BREEDPLAN

A Modern Genetic Evaluation System for Beef Cattle

BREEDPLAN offers all beef cattle breeders the potential to accelerate genetic progress in their herds and to provide objective information on stock they sell. Developed in Australia, BREEDPLAN is now used in many of the world's prominent beef producing countries.

BREEDPLAN is the national beef recording system in Australia, New Zealand, Namibia, Thailand and the Philippines. Its use is increasing in the United States, Canada, United Kingdom, South Africa, Hungary and South America.

BREEDPLAN uses an advanced, modern genetic evaluation system (based on Best Linear Unbiased Prediction (BLUP) technology incorporating multi-trait analysis procedures) to produce estimates of breeding values (EBVs or EPDs) for recorded cattle across a range of important production traits. BREEDPLAN technology can be used at a number of levels, such as within-herd analyses for individual breeders, across-herd analyses for members of a breed association (or breeding group) or international genetic evaluation where breed associations from a number of countries pool their data for analysis.

The rationale for this is simple - the larger the population of cattle being evaluated the higher the chance of finding elite genetic material which can then be rapidly disseminated using modern artificial breeding techniques.

A Wide Range of Traits:

BREEDPLAN calculates the estimation of an animal's genetic worth for a wide range of production traits. The results are reported as EBVs, as an estimate of the animal's true breeding value. BREEDPLAN can also report estimates of animals' true breeding values as Estimated Progeny Differences (EPDs) to conform to reporting conventions in some countries. EBVs for economically important traits currently being produced include:

- **Weight:**
  - Birth Weight
  - Milk
  - 200 Day Growth
  - 400 & 600 Day Weight
  - Mature Cow Weight
- **Carcase:**
  - Carcase Weight
  - Eye Muscle Area
  - Fat Depth
  - Retail Beef Yield
  - Intramuscular Fat
  - Shear Force
- **Fertility:**
  - Scrotal Size
  - Days to Calving
- **Birth:**
  - Gestation Length
  - Calving Ease
- **Other:**
  - Docility
  - Net Feed Intake
  - Structural Soundness
  - Flight Time

Included in the calculation of EBVs for each animal is the animals own pedigree and performance information, the performance of all known relatives, the performance of any progeny that the animal may have, the known relationship between traits, and any genomic information that may be available regarding the animal.

EBVs are expressed in the actual units of measurement, for example rib fat is stated in millimetres of fat, and reported as being positive or negative relative to a historic benchmark group of animals for each trait.

What Research and Development is Behind BREEDPLAN?

The BREEDPLAN software and its companion products have been developed by the Animal Genetics & Breeding Unit (AGBU), which is a joint venture of the University of New England and NSW Department of Primary Industries, with support from Meat & Livestock Australia (MLA).

Continuous research by AGBU keeps the BREEDPLAN technology at the leading edge internationally, with funding provided by wide variety of organisations such as the Beef CRC, the Australian Government and MLA.

The BREEDPLAN technology and companion products are licenced for international commercialisation to the Agricultural Business Research Institute (ABRI).

Getting More Out of BREEDPLAN

BREEDPLAN has a range of companion products, designed to help beef breeders assess and manage genetic progress within their herds. These products include:

- **Internet Solutions:**
  Linked to the BREEDPLAN website, this online database allows members to search for a range of animal and EBV details, research pedigrees, view online sale and semen catalogues, search member details, download files, predict mating and inbreeding outcomes, and make online submissions of pedigree and performance information.

- **BreedObject:**
  Calculates selection indexes which enable animals to be ranked on their overall genetic value for a particular breeding purpose. This overall objective is distilled into a series of weightings placed on individual EBVs relative to the contribution that each trait makes to the profitability of commercial enterprises targeting that particular production system and market endpoint.

- **GeneProb:**
  A tool for managing genetic conditions which predicts the probability of untested animals being carriers for undesirable recessive conditions.

- **MateSel:**
  Evaluates a list of available sires and dams and predicts which matings would result in the greatest genetic gain subject to certain constraints such as minimising inbreeding.

- **TakeStock:**
  Allows breeders to assess and improve their rates of genetic progress by benchmarking herd progress and identifying Key Performance Indicators (KPIs).

- **Completeness of Performance:**
  Used to encourage complete performance recording, this tool summarises the quantity of information that each herd has recorded with BREEDPLAN through annual distribution of reports and the calculation of an overall star rating for each herd.

For more information please contact:

BREEDPLAN
C/- ABRI
University of New England
Armidale NSW 2351
Australia

Ph: +61 (2) 6773 3555
Fax: +61 (2) 6772 5376
Email: breedplan@abri.une.edu.au
Web: http://breedplan.une.edu.au