



KEY CASE STUDY

UNIVERSITY OF EDINBURGH: SCIENCE & IMPACT

Based in Scotland, the University of Edinburgh is home to a range of research establishments, dedicated to strengthening agriculture across the globe. The Roslin Institute are world leaders in animal science research with advanced capabilities in both quantitative and biological genetics. Supporting Evidence Based Interventions (SEBI) is a veterinary science, data science and communications research centre. SEBI are dedicated to boosting the livelihoods of smallholder farmers through delivery and acceleration of production increasing, evidence based, technological, livestock interventions.

AbacusBio has been fortunate to collaborate with these two academies. Based in both Edinburgh UK, and Dunedin NZ, the multinational organization is equally committed and dedicated to securing a stable food supply and improving the livelihood of smallholder farmers. AbacusBio are specialists in genetic improvement and breeding program design, alongside economic modelling and wide scale stakeholder surveying. The company fronts key developments and strategies in the agribusiness space.

AbacusBio and the Roslin Institute have joined forces to undertake multiple projects focused on genetics, economic analysis, surveying and market research. The realm of genetic work includes the development of a prototype geneflow model of a pig population pyramid structure to model the economic impact, and loss of genetic trend caused by disease outbreak. Recent efforts have addressed simulating the effects of gene editing to eradicate Porcine Reproductive and Respiratory Syndrome (PRRS), a disease of domestic pigs with sero-prevalence upwards of 70%.

Economic modelling has enabled greater understanding of potential economic impact of genetic gain in crop or animal breeding over the next 10 years, as a result of potential Roslin activities. Roslin aims to increase capabilities across the plant and animal breeding disciplines to increase rates of genetic gain globally.

Market analyses and wide scale stakeholder surveys were also conducted by the two organisations. Development and delivery of an online survey aimed to understand consumer perceptions and attitudes towards gene-edited food (in particular meat products). Gene edited foods generate controversy, hence it is important for researchers and users to orientate perceptions of this technology in the human food chain. Recently, miRNA-based diagnostic platforms have been developed to identify diseases and pregnancy in livestock production animals. A market analysis was thus performed to identify the opportunity and need for such diagnostic tools in the livestock industry.

Alongside the Roslin Institute, SEBI and AbacusBio have united to revolutionise online livestock consumption and trade. The platform Livestock247 is an online platform bringing together buyers, sellers, farmers and ranchers, merchants and traders, veterinary professional, haulage & logistics companies, and financial service providers in Nigeria. In partnership with SEBI, AbacusBio are involved in the deployment of their cloud based software: Dtreo, for Livestock247. Dtreo captures individual animal performance data for beef cattle, which can be used to generate useful data on the Nigerian livestock industry.

Economic modelling has enabled the two organizations to assess the impact of interventions on smallholder farms in Ethiopia and Nigeria. This project aimed to provide a framework for estimating the impact of interventions, evaluating their effectiveness and determining the likelihood of their success. The strong alliance between AbacusBio and the University of Edinburgh organisations has led to the development of key milestones in the agricultural sector, strengthening the position of stakeholders and smallholder farmers worldwide.