

Improving Poultry



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Scientific research is key to improving the poultry industry, from developing more efficient breeding to enhancing disease resistance and animal welfare.

The Biotechnology and Biological Sciences Research Council (BBSRC) funds research that is aimed at both understanding the fundamental biology of poultry and at addressing real-life issues for the poultry industry.

Improving bird quality and welfare

In partnership with industry, scientists are embarking on a three year £1.65M project that will develop new genetic sequencing platforms to help poultry breeders develop breeds that use feed more efficiently. Even small efficiency gains could boost production and lead to huge energy and monetary savings in the long term because of the massive numbers of animals involved.

Researchers have used genetic modification to develop chickens that cannot spread bird flu to other chickens. Introducing this modification to poultry flocks could protect the health of the birds and so increase meat and egg production – as well as reducing the risk of a new flu outbreak in the human population.

Researchers have developed an automated system of webcams to monitor welfare across an entire flock. Using statistical measures they are building up a picture of how a normal flock behaves. The systems allows rapid detection of when a flock starts to behave differently from this norm. The researchers have already carried out commercial trials with Cobb (Europe) and are looking to build a database of normal behaviour for birds of different ages, sexes and breeds.

International impacts

BBSRC-funded scientists are working with farmers in Ethiopia to identify the most damaging poultry diseases. They are using advanced breeding techniques to improve the local birds and working with the farmers and policy makers to develop disease controls strategies.

Key facts

16M chickens are produced for consumption every week in the UK

The UK produces 9 billion eggs a year

3 chickens for every person on the planet

Retail sales of poultry total over £3.4 billion every year



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Combating diseases

Marek's disease, which globally costs US\$2Bn, is a serious poultry disease despite the 20Bn vaccine doses used annually. Researchers are developing an increased understanding of the molecular mechanisms behind the disease, it is hoped that this will lead to better strategies for designing new vaccines.

The most common form of food poisoning in the UK is caused by the bacterium *Campylobacter* and it is estimated that 65% of chicken carcasses carry an infection. In July 2010 BBSRC, together with Defra and the FSA, announced £2M of funding to tackle *Campylobacter* food poisoning.

Infectious bronchitis virus costs the UK poultry industry around £20M every year, mainly due to loss of egg production. Work, now patented and licensed by a BBSRC PhD student on developing a vaccine, won Erica Bickerton the British Poultry Council 2010 Scholarship Award.

New tools and technologies

Scientists have developed new and advanced microscopy techniques that will allow them to understand why current avian influenza vaccines allow around a quarter of birds to still carry the disease, despite not falling ill. They hope these insights will allow them to engineer a new vaccine that more effectively eliminates the disease.

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As a fertilised embryo develops different genes turn on and off to regulate the embryo as it grows into a chick. Scientists are creating a map of these changes in genes. This map will be openly shared on the internet allowing others to use it and develop a deeper understanding of development and so help understand health issues such as congenital abnormalities, cancers and tissue repair.

About BBSRC

BBSRC is the UK funding agency for research in the life sciences and the largest single public funder of agriculture and food-related research.

Sponsored by Government, in 2010/11 BBSRC is investing around £470 million in a wide range of research that makes a significant contribution to the quality of life in the UK and beyond and supports a number of important industrial stakeholders, including agriculture, food, chemical, healthcare, and pharmaceutical sectors.



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