

# UNDERSTANDING THE ABV'S

## BALANCED PERFORMANCE INDEX (BPI)

The Balanced Performance Index is an economic index that blends production, type and health traits for maximum profit.

## HEALTH WEIGHTED INDEX (HWI)

The Health Weighted Index is similar to the BPI with greater emphasis on health, fertility and efficiency. A great choice for farmers working within seasonal production systems.

## PRODUCTION ABV

Production traits are expressed in their units of measurement from a rolling base of 0, which represents the average cow currently milking in Australia. The reliability figure is an estimate of potential proof change based on the number of daughters, herds, test days and genomic data. The higher the reliability of a trait, the lower the chance of proof movement.

## AUSTRALIAN SELECTION INDEX (ASI)

Like the BPI, the ASI is expressed as a dollar value. This production based index is weighted using a similar ratio of milk:fat:protein to what most Australian dairy farmers are paid for their milk. Index weightings are as follows:  $(6.92 \times \text{Protein kg ABV}) + (1.79 \times \text{Fat kg ABV}) - (0.01 \times \text{Milk ABV})$ .

## SURVIVAL

Survival is a measurement of the bull's daughters' ability to last in the herd. Bulls with ratings greater than 100 breed daughters that are likely to last longer in the herd.

## WORKABILITY TRAITS

These are calculated from information provided by Australian farmers who participate in a recognised herd recording program. They are expressed as a percentage deviating (+/-) from the base (average) of 100. For example, 102 for milking speed indicates that the bull is 2% above average for this trait i.e. his daughters on average milk faster. The reliability percentage is generated from the number of daughters and contemporaries scored and the number of herds.

## TYPE

Type ABVs describe the conformation of a bull's daughters. DataGene publishes Type ABVs for twenty-two linear traits and composite traits including Overall Type, Mammary System, Feet & Legs, Rump and Dairy Strength. Composites combine individual type traits and reflect the trait weightings and ideals set by breed organisations. For Composite Type ABVs, the average is 100 and one standard deviation is set to 5. To improve type composites, use bulls with ABVs more than 100. For individual Type ABVs, consider the ideal for that trait, the average linear for that trait, and the direction for breeding.

## CELL COUNT

The Cell Count ABV is useful to breed cows with lower cell counts, thereby reducing a herd's bulk milk cell count. Milk payments are penalised for farms with high bulk milk cell counts. Bulls with breeding values above 100 will improve your bulk milk cell count.

## SEMEN FERTILITY

Semen fertility ratings are not breeding values. They are calculated using insemination data supplied by herd test centres. Bulls with positive ratings have better conception rates than average. The majority of bulls fall into the range of + or - 3%.

## CALVING EASE

The Calving Ease ABV is based on pedigree data, genomic data calving ease scores and calf size supplied in reports from farmers. Easier calving sires have figures greater than 100.

## GESTATION LENGTH

The Gestation Length ABV is expressed as the number of days of gestation more, or less, than an average of 0. Bulls with a Gestation Length ABV of less than 0 have a shorter Gestation Length than the average of 282 days. One ABV unit represents about 1 day shorter gestation. As half the genes come from the bull, a bull with a Gestation Length ABV of -8 would have calves that are expected to be born 4 days earlier than the due date.

## FEED SAVED

Feed Saved is Australia's Feed Conversion Efficiency breeding value. It combines genomic data with estimates of maintenance requirements to predict the feed intake of a bulls daughters. It is expressed as kgs of feed saved per lactation. E.g. if a bull has an ABV of 100, then on average his daughters will eat 100 kgs less of feed than the daughters of an average (0) bull. If a bull has an ABV of -50, then this bulls daughters will eat 50 kgs more feed than daughter of the average bull.

## MASTITIS RESISTANCE

The Mastitis Resistance ABV draws upon three sets of information to provide a breeding value for selection to improve mastitis resistance: 305-day somatic cell count, udder depth and clinical mastitis records. This combination delivers an ABV that directly targets mastitis, whereas the Cell Count ABV has been used as an indirect selection criterion for mastitis resistance. Mastitis Resistance is improved by using bulls above 100.

## HEAT TOLERANCE

The Heat Tolerance ABV describes an animals ability to maintain production during hot and humid conditions. Animals with higher Heat Tolerance ABV's are less likely to suffer production drops in hot weather.

## DAUGHTER FERTILITY

The Daughter Fertility ABV is calculated using Non Return Rate data as well as re-calving date. Bulls with Daughter fertility ABVs greater than 100 will improve Daughter Fertility. A bull with an ABV of 104 is 4% better than the average bull and will deliver on average a 2% improvement in 6 week Non Return Rate.