



A BASIC GUIDE TO

GETTING STARTED WITH BREEDPLAN



BREEDPLAN

A Guide to Getting Started

What is BREEDPLAN?

BREEDPLAN is a genetic evaluation program for beef cattle, currently implemented in more than 14 countries worldwide. BREEDPLAN uses the world's most advanced genetic evaluation system (based on Best Linear Unbiased Prediction (BLUP) technology) to produce Estimated Breeding Values (EBVs) of recorded cattle for a range of important production traits (e.g. weight, carcass, fertility).

What is an EBV?

An animal's breeding value can be defined as its genetic merit for each trait. While it is not possible to determine an animal's true breeding value, it is possible to estimate it. These estimates of an animal's true breeding value are called EBVs (Estimated Breeding Values).

EBVs are expressed as the difference between an individual animal's genetics and the genetic base to which it is being compared. The genetic base can broadly be explained as an historic group of animals. In general, each breed is running its own breed specific BREEDPLAN analysis, which means you can only compare EBVs within breed. EBVs are reported in the units in which the measurements are taken (e.g. kilograms for the weight EBVs). Thus a value of +12kg for 400 day weight means the animal is genetically superior by 12kg at 400 days of age compared with the genetic base of the relevant cattle population. On average, half of this difference is passed on to the animal's progeny.

Prerequisites for Joining BREEDPLAN

In order to performance record your animals with BREEDPLAN, there are generally three requirements:

1. You must be a member of your Breed Society
2. Your Breed Society must be running an BREEDPLAN analysis
3. The calves which you wish to submit performance information/receive EBVs for, must be registered with your Breed Society

Note: BREEDPLAN does offer within-herd genetic evaluation services to producers who do not record with a Breed Society. For details, please contact staff at BREEDPLAN.

How do I join BREEDPLAN?

The first step to joining BREEDPLAN is to fill out and return a BREEDPLAN enrolment form. BREEDPLAN enrolment forms can be obtained by contacting staff at BREEDPLAN or your Breed Society, who will send you a BREEDPLAN enquiry kit. Alternatively you can download a BREEDPLAN enrolment form from the relevant Breed Specific Area within the Technical area of the BREEDPLAN website (<http://breedplan.une.edu.au>).

Once you have completed your enrolment form, simply return the form to the address listed on the enrolment form. This will be either the BREEDPLAN office or your relevant Breed Society office. Some Breed Societies require upfront payment of a



BREEDPLAN Membership fee. A table of fees can be found for each breed in the Breed Specific Documents area within the Technical page of the BREEDPLAN website. You can also contact the BREEDPLAN office or your Breed Society office to discuss what costs may be involved in joining BREEDPLAN.

Once your enrolment form has been received and processed by the BREEDPLAN office, the staff will forward you an enrolment kit in the mail which includes everything you'll need to get you started on performance recording with BREEDPLAN.

What Can You Expect From Your BREEDPLAN Membership?

The benefits your herd will obtain from performance recording and being included in the BREEDPLAN analysis are:

- Receive a BREEDPLAN report for your herd which includes Estimated Breeding Values (EBVs) for your sires, dams, heifer progeny, bull progeny and steer progeny. If recording via a Breed Society that conducts a GROUP BREEDPLAN genetic evaluation, the report also contains genetic trends for your herd benchmarked against the breed average.
- Effective identification of animals with the best genetic package for you and your bull buying clients. It enables you to identify and select against the normal trait antagonisms. For example increase growth and muscling, while maintaining or increasing fat cover.
- Monitor the genetic progress of your herd across a range of economically important traits. This allows you to identify how your selections are impacting on your herd's genetic progress for a range of traits.
- Access to other genetic tools that assist selection and genetic progress such as Mating Predictor, TakeStock and Internet Solutions EBV related functions (e.g EBV enquiry or sale catalogues with EBVs displayed).

What costs are involved in BREEDPLAN?

The cost of recording with BREEDPLAN differs from breed to breed. A table of fees can be found for each breed in the Breed Specific Documents area within the Technical page of the BREEDPLAN website. You can also contact the BREEDPLAN office or your Breed Society office to discuss what costs may be involved in joining and performance recording with BREEDPLAN.

Breeders should also take into account the cost of collecting the performance information for their animals. For example the labour and equipment required to take weights, employing an accredited ultrasound scan technician to take ultrasound carcass scan measurements etc.

How to Start Performance Recording with BREEDPLAN

Once you have become enrolled in BREEDPLAN, the next step you will need to take is to ensure that all of your calves are registered or recorded with your relevant Breed Society.

The BREEDPLAN genetic evaluation utilises both pedigree and performance information to calculate EBVs, and in order to access the necessary pedigree information, uses the same database as the Breed Society running the genetic evaluation. This means that individual animals are only eligible to be included in the BREEDPLAN



genetic analysis if they are first recorded on the Breed Society database. It is therefore necessary that all animals which you wish to performance record with BREEDPLAN (and receive BREEDPLAN EBVs for) be recorded with your Breed Society.

If you have been a member of your Breed Society for some time, and recording your animals, all you need to do is ensure that all of your calf registrations are up to date and continue to record all your calves with your Breed Society as you have done in the past. If you are a new member to your Breed Society you will need to record all of your sires, dams and calves. Also ensure that any animals you have purchased from other registered studs are transferred into your membership, as you are only able to submit performance for animals which are recorded with your Breed Society as being in your ownership at the time the performance was taken. If you do not register or record a calf with your Breed Society, BREEDPLAN will not be able to add any performance data for that calf to the database. Therefore, it is very important that this step is done and that it is done correctly. Once all of your calves have been recorded with your Breed Society you can start submitting performance data to BREEDPLAN.

Note: BREEDPLAN does offer within-herd genetic evaluation services to producers who do not record with a Breed Society. For details, please contact staff at BREEDPLAN.

What BREEDPLAN EBVs are Available?

BREEDPLAN currently produces EBVs for a range of economically important traits. These traits currently include:

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

Not all EBVs are calculated within the BREEDPLAN analysis for each breed. EBVs for a particular trait will only be available if sufficient data has been recorded within the breed for that trait. To find out more about individual traits, visit the Tip Sheets page within the Technical section of the BREEDPLAN website (<http://breedplan.unc.edu.au>) or contact staff at BREEDPLAN.

What performance information do I need to record on my animals?

As a BREEDPLAN member, what performance information you record is entirely up to you. There is no minimum or maximum requirement on how much performance data you can record. However, in order to be eligible to receive EBVs, an individual animal must have either its own performance, or the performance of its progeny, recorded with BREEDPLAN.

It is recommended that you record performance information for the traits that are of relevance or importance to your breeding program and your client’s needs, and consequently for which you would like EBVs calculated.



The following table details the performance information that currently contributes to the calculation of BREEDPLAN EBVs and outlines the stage of production cycle that each set of information should be recorded.

Joining	Birth	Weaning	Yearling	18 Months	Maturity
Mating Program Details	Date of Birth	200 Day Weight	400 Day Weight	600 Day Weight	Cow Disposal Code
AI Dates	Birth Weight	Mature Cow Weight (dams)	Scrotal Circumference		Mature Cow Weight
Preg Test Results	Calving Difficulty Scores	Docility Score	← Scanning Measures → (EMA, Fats, Structural Score →		
	Recipient Dam Details	Flight Time	← Structural Score →		

More information regarding how to record performance information for each individual trait is available from the Tip Sheets page within the Technical section of the BREEDPLAN website (<http://breedplan.une.edu.au>) or by contacting staff at BREEDPLAN.

What Equipment is Needed?

The equipment required depends on which performance traits you wish to record. Some traits such as Calving Ease, Gestation Length and Days to Calving do not require any equipment but instead are based on information such as subjective scores or joining dates submitted to BREEDPLAN. However most traits require at a minimum cattle yards and a cattle crush.

	Traits	Equipment Required
Weights	Birth Weight Milk 200, 400 & 600 Day Weight Mature Cow Weight	Appropriate and accurate scales to record weights to the nearest kilogram. Note: While not essential, specialised birth weight scales are available which can be mounted to quad bikes or vehicles for ease of management
Fertility	Scrotal Size	Measuring tape (cm) and cattle crush. It is recommended that breeders use a Barth tape for accurate measurement of the scrotal circumference to the nearest cm. Barth tapes are available from the Australian Cattle Vets.
Carcase	Eye Muscle Area Fat Depth Retail Beef Yield Intramuscular Fat	Ultrasound carcass scanning must be undertaken by a BREEDPLAN accredited technician. A list of accredited technicians is available on the BREEDPLAN website.
Other	Docility	Yards or crush for objective scoring of temperament
	Structural Soundness	Objectively scored by a BREEDPLAN accredited structural scorer. A list of accredited scorers is available on the BREEDPLAN website.
	Flight Time	Specialised flight time equipment and cattle crush. Contact BREEDPLAN for details on availability of flight time equipment.

How do I submit my performance data to BREEDPLAN?

Once you have collected your animals' performance data, and the animals are recorded with your Breed Society, you can submit this data to BREEDPLAN. As mentioned earlier, BREEDPLAN shares the same database as each Breed Society, therefore it is paramount that an animal's performance data be submitted with its full and correct Breed Society identification, so the performance is attributed to the correct animal.

There are a number of options for submitting performance data to BREEDPLAN:

1. Paper Forms – these forms are mailed to you by staff at BREEDPLAN. Completed forms are then returned to BREEDPLAN by post.
2. Excel Spreadsheet – A formatted Excel spreadsheet is available from staff at BREEDPLAN or from the BREEDPLAN website (<http://breedplan.unc.edu.au>). To submit your performance, fill out the spreadsheet and simply send it as an email attachment to the BREEDPLAN office.
3. Compatible Herd Recording Program (e.g. HerdMaster, StockBook, CattleLink) – contact your Herd Recording Program support team for instructions on how to extract performance data for BREEDPLAN. Once extracted, this information can then be emailed to BREEDPLAN as an email attachment.
4. Internet Solutions Online Submission Facility – Some Breed Societies offer their members an online registration and performance submission service through their website's member login area. Members can choose to create a "Submission Batch" of performance data, which is then sent directly to BREEDPLAN for processing. For more information about using the Online Submission Facility contact BREEDPLAN or read the "A Guide to Internet Solutions" Booklet, available in the Technical section of the BREEDPLAN website (<http://breedplan.unc.edu.au>).

How will I receive my BREEDPLAN results?

Once your performance data has been loaded onto the BREEDPLAN database, EBVs for your animals will be provided to you in a number of formats.

1. Paper Herd Report which is posted to you
2. PDF Herd Report which will either be emailed to you as an attachment or available from your member download area on your Breed Society website
3. As files for downloading into Compatible Herd Recording Programs (e.g. HerdMaster, StockBook, CattleLink), available from your member download area on your Breed Society website
4. The EBVs are also available on the online EBV Enquiry facility within Internet Solutions that is offered by most Breed Societies

When Will I Receive Results from BREEDPLAN?

Most Breed Societies conduct a GROUP BREEDPLAN analysis once per month. The GROUP BREEDPLAN analysis makes use of all available pedigree and performance information on a Breed Societies database to derive EBVs for individual animals. It is an across-herd analysis in which all calves and their parents have their EBVs calculated.

Some Breed Societies do not conduct a GROUP BREEDPLAN analysis monthly, but rather conduct only one or two GROUP BREEDPLAN analyses per year. Members of



these Breed Societies can request an INTERIM BREEDPLAN analysis each time they submit additional calf performance records. This analysis includes all animals bred or currently owned by the relevant herd, and only updates the EBVs of animals born within the herd in the last 3 calving years. All other animals in that herd are held constant at their GROUP BREEDPLAN EBVs. INTERIM analyses are not available to those Breed Societies which are running monthly GROUP BREEDPLAN analyses.

Contact BREEDPLAN to find out how often your Breed Society runs GROUP BREEDPLAN analyses and for performance data submission cut-off dates for inclusion in the relevant GROUP analysis.

For members of Breed Societies who do not conduct a GROUP BREEDPLAN analysis, a Within-Herd BREEDPLAN analysis will be conducted each time that the member submits performance submission to BREEDPLAN.

What is the Minimum Recommended Herd Size?

There is no minimum herd size requirement for herds to join BREEDPLAN. There are however some management considerations all herds, regardless of size, need to make when recording performance to ensure their data is as effective as possible in the BREEDPLAN analysis. A tip sheet containing further information, titled “Small Herds – Obtaining Effective Results from BREEDPLAN” is available from the Technical area of the BREEDPLAN website (<http://breedplan.une.edu.au>).

Making Performance Data More Effective

Although the BREEDPLAN analysis is a very complex analytical model, the basic mechanism by which it works is to directly compare the performance of an animal with the performance of other “similar” animals within the same contemporary group. Put simply a contemporary group can be described as animals of the same sex, of the same birth type, from the same herd, of a similar age, run under the same conditions i.e. animals that have had the same opportunity to perform. BREEDPLAN then uses genetic linkage to compare the animals in different contemporary groups both within the individual herd and across the breed. It is therefore important that breeders manage their herds to maximise contemporary group size and create genetic linkage both within the herd and with other herds in the breed.

Creating Effective Contemporary Groups

There are a number of ways breeders can manage their herd to create effective contemporary groups.

1. Restricted calving periods – as calves are only included in the same contemporary group if they are born within 45 or 60 days of one another, the effectiveness of a herd’s performance data will be increased if the herd has a restricted calving period. A calving period of 6 to 8 weeks is ideal.
2. Run all calves under the same management conditions – where possible all calves should be run under the same management conditions. Where calves are to be split into different groups e.g. male calves into steers and bulls, weigh the whole group before it is split.

3. Weigh all animals on the same day – as BREEDPLAN only directly compares the performance of animals that has been recorded on the same day, it is important to weigh all animals within a contemporary group on the same day e.g. weighing all heifers on the same day.
4. Breeder Defined Management Groups – Animals should be assigned into different management groups in any situation when either individually or as a group, they have not had equal opportunity to perform. Submit management groups for non-genetic factors such as sickness, different management conditions (e.g. show vs. paddock animals), yearling bulls used as sires, paddocks with different feed nutritional value, etc. There is no need to create different management groups for different sexes, birth types or age groups as the BREEDPLAN analysis does this automatically.

Creating Genetic Linkage

1. Use more than one sire – BREEDPLAN requires that at least 2 sires be represented in each contemporary group if the performance of the progeny is going to contribute to the calculation of the EBVs of their sire. Where AI programs are used they should be timed so that AI sired calves are born at the same time as calves sired by natural joinings.
2. Use a range of sires – common sires link contemporary groups within a herd, across herds and across years. In order to create genetic linkage across herds, it is recommended that where possible sires bred or used by other herds who are performance recording with BREEDPLAN, be used alongside home bred sires.

Who can I contact for assistance?

There is a team of BREEDPLAN staff responsible for providing support to members of each breed society/association. For assistance, please contact the BREEDPLAN office.

The contact details for the BREEDPLAN office are:

BREEDPLAN
C/- ABRI
University of New England
ARMIDALE NSW 2351

Ph: (02) 6773 3555

Fax: (02) 6772 5376

Email: breedplan@abri.une.edu.au

Additional assistance is also provided through Southern Beef Technology Services (SBTS) and Tropical Beef Technology Services (TBTS). Visit <http://sbts.une.edu.au> or <http://tbts.une.edu.au> for further details.