

Innovative Europe-wide Animal Genomics Project Makes Major Livestock Breeding Progress

Just half way into its four-year programme and the most innovative pan-European animal genomics research project ever undertaken is making major strides in developing breeding strategies for more economically and environmentally sustainable livestock production systems.

The integrated Cutting Edge Genomics for Sustainable Animal Breeding (SABRE) project co-ordinated by the Scottish-based Genesis Faraday Partnership has brought together almost 200 scientists from 14 countries in 12 integrated work programmes supported by the EU Sixth Research Framework Programme.

These are designed to harness key areas of emerging genomic and epigenetic science to achieve practical progress in livestock breeding to improve animal health and welfare, reduce chemical and energy inputs, minimise livestock waste and pollution, and maximise food safety and quality throughout Europe.

With many of the larger studies well underway, substantial progress was reported in a number of important areas of cattle, pig and poultry breeding improvement at the recent SABRE Welfare and Quality Genomics conference in Foulum, Denmark that marked the project's half way stage.

These include:

- The successful development and testing of new breeding software combining traditional and marker-assisted genetic evaluation technologies;
- The almost complete sequencing of two priority pig chromosomes;
- The mapping of genes responsible for higher levels of boar taint;
- The quantification of the effectiveness of key genetic markers in conferring *E. coli* mastitis resistance in dairy cattle;
- The identification of genetic markers for improved eggshell quality to reduce risk from diseases like Salmonella; and,
- The understanding of key physiological processes underlying successful reproduction as the basis for identifying genes to improve fertility.

Commenting on the overall progress to date, Genesis Faraday Partnership chief executive, Chris Warkup said: "It's extremely encouraging to see so many valuable results already emerging from SABRE. Especially so as the sort of basic research involved invariably takes a considerable time to deliver its greatest benefits.

"The fact that we are seeing such solid gains this early in the process is a testament to the good science and hard work being undertaken by our project partners across Europe and beyond. It bodes extremely well for the full value SABRE will deliver throughout its project life and beyond.

"The results so far underline the vital contribution research into understanding the genetic basis of difficult-to-measure livestock traits can make in the development of practical tools to help breeders improve the economic and environmental sustainability of commercial animal production in the years to come."

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Notes for the Editors

SABRE (www.sabre-eu.eu):

The European Integrated Research Project "SABRE" (Cutting Edge Genomics for Sustainable Animal BREeding) is an innovative €23 million pan-European project utilising the latest techniques in genetic science to develop more economically and environmentally sustainable production systems for cattle, pigs and chickens. Made possible by a major grant from the EU Sixth Framework Programme (Food Quality and Safety), the project started in April 2006 and will take 200 scientists, working in 14 different countries, four years to complete.

Through the project scientists in 33 leading research and industrial organisations are aiming to produce animals which are healthier, less reliant on drug treatments, more resistant to diseases and disorders, and produce better quality food. They are also working to solve problems as diverse as fertility and reproduction and gut health and function.

SABRE is providing fundamental knowledge of the genomics and epigenetics of animal health, food safety and food quality traits of livestock species and developing strategies to use this knowledge in breeding. It is designed to consumers, animals, the environment and industry.

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