A guide to Beef + Lamb New Zealand's Beef Selection Indexes

NZ$M
B+LNZ | $MATERNAL

NZ$T
B+LNZ | $TERMINAL

NZ$BxD
B+LNZ | $BEEFxDAIRY

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Introduction

Choosing the right bull can be tricky. At a bull sale, you are often presented with a detailed set of Estimated Breeding Values (EBVs) for a line of bulls.

Beef + Lamb New Zealand's (B+LNZ) Selection Indexes simplify this by identifying 'overall profitability' and weighing up the balance of genetic merit across all traits relevant to a particular production system.

It's a single figure and presented as a dollar value ($ per cow mated), so it takes the confusion out of using lots of EBVs with a range of different units.

B+LNZ's Indexes enable farmers to make "balanced" selection decisions; taking into account the relevant growth, carcase and fertility attributes of each animal to identify the animal that is most profitable for a specific system and market. They reflect both the short-term profit generated by a sire through the sale of his progeny, and the longer-term profit generated by his daughters in a self-replacing cow herd.

The three NZ$ Beef Selection Indexes

B+LNZ worked with global experts AbacusBio to develop three beef selection indexes designed for New Zealand farming systems. These indexes can be viewed at **nprove.nz**.

Each index is based on a common set of economic assumptions which represent NZ farm systems and prices. The indexes have been tailored to each respective breed based on differences in recording and evaluations. It is important to note that while the economic assumptions are consistent across breeds, the EBVs used in each index are breed-specific, the indexes are not directly comparable across breeds.

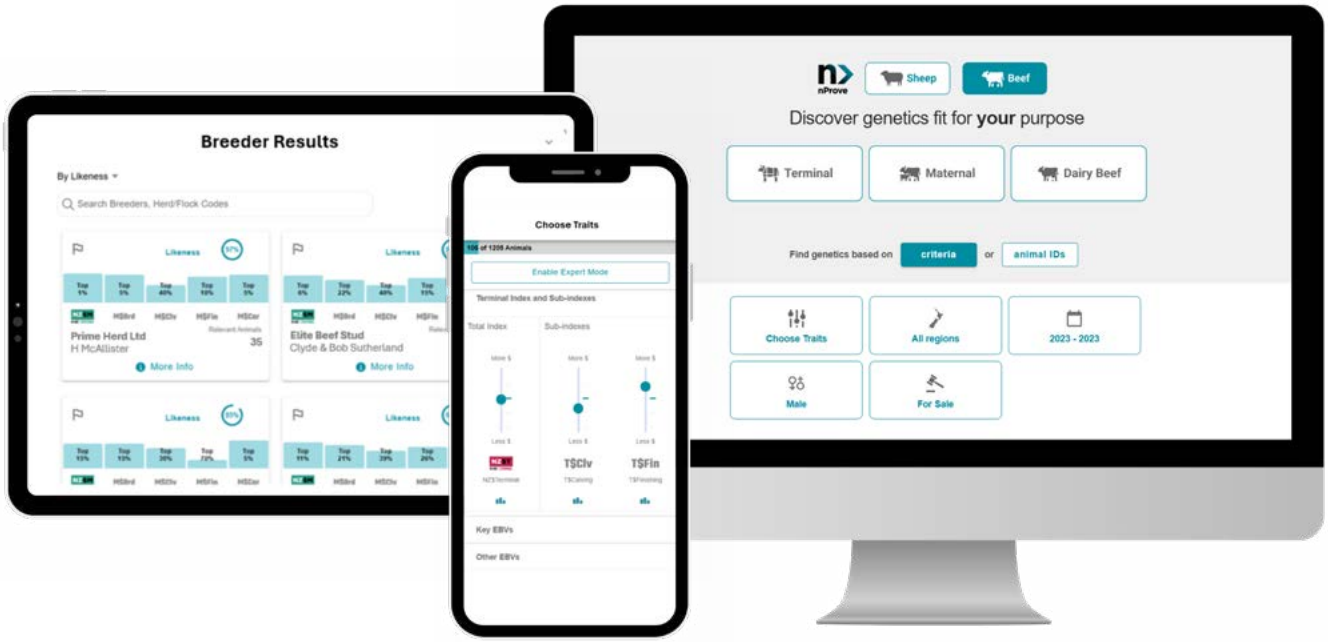
Sub-indexes

Each of the indexes are made up of sub-indexes, also known as trait groupings, to facilitate the bull selection process for commercial farmers.

For example, NZ$Terminal index includes **T$Calving Ease, T$Finishing** and **T$Carcase** sub-indexes.

Remember: ***"Indexes put an economic value on the traits described by EBVs and are specific for different farming systems"***.

Each system (maternal, terminal, beef-on-dairy) has its own index.



1 Maternal Index: NZ$Maternal

Use when your herd is focused on breeding replacements (cow-calf systems). NZ$Maternal emphasises traits that improve fertility, cow survival, mothering ability and moderate growth.

NZ$M

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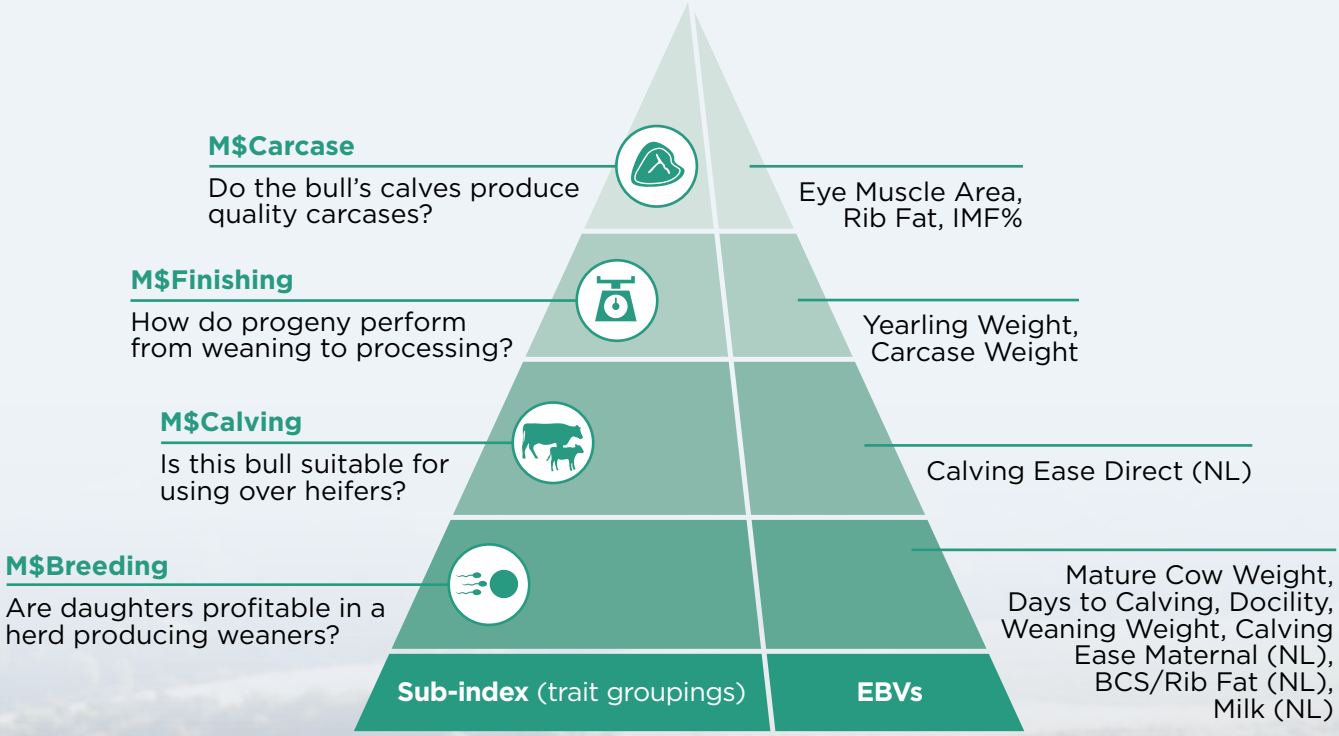
Bulls whose daughters will calve easily, rear healthy calves and stay in the herd.



2 Terminal Index: NZ$Terminal

Use when your main goal is to produce stock for finishing (meat production). NZ$Terminal puts an emphasis on growth and carcase traits (weight, meat yield and quality). It also includes calving ease for heifers.

NZ$T

B+LNZ | $TERMINAL

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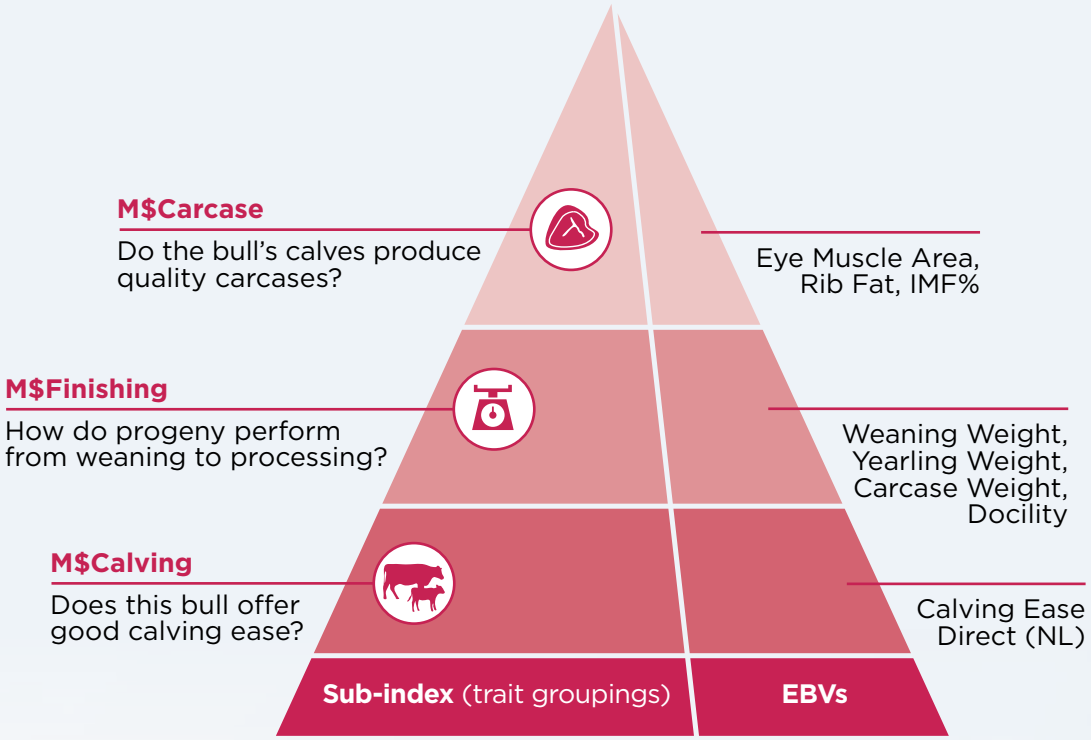
Bulls whose calves grow fast, reach target weights sooner, and produce high-quality carcases.



3 Beef-on-Dairy Index: NZ$BeefxDairy

Use when mating beef bulls with dairy cows to produce beef-cross calves.

NZ$BeefxDairy is similar to NZ$Terminal but it has more emphasis on calving ease and gestation length. This ensures that dairy cows can safely calve beef calves, and helps maintain a calving period that fits into the desired pattern of the dairy herd.

NZ$BxD

B+LNZ | $BEEFxDAIRY

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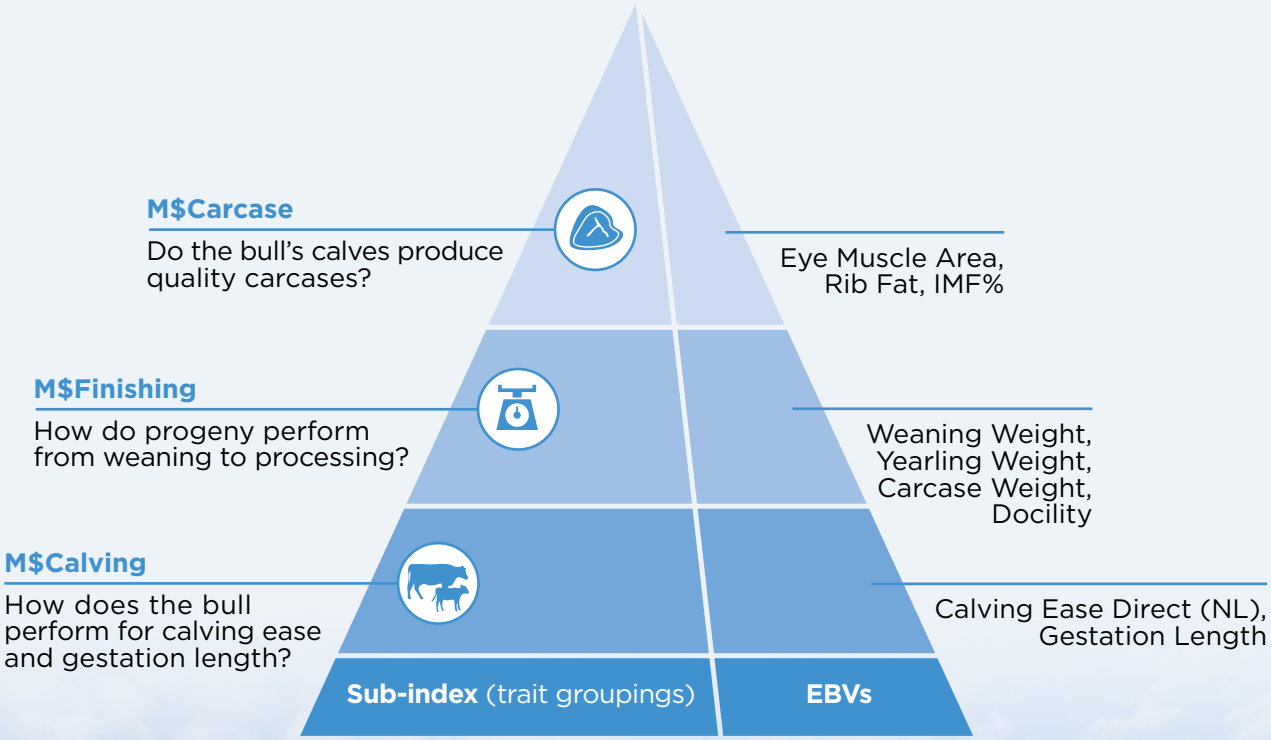
Bulls that offer easy calving and short gestation, with calves that grow well and meet beef market specs.



Using the indexes on your farm

Choose the index that best matches your farm goals and use it to help select bulls:

Use nProve Beef at nprove.nz – B+LNZ's free online genetics tool. It allows you to customise indexes and traits that are important to you. nProve will generate a list of stud breeders who have bulls that best match your criteria.

Identify the top percentage of bulls based on the index most relevant to your farming system and the role you will use the bull in (terminal vs self-replacing, heifers vs cows).

Factor in your priorities. Remember, the index is a quick and easy way to rank bulls with a system focus. You should still consider any special needs for your operation (for example, low birth weights if you have heifers).

Look at the bull's EBVs to make sure he is strong in the attributes important to you. Two animals can have the same index value, but achieve it through strengths in different traits.

For more resources including an online learning module on bull selection, structural assessment video, podcasts, and factsheets — visit B+LNZ's Knowledge Hub at **beeflambnz.com** and search "Better Beef Breeding."

In short: **Use the indexes to do the hard work**. They turn complex data into one easy-to-understand figure per bull. Look for a bull with a high index in the right category for your farm – and use nProve.nz to dive deeper into the trait groupings or key EBVs that matter to you.

Under the hood

Extra information on trait weightings and breed-specific detail.

Index weightings

The following tables illustrate the EBVs included in each Index. The accompanying pie charts show the percentage weightings assigned to traits by each Breed Society for their respective indexes.

The indexes for Angus NZ and NZ Shorthorn Beef are presented in the same table because both breeds are evaluated using the BREEDPLAN genetic evaluation system. While their EBVs are not directly comparable, they use the same trait definitions and terminology, which allows them to be displayed together. Simmental genetics are evaluated using the International Genetic Solutions (IGS) system, which applies different methodologies and trait groupings. As a result, Simmental indexes are shown in a separate table.

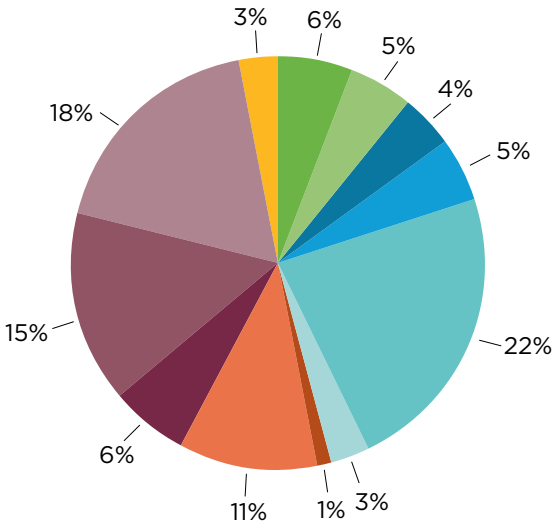
Angus New Zealand and NZ Shorthorn Beef Association

	Trait	NZ$M	NZ$T	NZ$BxD
Calving Ease EBVs	Calving Ease (Direct)	✓NL	✓NL	✓NL
	Calving Ease (Maternal)	✓NL		
Birth EBVs	Gestation Length			✓
Growth EBVs	Weaning Weight	✓	✓	✓
	Yearling Weight	✓	✓	✓
	Carcase Weight	✓	✓	✓
	Mature Cow Weight	✓		
	Milk (NL)	✓NL		
Fertility EBVs	Days to Calving	✓		
Carcase EBVs	Eye Muscle Area (EMA)	✓	✓	✓
	Rib Fat*	✓NL	✓	✓
	Intramuscular Fat (IMF)	✓	✓	✓
Other EBVs	Docility*	✓	✓	✓

NL = non-linear weighting. See explanation on page 12.
**Docility – this trait is not included in the NZ Shorthorn indexes.*
**Rib Fat trait within NZ$Maternal index includes emphasis on Body Condition Score (BCS) – rib fat is used as a predictor for BCS where direct BCS EBVs are not available.*

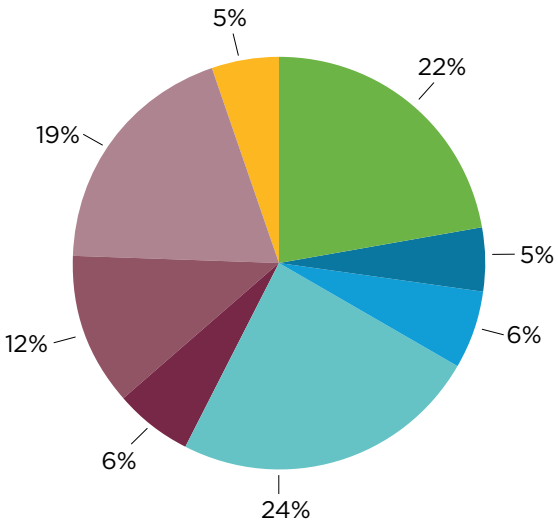
Angus New Zealand index weightings (percent emphasis)

NZ$ Maternal



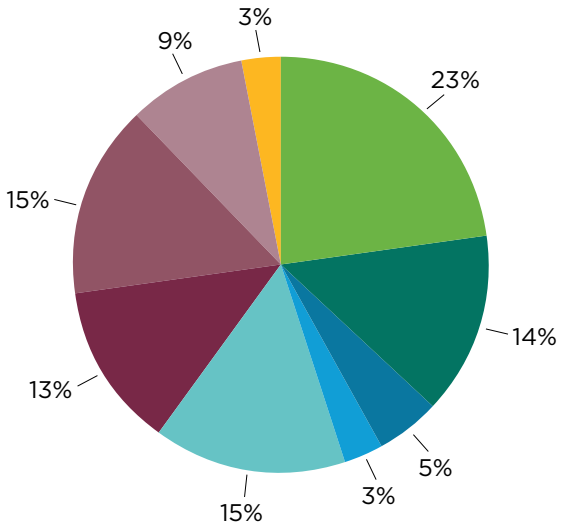
- Calving Ease (Direct)
- Calving Ease (Maternal)
- Weaning Weight
- Yearling Weight
- Carcase Weight
- Mature Cow Weight
- Milk (NL)
- Days to Calving
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility

NZ$ Terminal



- Calving Ease (Direct)
- Weaning Weight
- Yearling Weight
- Carcase Weight
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility

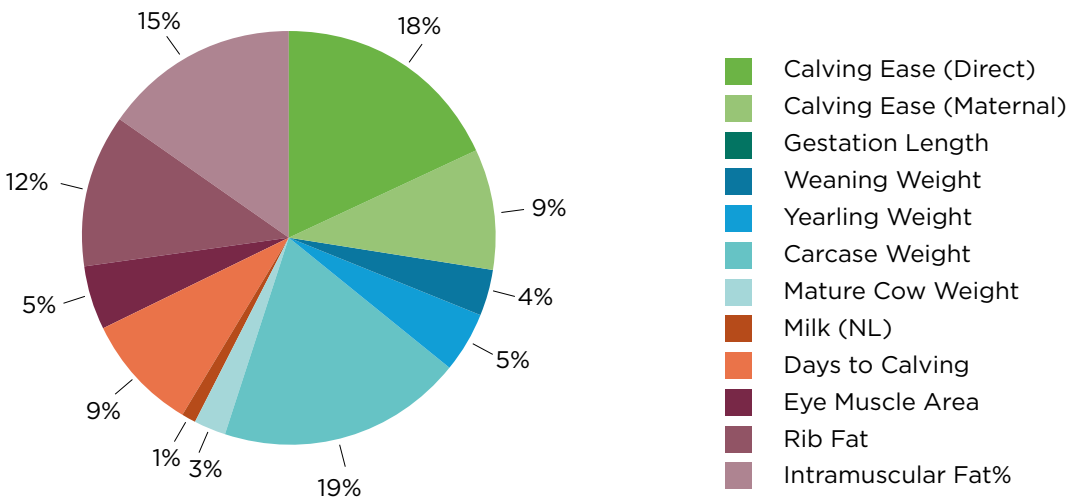
NZ$ Beef-on-Dairy



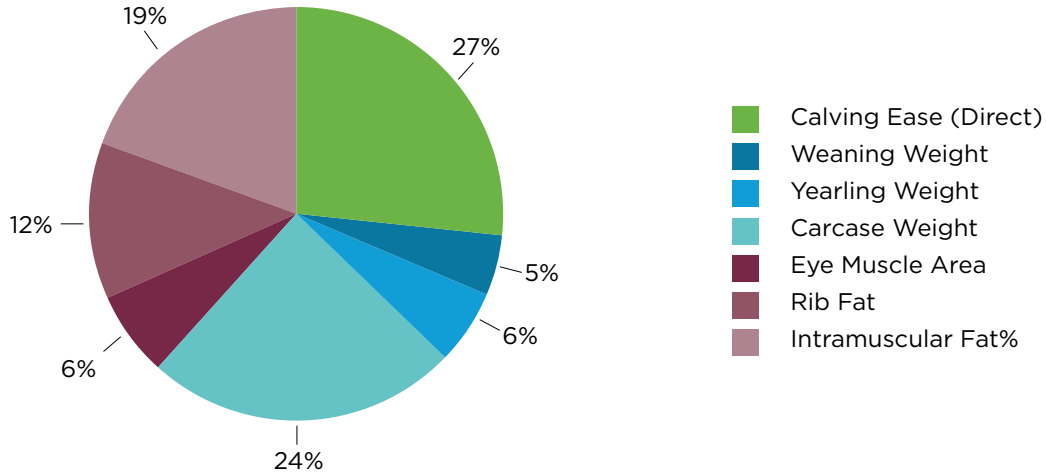
- Calving Ease (Direct)
- Gestation Length
- Weaning Weight
- Yearling Weight
- Carcase Weight
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility

NZ Shorthorn Beef index weightings (percent emphasis)

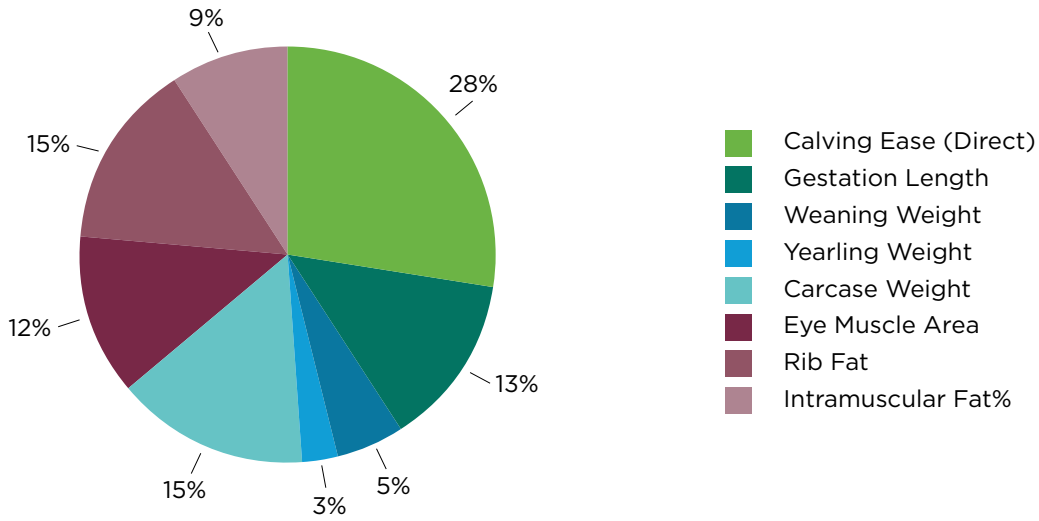
NZ$ Maternal



NZ$ Terminal



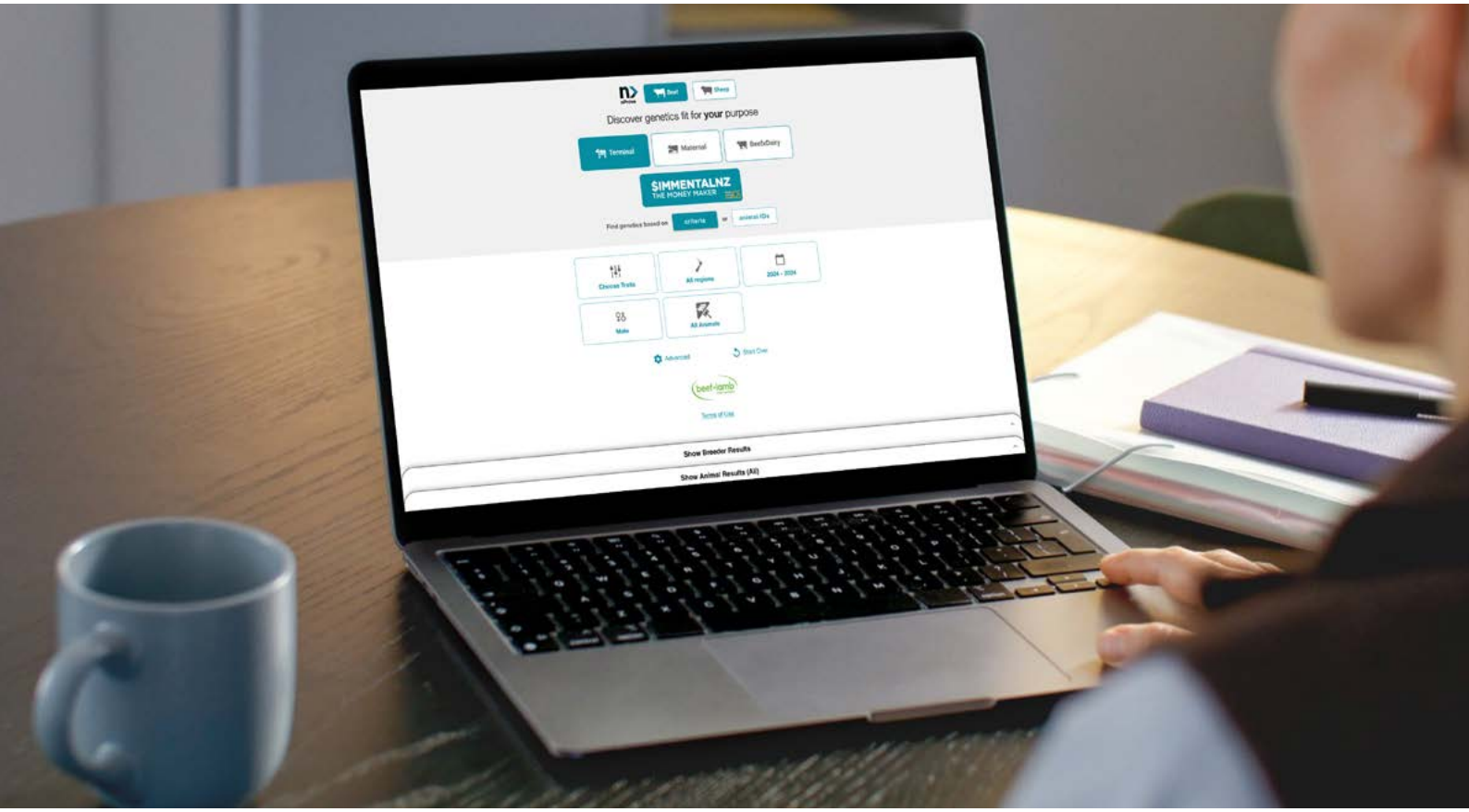
NZ$ Beef-on-Dairy



Simmental New Zealand

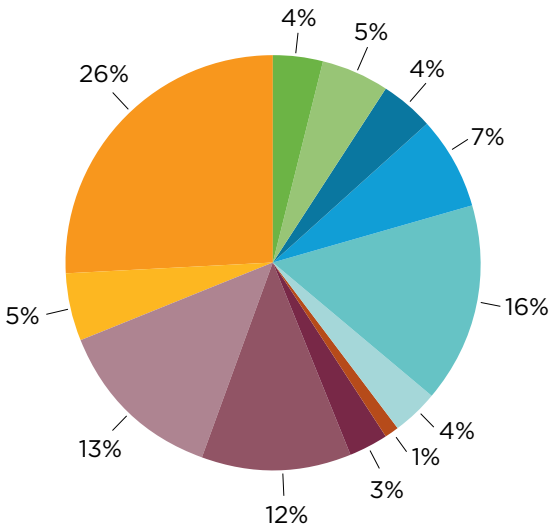
	Trait	NZ$M	NZ$T	NZ$BxD
Calving Ease EBVs	Calving Ease (Direct)	✓ NL	✓ NL	✓ NL
	Calving Ease (Maternal)	✓ NL		
Birth EBVs	Gestation Length			✓
Growth EBVs	Weaning Weight	✓	✓	✓
	Yearling Weight	✓	✓	✓
	600-day Weight	✓	✓	✓
	Mature Cow Weight	✓		
	Milk (NL)	✓ NL		
Fertility EBVs	Days to Calving			
Carcase EBVs	Eye Muscle Area (EMA)	✓	✓	✓
	Rib Fat*	✓ NL	✓	✓
	Intramuscular Fat (Marbling)	✓	✓	✓
Other EBVs	Docility	✓	✓	✓
	Stayability	✓		

**Rib Fat trait within NZ$Maternal index includes emphasis on Body Condition Score (BCS) – rib fat is used as a predictor for BCS where direct BCS EBVs are not available.*



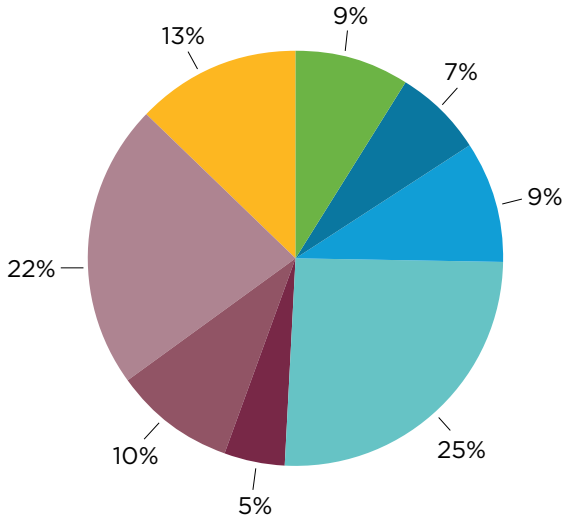
Simmental New Zealand index weightings
(percent emphasis)

NZ$ Maternal



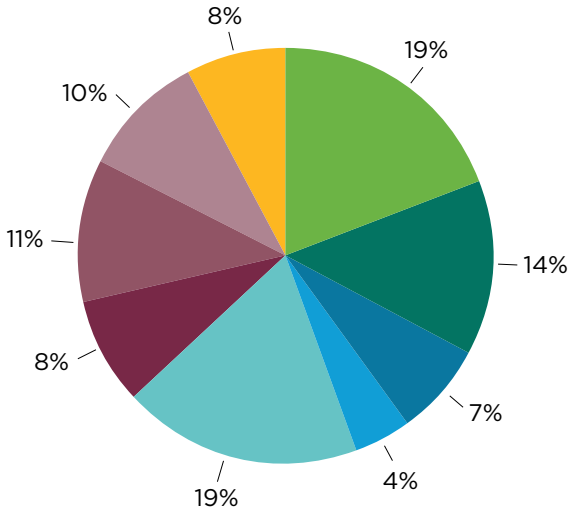
- Calving Ease (Direct)
- Calving Ease (Maternal)
- Gestation Length
- Weaning Weight
- Yearling Weight
- 600-day Weight
- Mature Cow Weight
- Milk (NL)
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility
- Stayability

NZ$ Terminal



- Calving Ease (Direct)
- Weaning Weight
- Yearling Weight
- 600-day Weight
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility
- Stayability

NZ$ Beef-on-Dairy



- Calving Ease (Direct)
- Gestation Length
- Weaning Weight
- Yearling Weight
- 600-day Weight
- Eye Muscle Area
- Rib Fat
- Intramuscular Fat%
- Docility
- Stayability

What's a non-linear trait?

Some traits don't behave in a straight line – the impact of improving that trait isn't the same at every point along the scale. These are called non-linear traits.

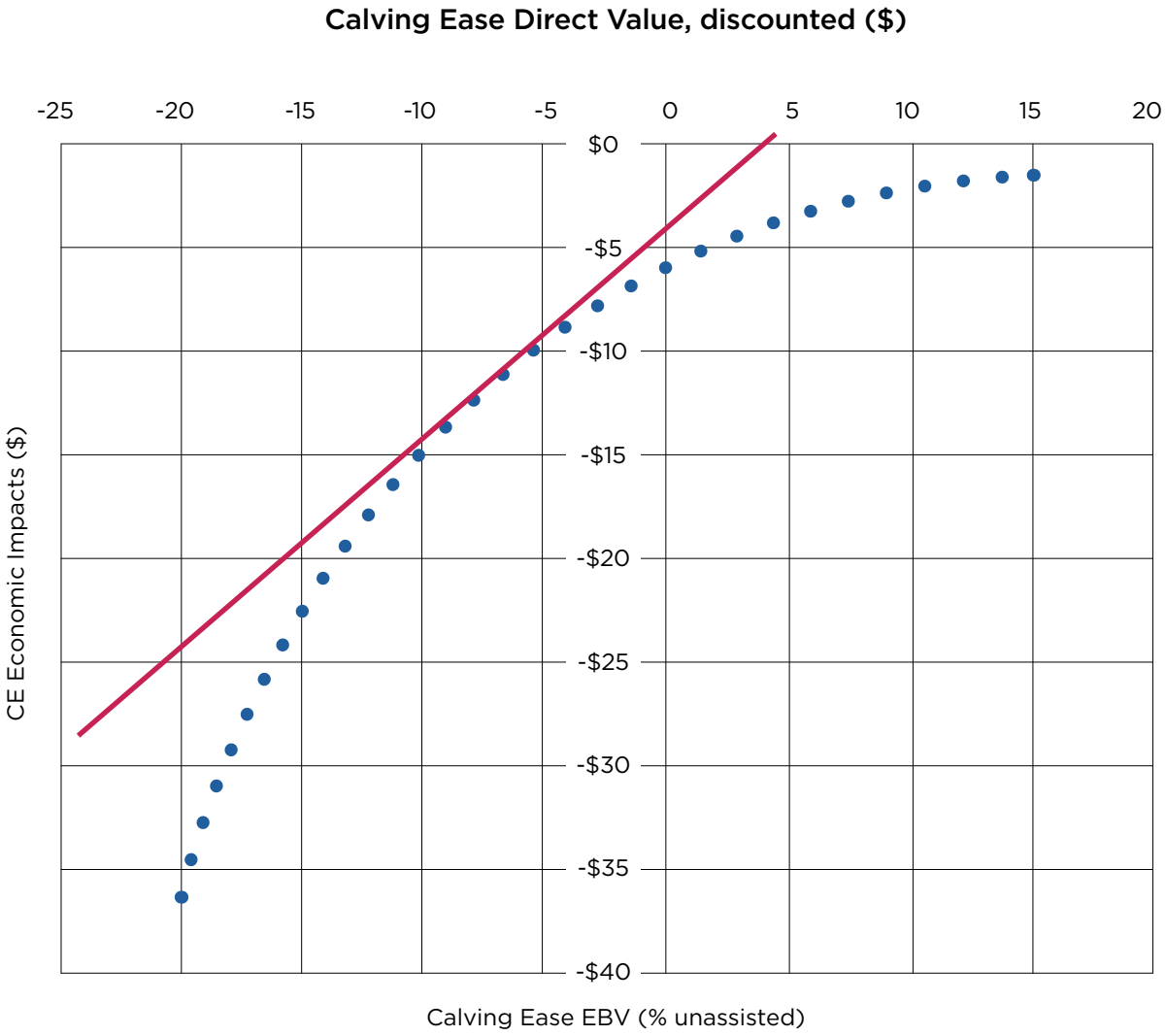
Let's take calving ease as an example.

Imagine a bull whose calves are already born almost entirely without assistance – improving that further (making them even easier calving) doesn't add a lot of extra benefit.

On the other end, if calving is difficult and we make a small improvement, that has a big impact – fewer assisted births, healthier calves, less stress on cows.

So, the value of improvement depends on where you start. Improving from poor to average is more valuable than improving from average to excellent.

That's why calving ease is treated as a non-linear trait in selection indexes. The economic value of change isn't the same across the whole scale.



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