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.

Provided by the Agricultural Business Research Institute (ABRI) to both Australian and international clients, BREEDPLAN represents the most widely used genetic evaluation service for beef cattle internationally. Over 60 different BREEDPLAN evaluations have been developed, representing over 14 million animals, almost 40 beef cattle breeds and at least 100 breed associations distributed across 14 countries.

BREEDPLAN uses an advanced modern genetic evaluation system (based on Best Linear Unbiased Prediction (BLUP) technology incorporating multi-trait analysis procedures) to produce Estimated Breeding Values (EBVs) for recorded cattle across a range of important production traits. While BREEDPLAN technology can be used at a number of levels, those wishing to join a BREEDPLAN analysis typically do so via a breed society/association (or breeding group). Within a breed society analysis, members are able to compare BREEDPLAN EBVs between herds. International genetic evaluations are also common, where breed societies from a number of countries pool their data for analysis (e.g. TransTasman BREEDPLAN analyses). There are also options available outside of the breed society structure (e.g. for commercial breeders or composite and crossbred herds).

BREEDPLAN calculates EBVs for a wide range of production traits. These EBVs provide an estimate of the animal’s genetic worth and thus provide a useful tool for beef producers wishing to improve the genetics in their herd. BREEDPLAN can also report Estimated Progeny Differences (EPDs) to conform to reporting conventions in other countries.

The diagram below lists the BREEDPLAN EBVs that are currently being produced. Note: not all analyses offer all traits.
Included in the calculation of EBVs for each animal is the animal’s own pedigree and performance information, the performance of all known relatives, including any progeny that the animal may have, the known relationship between traits, and any genomic (DNA) information that may be available. Since 2017, a number of BREEDPLAN analyses have moved to incorporate genomic information in the form of Single-Step BREEDPLAN.

EBVs are expressed in the actual units of measurement. For example, 200 Day Growth EBVs are reported in kilograms, while Rib Fat EBVs are reported in millimetres of fat. EBVs are reported as being positive or negative, relative to a historic benchmark for each trait. More importantly, breed average EBVs and percentile bands allow beef producers to rank animals relative to the current level of genetics within the population being analysed.

**What Research and Development is Behind BREEDPLAN?**

The BREEDPLAN software has been developed by the Animal Genetics & Breeding Unit (AGBU), a joint venture of the University of New England (UNE) and the New South Wales Department of Primary Industries, with support from Meat & Livestock Australia. For over 40 years, AGBU has undertaken the underpinning Research and Development to develop the BREEDPLAN analysis and associated genetic technologies. This continuous research keeps the BREEDPLAN technology at the cutting edge of genetic evaluation services around the world. The BREEDPLAN technology is licensed for international commercialisation to ABRI.

**Additional ABRI Services**

In addition to the BREEDPLAN software, there are a range of associated genetic products which ABRI offers commercially. These products are designed to help beef breeders assess and manage genetic progress within their herds, and include:

- **Web Services**
  The Web Services are online databases, where beef producers can 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 Selection Indexes**
  BreedObject software, developed by AGBU, is used in the calculation of selection indexes. BreedObject Selection Indexes are calculated by combining BREEDPLAN EBVs with economic weightings (based on costs of production and returns on outputs), and allow beef producers to make balanced selection decisions by ranking animals on their overall genetic value for a particular production system.

- **MateSel**
  MateSel is a mate allocation product developed by Professor Brian Kinghorn at UNE, which calculates a suggested mating list based on a list of candidate sires and dams. This allows beef breeders to objectively optimise breeding outcomes to reflect their breeding goals and make long term, sustainable genetic gains. Other considerations, such as minimising inbreeding, are also applied.

- **GeneProb**
  GeneProb software, developed by Professor Brian Kinghorn and Dr Richard Kerr at UNE, calculates the probability of specific genes being present in a wider, related population than just those animals with DNA test results available. This allows beef breeders to manage recessive genetic conditions within their herds.

- **Completeness of Performance**
  The Completeness of Performance product summarises the quantity of pedigree and performance information that an individual herd has recorded with BREEDPLAN. Complete performance recording is encouraged through the distribution of reports and the calculation of an overall star rating for each herd.

**For more information please contact:**

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