
SELECTING YOUR
NEXT LIMOUSIN
BULL.
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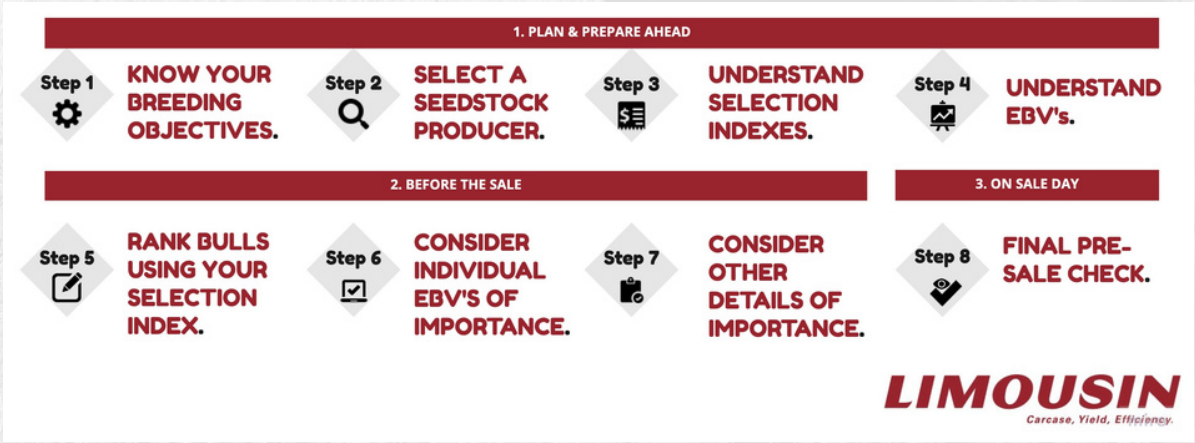
Introduction.

With bull sale season upon us, it's time to brush up on what you need to be thinking about ahead of and on sale day to get the most out of your selection decisions. After all, the breeding decisions that you make today will have a significant impact on the genetic progress and associated profitability of your beef breeding program into the future, so it is important that you take care to select the most profitable animals for your particular production system.

To help you achieve this we have developed a summary of key tips to follow to help you get the most out of this bull buying season. This guide takes you through our recommended steps, including:



PLAN & PREPARE AHEAD.

Prior to this bull buying season, build a plan that will make every bull purchase count to take your cattle and your business to where you want it to be.

This section provides some simple steps to follow to help you plan and prepare for the upcoming season.

Step 1

Know your breeding objectives.

Before considering decisions regarding bull selection, it is important that producers develop a clearly defined genetic game plan of what they are attempting to achieve from their breeding program. Every situation is different, so it is important to remember that it is not about breeding THE perfect animal, it is about breeding YOUR perfect animal.

As you think about your breeding objectives, consider and reflect on:

- Where is your herd at today compared to where you want it in 5-10 years time?
- What and where will your market be in 5-10 years time?

To help you build a genetic plan the neXtgen Agri Breed Advancement Team have developed a Genetic Plan tool to help you fully define your breeding program game plan. The goal with this tool is to make you question your breeding decisions a little and leave you feeling confident about your future.

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1.1 Know your breeding objectives.

The Genetic Plan tool helps guide you through defining your genetic plan by helping you think about and prioritise:

- The things that make you money
- The things that save you money
- The things that save you time
- The things that delight your customer

Once you have a goal, you can go through and establish what traits you want to improve on and also ones you need to be cautious of.

Genetics can be a balancing game. There is no point in improving your live weight or carcase quality traits if you don't also consider structural soundness. These traits are no good to you if the bull can't get around the paddock.

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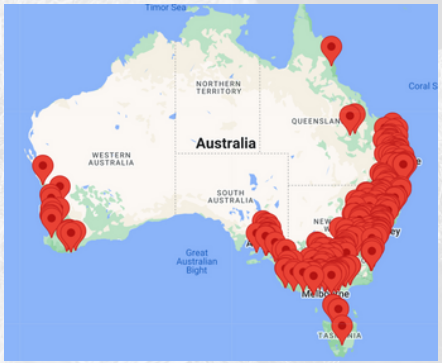
Step 2

Select a seedstock producer.

When was the last time you considered not which bull you buy, but where you buy it from and why?

Now that you've fine-tuned your genetic plan, the next step is to find a seedstock producer with bulls that fit your requirements. Be curious and keep an open mind to see what options are out there.

You can check out and locate all of the Australian Limousin stud breeders on this website.



Locations of Australian Limousin Breeders

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2.1 Select a seedstock producer.

Find a breeder that has bulls carrying genetics consistent with your genetic plan.

When selecting a seedstock producer, make sure to consider:

- If their breeding and business objectives align with your own. For example, if you want to improve calving ease and docility in the next 5 years, make sure you find a breeder who has already been working towards achieving this.
- If they offer EBV's, selection indexes and genetic testing results of interest
- Breeders' environmental influences (e.g., climate, how much they feed their cattle, how many cattle they stock etc)
- If they conduct appropriate Breeding Soundness Evaluation checks, vaccinations and health treatments necessary to ensure your bull lasts long enough to have an impact.

You may have returned back to the original breeder you started with, but now you have a better understanding of where your genetics are heading so you can make the very best decision on the day.

Step 3

Understand Selection Indexes.

Now it's time to consider and identify the Selection Index most relevant to you, to help make more informed decisions. Selection Indexes ultimately assist you in making more “balanced” selection decisions, taking into account the relevant attributes of each animal to identify animals with genetics that are most aligned with the breeding objective for the given selection scenario.

Incorporating selection index information into breeding decisions takes the hard work out of trying to decide how much emphasis you need to put on individual EBV's when determining which animals you want to retain in your herd or purchase.

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3.1 What is a Selection Index?

Selection Indexes can be a useful tool for producers looking to find bulls for both seedstock and commercial production systems, because they aid in the selection of animals for use within a breeding program where there are several traits of economic or functional importance by providing an overall “score” of an animal’s genetic value. They are derived for a specific breeding purpose and are calculated based on weightings placed on individual traits that are deemed to be important for that purpose.

Index values are reported as EBV's, in units of relative earning capacity ($) for a given 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. A selection index combines the EBV's with economic information (costs and returns) for specific market and production systems to rank animals based on relative profit values. Note that different types of animals can give similar profit values, so consideration should be given to both the index and the component EBV's when selecting animals for a particular production system.

The Index values are derived using BreedObject technology.
More information is available from the BreedObject web site.

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3.2 Which index should you use?

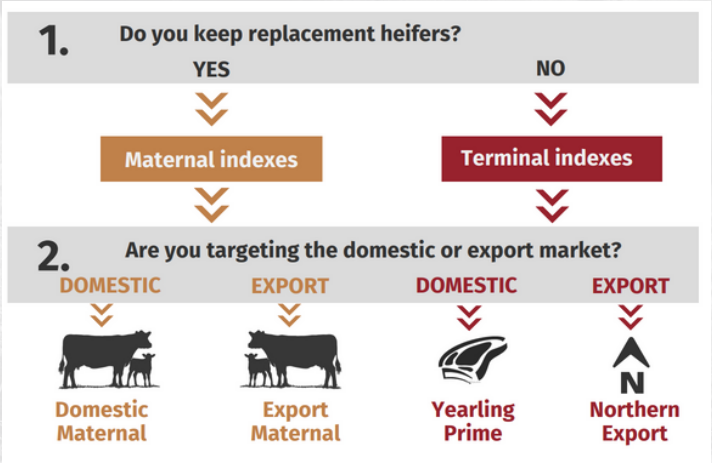
Now you know what a selection index is, and how it can help, it is time to consider which of the available selection indexes best represents your production system.
For seedstock producers, this will be the production system of your bull buying clients.

To help you decide, you can check out our Using Australian Limousin Selection Indexes tool.

There are 4 indexes to choose from:

1. Domestic Maternal Index;
2. Export Maternal Index;
3. Yearling Prime Index; and
4. Northern Export Index.

You can also find out more information on selection indexes in BREEDPLAN's Guide to Using Australian Limousin Selection Indexes.



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Step 4

Understand EBV's.

There are so many factors that come into play leading up to how a bull presents on sale day. This means that you cannot determine which bull will produce better progeny for your herd, just by looking at them. Therefore, it is important to understand and know how to get value from using EBV's.

Estimated Breeding Values (EBV's) are the best prediction for an animal's genetic merit and give a good indication of how an animal's progeny will perform. EBV's are available for all the traits that matter when it comes to profitability.

After ranking animals on the chosen selection index, beef producers are advised to consider the individual BREEDPLAN EBV's of importance to their herd. This is because a selection index is a weighted index, with multiple EBV's contributing to the final selection index value. Therefore, animals which have the same selection index value can have different EBV's for individual traits. Therefore, it is also important to also understand EBV's and know how to use them.

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4.1 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 EBV's.

EBV's are expressed as the difference between an individual animal's genetics and the genetic base to which the animal is compared. EBV's are reported in the units in which the measurements are taken (e.g. kilograms for the weight EBV's). Thus a value of +12 kg for 400 day weight means the animal is genetically superior by 12 kg at 400 days compared with the genetic base of the relevant cattle population. On average, half of this difference will be passed on to the animal's progeny (the other half will come from the dam).

BREEDPLAN produces EBV's for a range of economically important traits. It should be noted that EBV's will only be available if sufficient data has been recorded for that trait and as such, the full range of EBV's may not be available from each breeder. EBV's are published for fertility, calving ease, milking ability, growth, carcase merit and feed efficiency.

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4.2 Growth Traits

Weight EBV's	
Birth Weight	Birth Weight EBV (kg) is based on the measured birth weight of progeny, adjusted for dam age. The lower the value the lighter the calf at birth and the lower the likelihood of a difficult birth. This is particularly important when selecting sires for use over heifers. Calving ease EBV's should be considered in conjunction.
Milk	Milk EBV (kg) is an estimate of an animal's milking ability. For sires, this EBV indicates the effect of the daughter's milking ability, inherited from the sire, on the 200-day weights of her calves. For dams, it indicates her milking ability.
200 Day Growth	200-Day Growth EBV (kg) is calculated from the weight of progeny taken between 80 and 300 days of age. Values are adjusted to 200 days and for age of dam. This EBV is the best single estimate of an animal's genetic merit for growth to early ages.
400 Day Weight	400-Day Weight EBV (kg) is calculated from the weight of progeny taken between 301 and 500 days of age, adjusted to 400 days and for age of dam. This EBV is the best single estimate of an animal's genetic merit for yearling weight.
600 Day Weight	600-Day Weight EBV (kg) is calculated from the weight of progeny taken between 501 and 900 days of age, adjusted to 600 days and for age of dam. This EBV is the best single estimate of an animal's genetic merit for growth beyond yearling age.
Mature Cow Weight	Mature Cow Weight EBV (kg) is based on the cow weight when the calf is weighed for weaning, adjusted to 5 years of age. This EBV is an estimate of the genetic difference in cow weight at 5 years of age and is an indicator of growth at later ages and potential feed maintenance requirements of the females in the breeding herd. Steer breeders wishing to grow animals out to a larger weight may also use the Mature Cow Weight EBV.

4.3 Fertility & Calving Traits

Fertility / Calving EBV's	
Scrotal Size	Scrotal Size EBV (cm) is calculated from the circumference of the scrotum taken between 300 and 700 days of age and adjusted to 400 days of age. This EBV is an estimate of an animal's genetic merit for scrotal size. There is also a small negative correlation with age of puberty in female progeny and therefore selection for increased scrotal size will result in reduced age at calving of female progeny.
Days to Calving	Days to Calving EBV (days) is an estimate of genetic differences between animals in the time from the start of the joining period (i.e. when the female is introduced to a bull) until subsequent calving. Days to Calving EBV's are calculated from the joining records submitted for both heifers and mature cows. Lower, or more negative, Days to Calving EBV's are generally more favourable. For example, a bull with a Days to Calving EBV of -5 days would be expected to produce daughters that conceive earlier in the joining period than the daughters of a bull with a Days to Calving EBV of +5 days.
Gestation Length	Gestation Length EBV (days) is an estimate of the time from conception to the birth of the calf and is based on AI and hand mating records. Lower (negative) Gestation Length EBV's indicate shorter gestation length and therefore easier calving and increased growth after birth.
Calving Ease	Calving Ease EBV's (%) are based on calving difficulty scores, birth weights and gestation length information. More positive EBV's are favourable and indicate easier calving. • CE % Dir = Direct Calving Ease - The EBV for direct calving ease indicates the influence of the sire on calving ease in purebred females calving at two years of age. • CE % Daughters = Daughters' Calving Ease - The EBV for daughters' calving ease indicates how easily that sire's daughters will calve at two years of age.

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4.4 Carcase Traits

Carcase EBV's	
Eye Muscle Area	Eye Muscle Area EBV (sq cm) is calculated from measurements from live animal ultrasound scans and from abattoir carcase data, adjusted to a standard 300 kg carcase. This EBV estimates genetic differences in eye muscle area at the 12/13th rib site of a 300 kg dressed carcase. More positive EBV's indicate better muscling on animals. Sires with relatively higher Eye Muscle Area EBV's are expected to produce better muscled and higher percentage yielding progeny at the same carcase weight than will sires with lower Eye Muscle Area EBV's.
Fat Depth	Rib Fat and Rump Fat EBV's (mm) are calculated from measurements of subcutaneous fat depth at the 12/13 rib site and the P8 rump site (from live animal ultrasound scans and from abattoir carcases) and are adjusted to a standard 300 kg carcase. These EBV's are indicators of the genetic differences in fat distribution on a standard 300 kg carcase. Sires with low, or negative, fat EBV's are expected to produce leaner progeny at any particular carcase weight than will sires with higher EBV's.
Retail Beef Yield	Retail Beef Yield EBV (%) indicates genetic differences between animals for retail yield percentage in a standard 300 kg carcase. Sires with larger EBV's are expected to produce progeny with higher yielding carcases.

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4.4 Carcase Traits (cont.)

Carcase EBV's	
Intra-muscular Fat	Intramuscular Fat EBV (%) is an estimate of the genetic difference in the percentage of intramuscular fat (marbling) at the 12/13th rib site in a 300 kg carcase. Depending on market targets, larger more positive values are generally more favourable.
Carcase Weight	Carcase Weight EBV (kg) is based on abattoir carcase records and is an indicator of the genetic differences in carcase weight at the standard age of 650 days. Larger, more positive, Carcase Weight EBV's are generally more favourable.
Shear Force	Shear Force EBV's are estimates of genetic differences between animals in meat tenderness. Shear Force EBV's are expressed as differences in the kilograms of shear force that are required to pull a mechanical blade through a piece of cooked meat. Lower, more negative, Shear Force EBV's are more favourable.

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4.5 Other Traits of Interest

Other EBV's	
Docility	Docility EBV's (%) are estimates of genetic differences between animals in temperament. Docility EBV's are expressed as differences in the percentage of progeny that will be scored with acceptable temperament (i.e. either “docile” or “restless”). Higher, more positive, Docility EBV's are more favourable.
Net Feed Intake	Net Feed Intake (Post Weaning) EBV's are estimates of genetic differences between animals in feed intake at a standard weight and rate of weight gain when animals are in a growing phase. For example, animals placed in a feedlot post weaning. NFI-P EBV's are expressed as kilograms of feed intake per day (kg/day). Lower, or more negative, NFI-P EBV's are more favourable. Net Feed Intake (Feedlot Finishing) EBV's are estimates of genetic differences between animals in feed intake at a standard weight and rate of weight gain when animals are in a feedlot finishing phase. NFI-F EBV's are expressed as kilograms of feed intake per day (kg/day). Lower, or more negative, NFI-F EBV's are more favourable.
Structural Soundness	Structural Soundness EBV's are provided for five important structural traits; these are Front Feet Angle (FA), Front Feet Claw Set (FC), Rear Feet Angle (RA), Rear Leg Hind View (RH) and Rear Leg Side View (RS). Structural Soundness EBV's are reported as an estimate of genetic differences between animals in the percentage of progeny that will have a desirable score for a particular structural trait. Higher Structural Soundness EBV's are more favourable
Flight Time	Flight Time EBV's are estimates of genetic differences between animals in temperament. Flight Time EBV's are expressed as differences in the number of seconds taken for an animal to travel approximately 2.0 metres after leaving the crush. Higher (i.e. longer) Flight Time EBV's are better.

4.6 Interpreting EBV's

When using EBV's to assist in selection decisions it is important to achieve a balance between the different groups of traits and to place emphasis on those traits that are important to the particular herd, markets and environment. Please note that as each BREEDPLAN analysis has its own unique genetic base, only EBV's produced in the same BREEDPLAN analysis can be directly compared.

One of the advantages of having a comprehensive range of EBV's is that it is possible to avoid extremes in particular traits and select for animals with balanced overall performance. In the calculation of EBV's, the performance of individual animals within a contemporary group is directly compared to the average of other animals in that group. A contemporary group consists of animals of the same sex and age class within a herd, run under the same management conditions and treated equally. Indirect comparisons are made between animals reared in different contemporary groups, through the use of pedigree links between the groups.

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4.7 Interpreting EBV's

EBV's are expressed in the units of measurement for each particular trait. They are shown as + ive or - ive differences between an individual animal's genetics difference and the genetic base to which the animal is compared. For example, a bull with an EBV of +50 kg for 600-Day Weight is estimated to have genetic merit 50 kg above the breed base of 0 kg. Since the breed base is set to an historical benchmark, the average EBV's of animals in each year drop has changed over time as a result of genetic progress within the breed.

The absolute value of any EBV is not critical, but rather the differences in EBV's between animals. Particular animals should be viewed as being "above or below breed average" for a particular trait.

Whilst EBV's provide the best basis for the comparison of the genetic merit of animals reared in different environments and management conditions, they can only be used to compare animals analysed within the same analysis. Consequently, Limousin EBV's cannot be validly compared with EBV's for any other breed.

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4.8 Interpreting EBV's.

Although EBV's provide an estimate of an animal's genetic merit for a range of production traits, they do not provide information for all of the traits that must be considered during selection of functional animals.

In all situations, EBV's should be used in conjunction with visual assessment for other traits of importance (such as structural soundness, temperament, fertility etc). A recommended practice is to firstly select breeding stock based on EBV's and to then select from this group to ensure that the final selections are otherwise acceptable.

For more information check out BREEDPLAN's Guide to Using and Understanding EBV's.

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4.9 EBV Accuracy

An EBV Accuracy (%) is based on the amount of performance information available on the animal and its close relatives - particularly the number of progeny analysed. Accuracy is also based on the heritability of the trait and the genetic correlations with other recorded traits. Hence accuracy indicates the "confidence level" of the EBV.

The higher the accuracy value the lower the likelihood of change in the animal's EBV as more information is analysed for that animal or its relatives. Even though an EBV with a low accuracy may change in the future, it is still the best estimate of an animal's genetic merit for that trait. As more information becomes available, an EBV is just as likely to increase in value, as it is to decrease.

As a rule, animals should be compared on EBV's regardless of accuracy. However, where two animals have similar EBV's the one with higher accuracy could be the safer choice, assuming other factors are equal.

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4.10 EBV Accuracy

Accuracy values range from 0-99%.

The following guide is given for interpreting accuracy:

EBV Accuracy Guide	
less than 50%	EBV should be considered as a preliminary estimate. It could change substantially as more performance information becomes available.
50-74%	Medium accuracy, usually based on the animal's own records and pedigree. Still subject to substantial changes with more information, particularly when the performance of progeny are analysed.
75-90%	Medium - high accuracy and includes some progeny information. Becoming a more reliable indicator of the animal's value as a parent.
more than 90%	High accuracy estimate of the animal's true breeding value. It is unlikely that the EBV will change much with the addition of more progeny data.

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BEFORE THE SALE.

After establishing your breeding objectives, finding a bull breeder that matches these, and knowing how to use and get value from Selection Indexes and EBV's, it's time to look closely at what bulls are on offer.

This section provides some simple steps to follow, so that you avoid getting distracted or confused on the day.

Step 5

Rank Bulls Using Your Selection Index.

BEFORE you attend the sale, go through the sale team and highlight any bulls that are within the thresholds of each trait you selected in your genetic plan. Bulls that tick multiple boxes go in your YES category. Bulls outside of your thresholds are in your NO category.

1. Start by ranking bulls using your chosen selection index
Do this by comparing the individual animal's selection index value to the current breed average value.

Ranking animals on their selection index value sorts them based on their progeny's expected profitability for the targeted production system. Animals can be ranked by selection index using the web search facility available for the breed. Individual online sale and/or semen catalogues can also be sorted via the web search facility. As is the case for EBV's, producers can use selection indexes to identify where an animal ranks compared to other animals of the same breed.

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5.1 Selection Index Comparison Example

Bull 1

Index = $60

Bull 2

Index = $30

Difference in Net Profit Between Progeny of Bull 1 and 2

= ½ x difference in Selection Index value
= ½ x ($60-$30)
= $15 per cow mated

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Step 6

Consider Individual EBV's of Importance.

After you've ranked the bulls using your chosen Selection Index.

2. Consider the individual BREEDPLAN EBV's of importance
One simple way of doing this is to set an acceptable range around all individual EBV's of particular importance. While animals are still initially ranked on the chosen selection index, any animal with individual EBV's that fall outside of the acceptable range would be excluded from selection.

EBV's can be used to estimate the expected difference in the genetics of two animals, with the expected difference equating to half the difference in the EBV's of the animals, all other things being equal (e.g. they are joined to the same animal(s)).

For example, a bull with an IMF EBV of +3.0 would be expected to produce progeny with on average, 1% more intramuscular fat in a 400 kg carcass than a bull with a IMF EBV of +1.0 (i.e. 2% difference between the sire's EBV's, then halved as the sire only contributes half the genetics).

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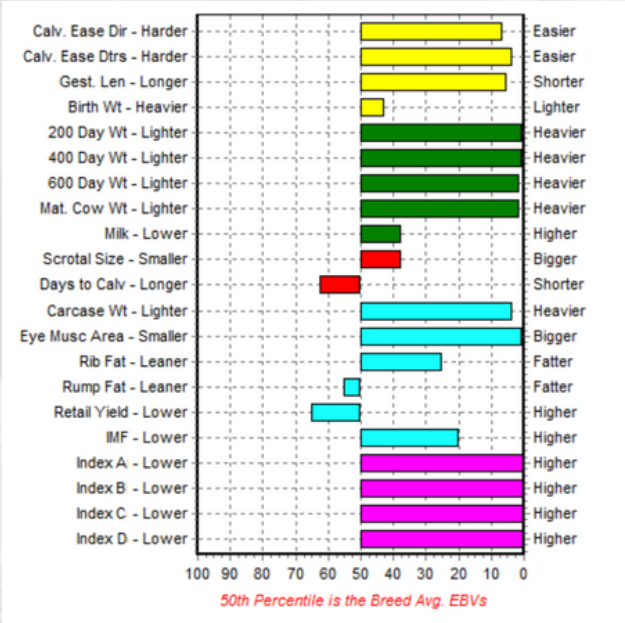
6.1 EBV Comparison Example

The EBV Percentile Graph (shown) provides a visual representation of where the individual animal sits relative to the rest of the breed.

Current breed average and percentile information for each selection index and EBV should be available from sale catalogues and can also be accessed via the web search facility on the breed society website. For more information on how to ranks and compare bulls check out BREEDPLANS Guide to Animal Selection.



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Step 7

Consider other traits or details of importance.

Now that you've considered how the bulls stack up in terms of your chosen Selection Index, and with their individual EBV's, its time to apply any other pre-sale selection criteria of importance to you.

3. Consider other traits or details of importance
Look at the bulls pedigree and DNA test results for genetic conditions and/or qualitative traits.

For example, disregard any bulls that are too closely related to the females to which they will be joined, or if any bulls have undesirable genetics for traits of specific importance to your individual breeding program

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ON SALE DAY.

This section helps you think about what to look for on the day, assuming that you have done all of your pre-sale preparation.

Step 8

Final Pre-Sale Check.

Now is your time to pick the best option for you while weighing everything up.

With all of the numbers work done, now is the time to to do a final pre-sale check on each of the shortlisted bulls, including:

- Visually assess the bulls on offer in your YES category
- Consider and don't get distracted by non-genetic influences
- Apply any other selection criteria you may have, for example:
  - structure/breeding soundness;
  - temperament on the day;
  - muscularity;
  - maturity;
  - coat and hide characteristics; or
  - various assessments of animal type.

With a final list of prospective bulls, it is time to bid, hopefully successfully, on one or more of the shortlisted bulls. Having a secondary list of potential bulls to purchase is recommended, in case those bulls on your primary shortlist do not pass your visual assessment and/or sell above your budgeted price.

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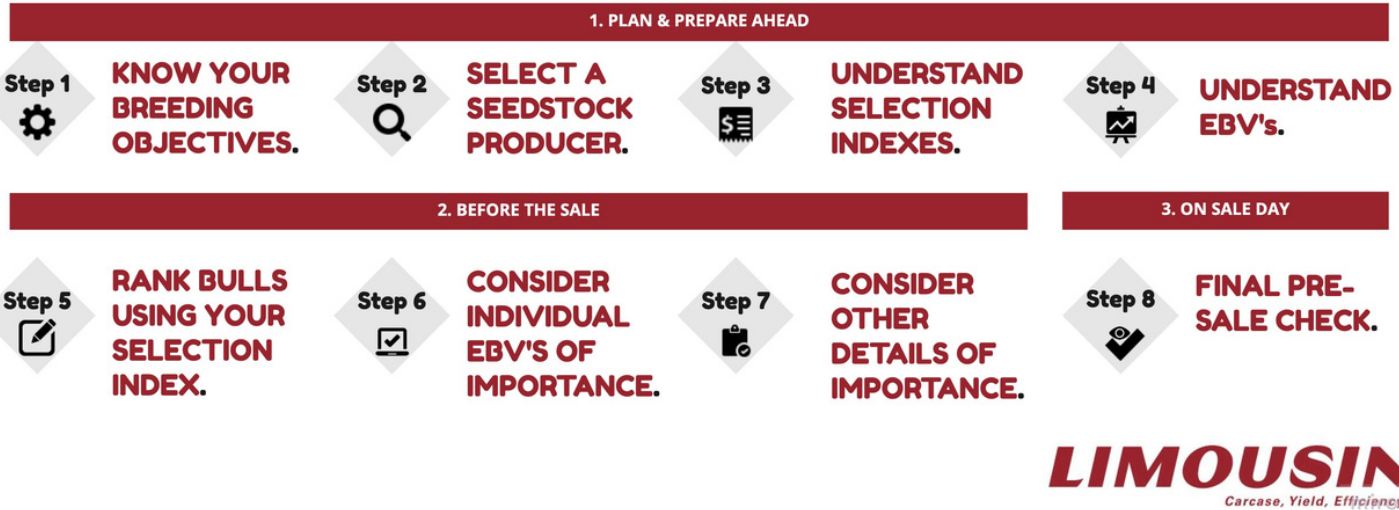
SUMMARY CHECKLIST WHEN SELECTING LIMOUSIN BULLS.

By following all of the steps provided in this summary guide, you will ensure that your selection decisions are focused on identifying bulls that are carrying the genetic package most aligned with your breeding objectives.



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Available from: www.limousin.com.au/member-services/technical

To view similar information and to keep up with all of the good things going on at ALBS, follow us on social media, give us a call or send us an email.

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