n5whw4j>
- 5.2) FAWC. Opinion on osteoporosis and bone fractures in laying hens. December 2010 <http://tinyurl.com/q8eomqc>
- 5.3) CIWF Information Sheet January 2012. Hen welfare in alternative systems. <http://tinyurl.com/ndm32ra>
- 5.4) EU Directive 1999/74. EC laying down minimum standards for the protection of laying hens <http://tinyurl.com/gal89us>

Impact case study (REF3b)

- 5.5) Defra report 2008. AW0235. A study to compare the health and welfare of laying hens in different types of enriched cage <http://tinyurl.com/nkq9frc>
- 5.6) Defra report 2006. AW0231. The welfare effects of different methods of depopulation on laying hens <http://tinyurl.com/qfcy4ax>
- 5.7) SAC (2007). Perch Designs for Extensive Systems, ISSN 0142 7695 • ISBN 1 85482 865 7. Technical Note produced for and still used by Scottish Government's Inspectorate. <http://tinyurl.com/nr9e28h>