Within Herd Ranking Tool

for mixed breed and crossbred herds

Key points

- The Within Herd Ranking Tool enables farmers to compare animals of different breeds and crossbred animals within their herd.
- Farmers with mixed breed and crossbred herds can now use genomic test results for decision making within their herds.
- The tool is delivered via DataVat. The user can customise reports for several key indices and traits.

The Within Herd Ranking Tool enables animals in mixed breed (e.g. Holsteins and Jerseys) and crossbred herds to be compared with animals within their herd despite their breed differences.

What it does

The Within Herd Ranking Tool, takes a herd's breeding values (ABVs) and converts them to a ranking that is unique to the herd.

It is based on similar principles as the Production Index that is used in herd recording.

The average cow for the trait in question in a herd has a Within Herd Ranking of 100. The better animals will have a Within Herd Ranking of about 120-130 with the poorer ones about 70-80. An animal with Within Herd

ABVs are not comparable across breeds

ABVs are expressed on individual breed bases. This means that you can compare an ABV of a Holstein to another Holstein but not to a Jersey.

The breed of the animal's sire determines it's breed from an ABV perspective. For example, animals sired by Holstein bulls are evaluated as Holsteins irrespective of the breed of their mother.

In the past, this has made it difficult for farmers with mixed breed and crossbred herds to objectively compare the genetic merit of animals in their herd. The Within Herd Ranking Tool makes it easier to use genomic breeding values for selection, culling and breeding decisions.

Ranking for a particular trait of 120 is 20% better than the average animal in the herd.

Limitations

Within Herd Rankings are relevant only within a single herd. They cannot be compared across herds.

The tool is of no relevance to a single-breed herd.

Accessing the tool

The Within Herd Ranking Tool is available via DataVat for both genomically-tested herds and non-genomically tested herds that herd test.

1. Log into DataVat
2. Click on Report and Tools
3. Click on Within Herd Ranking
4. Type in the date and status parameters for your report and hit the search button.
5. When the results have been returned, hit the Export button and choose the fields you wish to add to your report.
6. Hit Export and retrieve the Excel report from your Downloads.

The Within Herd Ranking results is available to farmers as well as Genetic Service Providers (GSPs) that report Australian Breeding Values (ABVs) to deliver the results on their various platforms.

Using the results

The Within Herd Ranking Tool ranks around the herd average which, for each trait, has a value of 100. The report is in a spreadsheet format allowing the user to

sort animals according to priority traits and filter into groups such as by age (see example report at end of this document).

The results can be used to:

- Identify heifers to sell or cull.
- Identify animals to breed replacements from or inseminate with sexed; identify animals to breed with conventional or beef semen.
- Allocate bulls to address weaknesses in an animal's genetic profile.

Traits included

The following traits and indices are included in the Within Herd Ranking Tool.

Key Indices
- BPI – Balanced Performance Index
- HWI – Health Weighted Index
- SI – Sustainability Index

Production Traits
- ASI – Australian Selection Index
- Milk
- Fat
- Protein

Health Traits
- Fertility
- Survival
- SCC – Somatic Cell Count
- Mastitis Resistance

Management Traits
- Milking Speed
- Temperament
- Likeability
- Liveweight
- Feed Saved

Type Traits
- Overall Type
- Mammary System
- Body Depth
- Chest Width
- Stature
- Pin Set
- Udder Depth

Same rank, different breeding values

Crossbred animals or animals from different breeds within a herd may have significantly different breeding values yet rank the same or very differently on the Within Herd Ranking Tool.

Take for example three crossbred cows in the same herd, each sired by a bull of a different breed. They all with a Within Herd Ranking for protein of 110. This indicates that these animals are each 10% better (genetically) than the average animal in the herd for protein, despite having different ABVs for Protein.

This is because the Within Herd Ranking Tool has adjusted their rankings to account for the different bases for each breed. Their ABVs cannot be compared because their sires are of different breeds, however their Within Herd Rankings can be compared directly.

Reliability

Within Herd Rankings are based on the ABVs that are routinely calculated for your herd. They have the same reliability as the animal's conventional ABV. Like all ABVs, the more information used in the ABV, the greater the reliability. Users that are genomic testing and herd testing will get the greatest value from the Within Herd Ranking Tool.

Acknowledgement

DataGene is an initiative of Dairy Australia and the herd improvement industry. DairyBio provides the research pipeline to develop and maintain Australian Breeding Values.

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Report Example

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Herd	National_ID	Name	Birth_Date	Breed	Status	Genomics	BPI	Index_Rel	Protein	Prod_Rel	Fertility	Fertility_Rel	Overall_Type	Type_Rel
2	BXXXXXR	920180566	7494	20200826	F	Milking	Yes	124	62	118	73	116	44	106	57
3	BXXXXXR	920180577	7505	20200830	F	Milking	Yes	124	65	118	75	117	46	105	60
4	BXXXXXR	920180560	7488	20200823	J	Milking	Yes	123	66	116	77	122	49	102	61
5	BXXXXXR	920056377	7382	20200323	U	Milking	Yes	121	67	113	80	108	51	111	57
6	BXXXXXR	920056378	7383	20200324	F	Milking	Yes	119	68	127	80	110	53	105	62
7	BXXXXXR	920056389	7389	20200401	U	Milking	Yes	119	69	121	81	105	59	108	63
8	BXXXXXR	920103312	7421	20200510	U	Milking	No	119	71	115	81	91	66	119	66
9	BXXXXXR	922098823	3202	20200201	J	Milking	Yes	118	64	94	75	110	52	112	56
10	BXXXXXR	922098826	3205	20200201	F	Milking	Yes	118	66	110	78	116	53	104	57
11	BXXXXXR	919216050	7344	20190809	J	Milking	Yes	118	62	93	76	127	50	92	46
12	BXXXXXR	920056373	7378	20200318	F	Milking	Yes	118	66	109	79	124	49	100	58
13	BXXXXXR	920103325	7434	20200515	U	Milking	Yes	118	70	111	80	130	59	112	65
14	BXXXXXR	921018078	8235	20181118	F	Milking	Yes	118	65	102	78	108	50	107	53
15	BXXXXXR	919216051	7345	20190810	U	Milking	Yes	117	64	111	78	105	52	100	50