



## 🔍 CASE STUDY THE GLOBAL PARTNERSHIP TRANSFORMING AGRICULTURE

The Irish Cattle Breeding Federation (ICBF) exists to benefit farmers in the Irish dairy and beef industry. A non-profit organisation, it provides breeding information services and supports the application of science and technology to increase livestock value and profit. AbacusBio has been working with ICBF since its inception more than 20 years ago. AbacusBio is a multinational company based in Dunedin, New Zealand, and Edinburgh, UK, bridging science and business. Specialists in genetic improvement and breeding program design, and agricultural-technology development and evaluation, the organisation fronts key developments and strategies in the agribusiness space.

There is a strong relationship between AbacusBio and the Ireland-based organisation with consultants, staff, and Ph.D. students from both organisations working together to achieve strategic and technical developments. This synergistic flow between the two has enabled skills and learnings for all involved. The collaboration has produced multiple outputs and strengthened the agricultural industries on both sides of the globe.

The realm of work began in 2000, where AbacusBio supported ICBF in building the national breeding objectives for Beef Cattle in Ireland, enabling increases in the rate of genetic gain. With many years of projects in between, fast forward 15 years, the two organisations complemented the Irish national breeding objectives package by developing an index to rank dairy females on expected lifetime profit. Known as the Cow Own Worth (COW) index, it is utilised to distinguish and cull the least profitable females in the herd and help to inform purchase and pricing decisions for the trade of females.

More recent efforts have focused on the environment. Livestock production is a contributor to global greenhouse gas emissions. In 2017 AbacusBio and ICBF predicted the effects of beef selection indexes on GHG emissions, creating a selection index to decrease industry-wide methane emissions. In 2019 the partnership showcased a dairy beef breeding index to rank beef bulls for use on dairy females to maximize profits. The dairy beef index framework illustrates the balance between the efficiency of valuable meat growth in the calf and the calving performance of the dam.

Sheep Ireland joined the partnership in 2008. Sheep Ireland aims to increase the rate of genetic gain in the Irish Sheep industry using sustainable genetics. The organisation stemmed from a proposal from ICBF to construct a decision-making body/database, to specifically serve sheep breeders & the wider sheep industry.

AbacusBio consultants were commissioned by the interim sheep board to design the Sheep Ireland breeding program, and to support the operational establishment of Sheep Ireland and LambPlus (performance recording service). The success of ICBF for cattle breeding was successfully replicated for sheep breeding, streamlining the Irish sheep genetic improvement sector.

AbacusBio has continued to support ICBF and Sheep Ireland in a wide range of activities. These include dairy and beef breeding program simulations to optimize recording, genotyping, and selection strategies, the development of genetic evaluation modules for dairy cattle, and analyses of applied reproductive technologies for the purposes of multiplying superior genetics and accelerating genetic gain.

Exceptional industry knowledge has been paramount in defining the quality of the relationship. Consultants and staff have a broad understanding and knowledge of pasture-based sheep, dairy, and beef livestock farming systems. Additionally, consultant teams possess the experience to provide critical scientific input, governance, and advice to large-scale research programs. AbacusBio's proficiency with genetics has granted retrospective and prospective quantification of both economic and non-economic impacts of breeding programs in Ireland. These skills, combined with plentiful experience, are a strength that ICBF has leveraged over the years.

The strong alliance between AbacusBio and ICBF/Sheep Ireland has led to the development of key milestones in the agricultural and breeding industry and strengthened the position of farmers and breeders in Ireland and AbacusBio's business strength. As they say, better together.

Commenting on the relationship, Andrew Cromie, Technical Director of ICBF, noted that that "ICBF and the Irish cattle breeding industry have benefited greatly from the excellent work and support provided by AbacusBio over the last 20 years. Their expert technical skills and industry knowledge, coupled with a unique preparedness to "think outside the box" in applying science-based solutions to real-life practical problems has been a major component of ICBF's genetic improvement services since it was established in 2000. We look forward to continuing to work AbacusBio, as we look to provide new and improved genetic improvement services in the future".