INFORMATION TECHNOLOGY ONLINE
A COMMONWEALTH GOVERNMENT INITIATIVE

AUSTRALIA

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INFORMATION ECONOMY

Advancing with eBusiness

The Beef Industry Genetics Website

C A S E S T U D Y

Information Technology Online (ITOL)

The Beef Industry Genetics Website project received $35,000 under Round 4 of the ITOL program. The project sought to provide Internet delivery of modern breeding methods through the collaboration of a number of educational institutions and peak industry bodies representing beef producers. The success of the project clearly demonstrates the advantages of industry collaboration. In addition, it demonstrates how the development of a single project can act as a catalyst for other industry developments.

The project stimulated a number of significant related developments in the beef industry, including:

- **accelerated interest by Breed Societies in providing sale catalogue listing services to members through their own web sites;**
- **development of a web front-end for Breed Society databases, available online from a number of Breed Society sites; and**
- **development of software that calculates breed-specific BreedObject $Indexes for inclusion in Breed Society databases**

A project to add further key capacities to the website and to make similar facilities available to the lamb industry has been funded under Round 6 of the ITOL program.

Beef Industry Genetics Website

"The web delivery of selection indexes to the beef industry via BreedObject is a major advance for the Australian beef industry. After 25 years of world-leading R&D to produce advanced genetic evaluation systems, the delivery of $Index values finally allows beef cattle breeders throughout Australia to make effective use of this technology for genuine improvements in profitability. The web project has been instrumental in bringing the technology to industry. There is enormous potential to make available $Indexes that are customised to the needs of individual breeders."

Dr Peter Parnell, Director, NSW Agriculture Beef Industry Centre and formerly Breed Development Manager for the Angus Society of Australia

Introduction

Australia is recognised as a world leader in agricultural research and development, and has been a pioneer in the development of genetic evaluation technologies. The results from these technologies are now encapsulated for all Australian beef businesses through the Beef Industry Genetics Website project at **www.breedobject.com**.

The project was developed by a consortium of beef industry and research organisations to facilitate bull and semen sales, increase business profitability and make genetic evaluation technology readily accessible to breeders and other parties.

The site includes sale catalogue and other listings for the major beef cattle breeds. Since its launch, it has attracted up to 900 visits a month. There are now plans to extend the website facility for use in other livestock industries.

Objective

The Beef Industry Genetics Website project (www.breedobject.com) lists bulls and semen for sale, and uses BreedObject technology to describe and rank bulls for their profitability for different breeding and production purposes. It also provides Australian beef businesses with access to all industry genetic evaluation details available on bulls.

The consortium backing the project comprised project leader the Animal Genetics and Breeding Unit (a joint venture of NSW Agriculture and the University of New England), the Agricultural Business Research Institute, Meat and Livestock Australia, New South Wales Agriculture and the Performance Beef Breeders' Association.

Project

BreedObject is a unique technology that uses **estimated breeding values** (EBVs) on animals that are available through BREEDPLAN, Australia's genetic evaluation system for beef cattle.

These EBVs are combined in BreedObject into '$Indexes' that address genetic merit for profitability for defined breeding, production and market systems.

Exploiting modern genetic evaluation technologies and taking these to the industry at large was seen as having the potential to lift profitability in many beef businesses. Long-term project objectives were thus to increase beef profitability by facilitating better selection decisions, including bull purchases by both seedstock breeders and commercial beef producers.

www.breedobject.com

The genetic selection aid for breeders, buyers and sellers of beef seedstock

Features of the website at **www.breedobject.com** include:

- A facility for breeders to list sale bulls, or other sale seedstock that have BREEDPLAN EBVs. These can be listings for individual vendor stud sales, paddock sales or multi-vendor sales.
- A facility for those with semen rights to list semen bulls provided the bulls have BREEDPLAN EBVs.
- A capacity for users (buyers of bulls or semen) to compare sale animals on index merit across sale catalogues.
- Ready access to contact details, including email, for users to follow up animal sales.
- An independent capacity for sellers to update their listings at any time.
- Capacity for users (breeders, buyers or sellers) to choose one or more $Indexes from those available to address different kinds of commercial beef production in a range of breeds, and to rank animals on any $Index or EBV.
- Ready access to updates of EBVs on listed animals.
- A capacity to impose additional cut-offs on any EBV, and to see the consequences, for rankings, of excluding animals outside cut-offs.
- A facility to complete an online multiple-choice questionnaire to establish a customised selection index for users' own production purposes.
- Access to pedigree details on any animal included in catalogues.
- A capacity to access and rank published sires according to any available $Index or BREEDPLAN EBV.

As well as including the capacity to develop customised $Indexes for individual users, the website makes 28 different $Indexes available for commercial breeding, production and market system purposes of general relevance in a range of breeds.

From the $Indexes available, users can choose the situation closest to which their commercial progeny are expected to perform. These 'off-the-shelf' $Indexes were defined in close consultation with the beef industry. Seventeen of the $Indexes were developed for Breed Societies.

Interest in the website has been high since its launch. The site attracts visits at a rate of 900 per month, representing 30 visits per day or more than 10,000 per year. The 900 visits are typically from about 600 different users and there are approximately 200 subscribers to the site newsletter. Users are mostly Australian, but strong interest has also been received from groups in Canada, Europe, South America and the United States.

The site is active in nine breeds, with more than 50 catalogues listed and a significant number of repeat listers. The listings have drawn more than 2,000 visits, with as many as 162 visits to a single catalogue.

Initially, the process of developing and loading a customised $Index required some work offline and the manual intervention of a system operator. In the latest version (Version 4) of the website this process has been automated. Though this automated system has not yet been made available, there have been more than 30 requests from individual users to develop customised $Indexes. Industry feedback also suggests growing breeder enquiry for customisation.

Outcomes

The project was considered very successful. The immediate objectives were achieved with development of facilities in the website for:

- Bull and semen buyers to access sales and semen catalogues.
- Breeders and semen vendors to list their sale and semen catalogues.
- Access to published breed sire summaries.
- Development of customised $Indexes for individual users.

Site usage increased throughout the project, with strong interest from breeders wishing to list catalogues on the site.

Over the period of the project, BreedObject $Indexes have been increasingly accepted as measures of genetic merit in profitability. Changes in mean $Indexes over time (e.g. when calculated from historical records for animals born in different years) have also been used as measures of industry rate of genetic gain. BreedObject $Indexes that are available on the website are now routinely calculated for all recorded animals in seven breeds (Angus, Hereford, Limousin, Murray Grey, Poll Hereford, Shorthorn and Simmental).

In addition, the Beef Industry Genetics website project has acted as a catalyst for other significant industry developments. Since the site has been available, there has been rapid acceleration in the development and adoption of indexes at breed level in Australia, and in breed societies making available EBVs and indexes on sale bulls and other seedstock. To support this acceleration, other BreedObject software was made available for use in central bureau services offered through BREEDPLAN.

These important developments are expected to lead to increases in the rate of industry profitability.

"Our motivations for the project were threefold: to increase industry access to our BreedObject $Index technology; to provide a sale catalogue listing capability that would enable buyers to compare animals across catalogues using $Indexes; and to lift commercial industry awareness and use of BREEDPLAN EBVs and $Indexes," says Hans Graser, Director, Animal Genetics and Breeding Unit, based at the University of New England at Armidale, New South Wales.

He adds: "The project has been a catalyst for significant change in the beef industry, encouraging adoption of $Indexes and also the development by others of further Internet applications. The website will be an important part of overall services to the beef industry in the future and has excellent potential to be extended to other livestock industries."

Future

The success of the project and speed of the related developments in industry suggest opportunities exist to add other key capacities to the website. These include graphics that would help breeders benchmark rates of genetic gain in their herds against industry standards and compare rankings for different purposes.

Opportunities also exist to interface the system with other technologies, encourage exports by expanding services for overseas users, and to develop similar services for other meat industries. The developers of BreedObject also believe it has the potential to be employed internationally.

Additional comments

"Demand by livestock producers for web-based information to help them with their decision making is growing exponentially. For example, the enquiries on ABRI's livestock information database which includes BreedObject indices has increased from 10,000 per month to 500,000 per month in under two years. The economic payoff from having web-based tools to assist farm decision-making on livestock improvement is very high. The BreedObject web project is a most workable project that is in line with modern delivery of decision making tools."
P.A. Rickards OAM, Managing Director, Agricultural Business Research Institute

"The BreedObject website is a great step forward to making this world-class technology available to Australian cattle breeders."
Alex McDonald, Performance Beef Breeders Association

"The BreedObject web project is a most promising development."
MLA Review of Genetic Improvement Programs ('Sillar Report')

"There is great potential for similar applications in the lamb industry."
Dr Robert Banks, Genetics Coordinator (Beef & Sheep), Meat and Livestock Australia

Need Further Information?

More information about the ITOL program is available at:

Website: http://www.noie.gov.au/itol

Email: itol@noie.gov.au

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