

## Laying Hen Health, Welfare and Productivity Research at Bristol Veterinary School (1)

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Research spanning three decades at the Bristol Veterinary School has embraced fundamental, lab-based work, large-scale trials on commercial farms, survey and epidemiological studies. These have provided evidence of the capacity and behavioural requirements of hens, informing better design of housing and handling. Recently, we have focussed attention on developing effective knowledge exchange techniques and building collaborative networks with industry to drive innovation and uptake of best practice.

### Hennovation



The EU-funded Horizon 2020 project, [Hennovation](#), worked in 5 countries supporting 19 grassroots-led networks that developed innovative ideas to solve problems and embed best practices in all housing systems mainly considering red mite, injurious pecking, predation and end of lay issues. Visit the [information website](#).

### Featherwel



The widely-used [Featherwel](#) website and Advice Guide summarise the results of a project that determined science-based management strategies that were tested for their effectiveness in reducing injurious pecking in trials on over 100 farms.



[LHWF](#) is a consortium of industry stakeholders has recently been granted EIP-Agri support to refine and roll out the more effective strategies for managing feather pecking, building on Featherwel.



The [Assurewel](#) partnership between the Bristol Vet School, the Soil Association and the RSPCA is working to develop welfare outcome measures for many farm animal species and incorporate them into assessment protocols for Assurance Schemes. For hens, these include monitoring feather cover, cleanliness, behaviour and levels of mortality.

### Other projects

- [Simulation of maternal care](#) to benefit welfare and production ([Dr Jo Edgar](#))
- Enhancing hen welfare in free-range systems, by encouraging range use, provision of enrichments, and enhancing bird movement within house
- Improving layer welfare by modifying rearing conditions, using dark brooders, platforms, perches and ramps
- Use of pecking pans to reduce levels of injurious feather pecking at lay

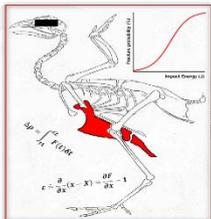
## Laying Hen Health, Welfare and Productivity Research at Bristol Veterinary School (2)

[Professor John Tarlton](#)

Professor of Regenerative Medicine, Business Fellow and Impact Director

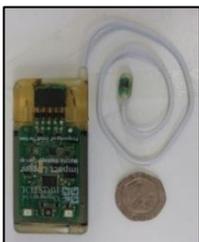
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Laying hen research at Bristol Veterinary School ranges from small scale fundamental studies of behaviour, cognition, physiology, biochemistry, neuroscience and biomechanics to large commercial scale studies of welfare, productivity and flock behaviours. As well as welfare, behavioural and cognitive assessments, laboratory research capabilities include proteomics, genomics, immunology, biochemistry and biomechanics.

### Research in these areas includes:

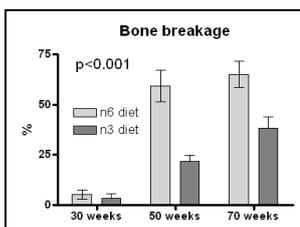
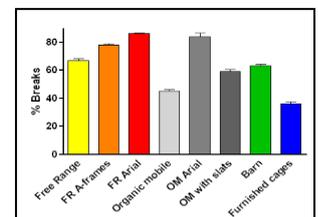


#### Skeletal and welfare benefits of activity and ranging behaviour

A Soil Association funded pilot led to a £540,000 [BBSRC funded study](#) in collaboration with Stonegate examining keel fracture rates, the most urgent welfare issue in laying hens, injurious feather pecking and pathogen load, using custom-made accelerometers and light monitors to assess activity and ranging.

#### The influence of bird and environment on the risk of keel bone fractures in laying hens.

Up to 90% of hens suffer keel bone fractures in free range systems. This £536,000 [BBSRC funded study](#) mathematically modelled the relative contributions of housing hazards and skeletal resilience on fracture rates.



#### Dietary omega-3 on reducing the incidence of keel bone fractures in laying hens.

A £1.7 million [BBSRC study](#) with Noble Foods demonstrated that feeding hens an omega-3 supplement reduced keel fracture rates by up to 60%.

#### Impact of rearing environment on spatial awareness and skeletal resilience at lay.

A recently funded £310,000 USDA study will examine the influence of rearing in complex environments on a hen's navigational ability and skeletal strength, aimed at reducing chronically high levels of keel fractures in extensive systems.

