

Your female ABV(g) Report

Technote 13

HIGHLIGHTS

- Now, you can discover your elite heifers and cows from which to breed the next generation of replacements.
- Genomics adds the equivalent of 20 daughters to the reliability of a cow or heifer's ABV
- Female ABV(g)s are presented in the same language as bull ABVs for easier reading.

Genomic based breeding values provide you with more reliable information to help you to breed the type of cows you want.

ABV(g)s estimate a female's genetic merit for breeding the next generation. This means the information is useful when making decisions about joining, flushing, selling and purchasing both the individual and her progeny.

Your female ABV(g) report provides breeding values using genomic data alongside the conventional pedigree and performance information. Female ABV(g)s are expressed using the same terms as bull breeding values so that you can easily compare them.

More reliability means more confidence making breeding decisions. The reliability of female ABV(g)s is significantly greater than conventional breeding values. The genomics adds the equivalent of 20 daughters to the reliability of the female's breeding value.

The reliability of female ABV(g)s is expected to improve over time as more bulls and cows are used to estimate the DNA marker effects. The completion of the ten thousand Holstein Cow and Jer-nomics projects by the Dairy Futures CRC are two projects that have addressed this. Further projects in this area are ongoing.

The following answers will help you interpret your female ABV(g) reports.

How do I know if the ABV(g) is really good?

Remember that ABVs compare cows against an average that is representative of the current Australian herd.

With every release, Datagene produces a Table of Ranges and Means. This table reports figures for the top and bottom groups of animals for every trait. For the April 2015 ABV release, the ranges and means for some traits are listed in the following table.

You can use this table to identify where your cow fits in the population. For example if a cow has a Balanced Performance Index (BPI) of 170 and Overall Type ABV of 110 she is in the top 2% of the Holstein population for both Profit and Type.

Table 1: Top 2% and standard deviation for Holstein cows for selected indices, April 2015

	BPI	TWI	HWI	ASI
Standard deviation	77	72	64	60
Top 2%	158	147	137	108

The full table is available at www.datagene.com.au

What sort of reliability figures should I expect?

The reliability of a cow's BPI will depend on factors including the sire's ABV reliability, number of completed lactations and number of animals genotyped in the pedigree. A table of expected reliabilities is provided below.

Table 2: Expected reliabilities with and without genomic testing *

	Approximate reliability		
	Protein kg	Overall Type	Fertility
Young heifer (parent average ABV)	26	33	20
Genotyped young heifer ABV(g)	62	43	41
7 lactation cow ABV	54	40	31
7 lactation cow ABV(g)	64	56	47

*The reliabilities, equivalent daughter numbers and lactations presented in this technote are averages only. Individual animal reliabilities will vary. Source: ADHIS, April 2012

Why is this ABV(g) different to the previous breeding values for an animal?

The first thing you will notice is that there are ABV(g)s for all traits and three indices (BPI, HWI, TWI). This information provides you with a more complete understanding of the genetic merit of an animal for more traits than the conventional milk, fat, protein and ASI.

Secondly, the addition of genomic data to a cow's ABV will increase the reliability of the breeding values. As in the case with bulls, adding further information will often change the ABV.

To enable you to see the change in ABV with the addition of genomic data, reports include the traditional ABV and genomic ABV(g) in separate columns.

- ABV column is the traditional breeding value with lower reliability. This includes pedigree and performance information of the animal and its relatives. The genomic data of its relatives does not contribute to the ABV.
- ABV(g) is the traditional combined with genomic information with higher reliability

The ABV(g) is always the most reliable result and is used in lists, promotions and calculation of herd averages.

What does N/A mean?

N/A appears when a trait is not evaluated for this breed.

Can you remind me the direction of some of the traits?

The following table 3 describes how to read ABVs for a few tricky traits. As a general principle, the direction of the ABV follows the direction of the linear scores evaluated during classification. A more complete list is available in Technote 1: Description of ABV traits and indices.

Table 3: ABV Expression of some management and type traits

	ABV Less than 100	ABV More than 100
Pin Set	Higher pins	Lower pins
Rear Set	Straighter legs	More curved legs
Rear Teat Placement	Wider rear teats	Closer rear teats
Cell Count	Less mastitis resistance. Higher cell counts	More mastitis resistance. Lower cell counts
Feed Saved	Extra feed consumed	Less feed consumed

What is the difference between Type ABV(g)s and classification scores?

Classification scores report the physical observations made by a professional evaluator taking into account things like age, stage of lactation and number of calves. Type ABV(g)s assess the genetic merit of animals and her potential to pass on particular strengths or weaknesses to her progeny. Type ABV(g)s take into account genetic information in the same way a bull's conformation breeding values do. For example, the Overall Type ABV(g) of a cow would include data from the cow's genomic information, pedigree and her own 2-year old classification result (if classified).

Where else will these ABV(g)s appear?

Female ABV(g)s are published in the following formats:

- A female ABV(g) report is provided to the owner and reports an individual's result.
- DataGene lists of top females and top herds include genotyped females.
- The averages used in DataGene Genetic Progress Reports include females with ABV(g)s.
- ABVs will be replaced with ABV(g)s on breed society pedigrees and in farm software packages that import breeding values.
- The Zoetis Clarifide product utilises ABV(g)s in its reporting suite.

For more information

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