THE IMPORTANCE OF PERFORMANCE RECORDING

Genetic improvement should be the key objective for a stud breeder. It occurs when the sire team you select are of higher merit than the cows in your herd and ultimately breed calves that are superior to their parents.

In order to select sires of higher merit (and create genetic improvement in a herd) we must record our animals. It is the difference between animals (known as variation) that is the important stuff we work with.

We can only select the better animals for parents if we are objective in our measurement and sniff out the variation between them.

The eye is important. But unfortunately, many of the economically important traits in a beef herd must be measured objectively - because in using the eye we can only guess their value. For example, it's hard to tell if a bull will have fertile daughters by just looking at him, just as it's hard to tell if his calves will have good marbling by just looking at him also.

This can be overcome by recording these traits.

Imagine; you go along to a multi-vendor sale and raw data is presented for all of the different bulls for sale.

The bulls have come from all sorts of different farms and feeding, there is as much as 3 months' age difference between them, some are out of heifers, some have been drenched and others have not. You are meant to try and work out which is going to breed the best calves using the weights of the bulls in front of you as reference.

Sounds difficult? Well it is and nearly impossible on the back of a cigarette box on sale day. These things are all non-genetic factors. They are responsible for much of the differences between the bulls at this sale and are the same things we must account for when collecting data for genetic evaluation.

If you don't performance record and account for all of the factors that influence the way an animal performs then it's going to be impossible to work out what the animal will pass on to its calves.

Q: If you don't measure, how do you know where you're at, or where you're going?

A: You don't

Well that's *almost* true with breeding. In fact, you don't actually HAVE to record a trait in order to receive an EBV.

If you used to record the trait, or you are recording other traits that are correlated, then BREEDPLAN will reward you with the breeding value anyway. But, that doesn't make it particularly reliable.

Some would say Rubbish in = Rubbish out.

For example: If you record 200 Day Weight then you will automatically get a Birth Weight, 400 Day, 600 Day and Mature Cow weight EBV.

From a science standpoint we can estimate what the given animal is going to pass on to its calves from correlations - but can you do so reliably in your breeding programme?

What is accuracy?

Accuracy shows how close an animal's EBV is to its 'true breeding value'. We never get a trait to full accuracy as we can never be sure (with absolute certainty) that an EBV will pass on all of its benefit every time. Accuracy ISN'T whether an EBV is toss-of-a-coin correct or not. It is a reflection of how much information is behind the EBV. Most breed societies observe the minimum 20% accuracy threshold to report an EBV.

If you have seen the EBV bar graph tool on internet solutions you may have also noticed another graph. This is called the standard error graph. It visually depicts the range we can expect an EBV to fluctuate at a given accuracy.

As a breeding value lifts in accuracy the range narrows. This is a reflection of how much information is contributing to that EBV. Traits that are well recorded and of higher heritability have smaller ranges- like growth traits.

What is completeness of recording?

On internet solutions under 'Download files' you have a report for your herd called *Completeness of Recording*.

This provides you a score and Star Rating of how complete the collection of your pedigree and performance information is to date.

Gold 5-star herds are the industry benchmark

Tips for a better recorded programme

For information on how to record a given trait; hop on to the BREEDPLAN website and check out 'Tip sheets for Performance Recording'

1.   Base your recording around your management

Get the cattle in once and do as much as you can at that time. We are lucky in New Zealand to have a single carcase Ultrasound Scanner and one that will help you collect Scrotal Circumference and 400 Day Weight at the same time- and even send in to BREEDPLAN for you. It doesn't get any easier than that.

Management	Traits to record	EBVs generated	To note
Calving	Weigh calf + DOB, Score calving difficulty, collect Tissue sample for DNA parentage and tag	Birth Weight, Calving Ease Direct/ Daughters, correlated growth traits (200D, 400D, 600D, MCW, CW)	
Calf registration	Bull in + Bull out date/mating type, cow fate	Gestation Length (if you AI), Days to Calving (if you don't AI)	
Weaning	Weigh calf, weigh ALL cows and if you're keen: Body Condition Score ALL cows, Docility score ALL calves	200 Day Weight, Milk (and correlated growth traits), Mature Cow Weight, Docility (not available for all breeds)	
Summer	Carcase Ultrasound Scan for: Eye Muscle Area, Rib Fat, P8 Fat, Intra Muscular Fat. Weigh (bulls and heifers), Scrotal Circumference	Eye Muscle Area, Rib Fat, Rump Fat, Intra Muscular Fat, Retail Beef Yield, Scrotal Size, 400 Day Weight (and correlated growth traits)	Austins Ultrasound will collect for you and send in to BREEDPLAN - you just have to get the cattle in once and get 6 traits back! Do both sexes
Autumn	Weigh 18 month cattle (heifers and bulls)	600 Day Weight (and correlated growth traits)	

2. Run big mobs and group them well

Record all cattle of a group (and both sexes) rather than some of them. In thinking statistics- the more animals we can compare for a trait the better. In the same vein, if some animals were treated differently i.e. fed better or have been removed from the main mob due to illness- then you need to let PBBNZ know this. If we lump all animals that have been treated differently in together- without letting the evaluation know, then we will be giving bias to some. This is known as management grouping and is essential for genetic evaluation (to account for the non-genetic factors).

3. Use your EID tags

Electronic data capture is seamless and reduces error. Tru-Test and Gallagher have slick gear that makes the process simple (once you've got your head around it). Just because its digital doesn't mean its automatically going to be hard, don't get left behind with this kit it has real benefits and there's good customer support on the end of the phone. In the words of the wise Mark J Young *'Don't let the opportunity in technology become a challenge'.*

4. Get a herd recording software

This will help when you improve your data capture to utilize your EID tags. You can make smooth selection decisions by pulling off all the information you have on a given animal from the same place.

5. Use DNA parentage

It's amazing how often cows swap calves or we make errors in recording sire at mating. DNA parentage is ideal for multi-sire mating and gives a mostly error free guarantee of who the sire is. It also makes EBVs stronger and more valuable. If we have the wrong sire assigned to a calf, then we will give it the wrong EBVs.

6. Use Genomics

For a price, you can 'record without recording'- 16 BREEDPLAN traits using a simple DNA test by inspecting the animal's genes.

Genomics relies on good phenotypes (on farm data collection) and good genotypes on the same animals to assist its effectiveness. Without good performance records you don't have genomics. DNA parentage goes hand in hand with Genomics in strengthening EBVs and their quality.

Currently this is only available for Angus breeders, but if other breeds are keen to genotype their animals, then later in 2017 (with an improvement to the BREEDPLAN evaluation in incorporating genomic information) you will be able to use genomics to assist in predicting performance of young animals from a simple DNA test. Genomics will enhance accuracy of your EBVs and improve your rate of genetic gain.