

2012 March Wagyu GROUP BREEDPLAN

1. INTRODUCTION

Please find enclosed your 2012 March Wagyu GROUP BREEDPLAN Herd Report. To assist you in interpreting the results, an information sheet titled “*Reading your Wagyu GROUP BREEDPLAN Report*” is also enclosed.

The following pages outline useful statistics and explain the analysis and the Estimated Breeding Values (EBVs).

Please note that the EMA, Rib Fat Rump Fat and IMF% EBVs in Previous runs were estimates of genetic differences for the traits at 500 days of age. They are now estimates of genetic differences for a 300 kg dressed carcass. This change in definition means that comparisons between previous EBVs figures for these Traits and the Current EBV figures are not valid.

2. THE MODEL

The EBVs contained within this report have been calculated using the BREEDPLAN genetic evaluation system. This utilises Best Linear Unbiased Prediction (BLUP) methodology on a full animal, multi-trait model in which all animals, their relatives and ancestors are analysed with the performance information at the same time. Known genetic and non-genetic relationships (correlations) between the various birth, growth, carcass and fertility traits are accounted for within the analysis.

The genetic and phenotypic parameters used for this analysis were derived by the Animal Genetics and Breeding Unit (AGBU) from selected research and industry databases. The parameters are not Wagyu specific as there is not enough information available at this stage to calculate Wagyu specific parameters.

3. THE EBVs

The BREEDPLAN EBVs included in this report have been calculated from the records of individual herds on the integrated pedigree and performance database of the Australian Wagyu Association (AWA). These records included:

- the animal's own performance
- the performance of **all known relatives**
- the performance of **all animals** over all years of recording
- the relationship between traits

The BREEDPLAN EBVs calculated in this analysis allow for the direct comparison of performance recorded Wagyu animals in the AWA database.

Each time performance data (weights, scans, etc) is submitted to Wagyu BREEDPLAN, an INTERIM BREEDPLAN Herd Report will be sent to you. INTERIM Reports include updated GROUP EBVs for all current calves in your herd. INTERIM EBVs are directly comparable to your GROUP EBVs and can be included in Sale Catalogues as though they are GROUP EBVs. The INTERIM BREEDPLAN Herd Report also includes a Calving Spread Report that includes information on all calves in the herd.

GROUP BREEDPLAN EBVs for a large number of economically important traits are included in this report. For details on these traits please read the sheet titled “*Reading your Wagyu GROUP BREEDPLAN Report*” which is included in this report.

Please note that it is important when assessing the GROUP EBVs of a particular animal to compare them with the average for the breed. As a set of benchmark figures that approximate the current genetic level for the breed, you will find the **average EBVs for all animals born in 2010** (Table 1) to be very useful. You can use these average EBVs to help you to assess the relative ranking of animals for the various traits. These averages are also reported at the bottom of each page of your herd reports.

Table 1. Average EBVs for the 2010 born animals analysed in the 2012 March Wagyu GROUP BREEDPLAN.

Gest Length EBV	Birth Weight EBV	200-Day Growth EBV	400-Day Weight EBV	600-Day Weight EBV	Mature Weight EBV	200-Day Milk EBV
+0.1	+0.9	+9	+14	+18	+18	+1

Scrotal Size EBV	EMA EBV	Rib Fat EBV	Rump Fat EBV	IMF% EBV
+0.1	+0.5	+0.3	+0.2	0.1

4. ACCURACY

An accuracy value is presented with every EBV and gives an indication of the amount of information that has been used in the calculation of that EBV. The higher the accuracy the lower the likelihood of change in the animal's EBV as more information is analysed for that animal or its relatives.

BREEDPLAN uses all available information to calculate EBVs and estimates EBVs of related (correlated) traits via indirect observations. For example, birth weight EBVs may be estimated from 200/400 Day weights. These correlated estimates will have lower accuracy.

The following guide may be useful for interpreting accuracy:

Accuracy range	Interpretation
less than 50%	- EBVs are preliminary and could change substantially as more performance information becomes available.
50-74%	- medium accuracy, usually based on the animal's own records and pedigree.
75-90%	- medium-high accuracy. Some progeny information included. It is unlikely that EBVs will change much with addition of more progeny data.
more than 90%	- high accuracy estimate of the animal's true breeding value.

Animals should be compared on EBVs regardless of accuracy. However, where two animals have the same EBV, the animal with the higher accuracy would normally be used more heavily than the bull with the lower accuracy because the results are more predictable.

5. REPORT LAYOUT

This GROUP BREEDPLAN Herd Report gives you the GROUP EBVs for your animals. GROUP EBVs can be used to compare animals across herds that have Wagyu GROUP EBVs.

Each Herd Report is made up of several sections. The first is the **Sire Report**, listing all the sires of animals that have been performance recorded in your herd. The sires are printed in Name order. Next is the **Dam Report** that is sorted in birth date order. Finally, the **Calf Reports**, Heifers, Steers (if you have any) and Bulls are printed in ident order. These reports list all active calves (for a specified number of calving years) that have performance in your herd.

Note that the numbers of progeny analysed that appear in the sire and dam reports are calculated from all herds in GROUP BREEDPLAN (and so include progeny recorded in other herds).

There are a number of **Trend Reports** included at the back of your Herd Reports. The first Trend reports are for your own herd and these are followed by the Genetic Trend reports for the breed overall. **You can use the Trend reports to see how your herd has performed over the years compared to the breed average.**

The **Genetic Trend** reports show the average EBVs for your herd for each trait for animals born in the nominated year. The **Phenotypic Trend** reports show the average adjusted performance for each trait of all calves (by sex) in your herd born in the nominated year.

Also included are graphs of the Genetic Trends. The Genetic Trends for the herd and for the breed overall are graphed. Also included are graphs showing the genetic trend for the herd relative to that of the breed for each trait.

The last page of the your Herd report is the **Percentile Table** listing the Percentile Bands for all analysed animals born in 2010. The Percentile Report can be used as a guide for the ranking of animals on GROUP BREEDPLAN EBVs across herds. By referring to this report you will be able to determine where your animal(s) rank in performance compared to other animals analysed in the 2012 March GROUP BREEDPLAN.

6. MARKETING WITH GROUP BREEDPLAN EBVs

GROUP BREEDPLAN EBVs can be used to compare animals from different herds. This means GROUP BREEDPLAN EBVs are by far the most logical choice for use in the marketing of your stock.

It is very important that **all** 2012 March GROUP BREEDPLAN EBVs used in catalogues be presented with their accuracy levels. It is also important to accompany your sale catalogue with notes explaining what these EBVs and accuracies are and how they have been calculated. In particular, INTERIM EBVs should be identified.

An example of these explanatory notes is attached for your use. Buyers will then be in a position to purchase cattle on performance with confidence using GROUP BREEDPLAN EBVs.

7. CONTACTS FOR WAGYU BREEDPLAN

If you have any questions regarding your GROUP BREEDPLAN Herd Report, publishing EBVs or interpretation of GROUP BREEDPLAN in general, please do not hesitate to contact Wagyu BREEDPLAN:

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READING YOUR 2012 March WAGYU GROUP BREEDPLAN HERD REPORT

2012 March Wagyu GROUP BREEDPLAN										Page 1															
Herd : QQQ PIKKA STUD EXAMPLE HERD				GROUP ESTIMATED BREEDING VALUES FOR SIREs										(Sires - with Progeny in the last 5 Years) (Sorted by Name)											
ANIMAL NAME		Sire		Dam		Statistics					- Birth -		GROWTH ESTIMATED BREEDING VALUES					Carc				Indexes			
Ident				Num	Prog	Prog	Prog	Perf		GL	Bwt	200	400	600	Mwt	MILK	SS	EMA	Rib	Rump	IMF%	YYYY	YYYY	YYYY	YYYY
										acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	XXXX	XXXX	XXXX	XXXX
PIKKA WAGYU SIRE				15	178	34	0	32		-0.4	+0.9	+18	+26	+40	+35	+6	-0.2	+1.1	+0.1	-0.1	-0.2				
&*QQQFV0072										87%	88%	88%	88%	78%	78%	67%	59%	77%	69%	62%	62%				

EBV: Estimated Breeding Value is the estimated genetic merit of an animal for each recorded production trait. EBVs reflect the difference that can be expected in an animal's performance relative to the breed baseline of zero for each trait. On average, half of this difference will be passed on to the animal's progeny.

EBVs in this report are calculated from the available performance information on the animal, its parents, progeny and its close relatives across a number of herds. This information is adjusted for age at measure and dam age while allowing for differences between herds, years, season of calving, management effects and for mating and selection biases.

If no EBV is listed in an animal's record, then not enough information for the animal is available to report an EBV for the trait.

ACC: 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.

Accuracy values range from 0-99% and indicates the probability of an EBV changing with the addition of more progeny data. The magnitude of possible change decreases as accuracy increases. Accuracy below 75% should be regarded as low, between 76-90% as medium and above 90% as high.

The accuracy is printed below the EBV for the trait.

1. **&** indicates that overseas EPDs have been used in the EBV calculations.
* indicates that the animal has had a calf recorded in the latest year.
2. **ANIMAL NAME:** is the Society name for the animal.
IDENT: is the Society ident for the animal.
3. **SIRE:** is the Society ident for the animal's sire.
4. **DAM:** is the Society ident for the animal's dam.
5. **NUM HERD:** is the number of herds in which this animal has performance recorded progeny.
6. **PROG ANLY:** is the number of progeny of this animal that had performance information analysed.
7. **PROG SCAN:** is the number of progeny of this animal that had scan performance information analysed.
8. **PROG CARC:** is the number of progeny of this animal that had abattoir carcase performance information analysed.
9. **PERF DTRS:** is the number of this animal's daughters that have progeny performance recorded at 200 and/or 400 days. This is an indicator of the amount of direct information that is available to evaluate the Milk EBV for this animal.

2012 MarchWagyu GROUP BREEDPLAN										Page 1 (Sires - with Progeny in the last 5 Years) (Sorted by Name)															
GROUP ESTIMATED BREEDING VALUES FOR SIRE										GROUP ESTIMATED BREEDING VALUES															
----- Statistics -----										- Birth -		Growth -----						----- Scan -----				----- Indexes -----			
ANIMAL NAME	Sire	Dam	Num	Prog	Prog	Prog	Perf	GL	Bwt	200	400	600	Mwt	MILK	SS	EMA	Rib	Rump	IMF%	YYYY	YYYY	YYYY	YYYY		
Ident			Herd	Anly	Scan	Carc	Dtrs	acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	acc	XXXX	XXXX	XXXX	XXXX		
PIKKA WAGYU SIRE			15	178	34	0	32	-0.4	+0.9	+18	+26	+40	+35	+6	-0.2	+1.1	+0.1	-0.1	-0.2						
&*QQQFV0072	QQQFT0047	QQQFS0022						87%	88%	88%	88%	78%	78%	67%	59%	77%	69%	62%	62%						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				

- 10. **GL:** Gestation Length EBV (days) is based on AI records. Lower (negative) GL EBVs indicate easier calving and increased growth after birth.
 - 11. **BWT:** Birth Weight EBV (kg) is based on the measured birth weight of animals, 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.
 - 12. **200:** 200-Day Growth EBV (kg) is calculated from the weight of animals taken between 80 and 300 days of age. Values are adjusted to 200 days and for dam age. Estimates an animal's genetic merit for growth to early ages.
 - 13. **400:** 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 dam age. This EBV estimates an animal's genetic merit for yearling weight.
 - 14. **600:** 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 dam age. This EBV estimates an animal's genetic merit for growth beyond yearling age.
 - 15. **MWT:** Mature Cow Weight EBV (kg) is an estimate of the genetic difference in cow weight at 5 years of age. Smaller, or more moderate EBVs are generally more favourable.
 - 16. **MILK:** Milk EBV (kg) is an estimate of an animal's milking ability. For sires, this EBV is indicative of their daughter's milking ability as it affects the 200-day weight of the daughters' calves.
 - 17. **SS:** 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. Scrotal size is an indicator of male fertility (semen quality and quantity) and there is a small negative correlation with age of puberty in female progeny.
 - 18. **EMA:** Eye Muscle Area EBV (cm²) estimates genetic differences in eye muscle area at the 12/13th rib site of a 300kg dressed carcass. More positive EBVs indicate better muscling on animals.
 - 19. **RIB:** Rib Fat EBV (mm) estimates the genetic differences in fat depth at the 12/13th rib in a 300kg dressed carcass. More positive EBVs indicate more subcutaneous fat and earlier maturity.
 - 20. **RUMP:** Rump Fat EBV (mm) estimates the genetic differences in fat depth at the P8 site of a 300kg dressed carcass. More positive EBVs indicate more subcutaneous fat and earlier maturity.
 - 21. **IMF%:** Intra-muscular Fat Percent EBV (%) is an estimate of the genetic difference in the percentage of intra-muscular fat at the 12/13th rib site in a 300kg carcass. Depending on market targets, larger more positive values are generally more favourable.
- Indexes** combine the EBVs with economic information for specific market and production systems to rank animals based on relative profit values.
- 22. Indexes for Wagyu are under development and will be available soon.

SPECIFIC TO THE DAM REPORT

Heading: In the top right hand corner of the dam report(s) are the selection criteria for the dams. This is usually (*Active Current Dams - with Progeny in the last 3 years*). This means that cows are only included if they are active in the herd and have had a recorded calf born in the last 3 years. Underneath this is the sort order (usually sorted in Birth Year then Ident order).

1ST CALF: Is the age in years at which the dam had her first calf (that is recorded on the Society database).

CALV INT: Average Calving Interval (days) is the average time between successive calves. For Donor dams that have been in an ET program, "dnr" is printed.

MILK: Is an estimate of an animal's genetic merit for milk. For dams it indicates their own genetic potential (based on the 200 & 400 day weight of their calves).

SPECIFIC TO THE CALF REPORTS

Heading: In the top right hand corner of the calf report(s) are the selection criteria for the calves (non-parents). This is usually (*Active current calves younger than 3 years*). This means that calves are only included if they have been born in the last 3 years. Underneath this is the sort order (usually sorted in Birth Year then Ident order).

BIRTH DATE: is the calf's date of birth (day/month/year).

TRAIT INDICATORS: This lists the traits that have been analysed for each calf in the BREEDPLAN analysis. For 200, 400 and 600-Day Weights two records can be analysed. If the calf has one observation for a trait then a letter will be printed. For example W represents one 200-Day weight observation. For two observations for the trait the number 2 is printed. A blank indicates that the calf was not analysed for this trait.

Heading	G	B	2	4	6	S	E	R	P	I	C
Trait	GL	BWT	200	400	600	S S	EMA*	RIB*	P8*	IMF%*	Carcase #

* Live animal scan data

Abattoir carcass data (not analysed at present)

TREND REPORTS

Genetic Trend Reports

These reports give the average EBVs for your herd for each trait for animals born in the nominated year. They show the cumulative change in EBVs. The number of calves indicates the total number of calves that have EBVs. The genetic trend for dams is the average EBVs of the dams of these calves.

Phenotypic Trend Reports

These reports give the average, adjusted performance of all calves (by sex) in your herd born in the nominated year. The numbers of observations represent the number of animals born in the nominated year with a performance record for the trait. This report shows the fluctuations in your animal's performance (eg weights) from one calf crop to the next. Phenotypic trend reports are **not** comparable between herds.

Overall Genetic Trends for the Breed

The reports for the overall genetic breed trends are identical to the individual herd genetic trend reports except that they include the performance information from all herds analysed in the GROUP BREEDPLAN analysis. By comparing these reports with your own herd's genetic trends, you will be able to gauge whether your herd is above or below the breed average.

Graphic representation of the Genetic Trends

These reports are a graphical representation of the average EBV values displayed in the Genetic Trend reports. These graphs should make it easier to compare trends in average EBVs for your herd, for the breed overall and most importantly, for your herd relative to the breed for the various traits.

Individual breeders may notice particular peaks and troughs in their trends graphs. The use of new sires, the introduction of new dams, or the actual recording of new traits may explain this variability from year to year.

PERCENTILE BANDS REPORT

All Animals Born in 2010 Only

This report is a listing of Percentile Bands for all reportable traits for all animals born in the current year (2 years prior to the analysis year). The Percentile Bands Report can be used as a guide for the ranking of animals on GROUP BREEDPLAN EBVs across herds.

EXPLANATORY NOTES FOR CATALOGUES

Only Wagyu GROUP BREEDPLAN EBVs or INTERIM EBVs with Accuracy (Acc) can be validly compared between herds.

ESTIMATED BREEDING VALUES (EBVs)

The EBV is the best estimate of an animal's genetic merit for that trait.

ACCURACY

An accuracy value is presented with every EBV and gives an indication of the amount of information that has been used in the calculation of that EBV. The higher the accuracy the lower the likelihood of change in the animal's EBV as more information is analysed for that animal or its relatives. Accuracy below 75% should be considered low.

BIRTH AND FERTILITY

GL: Gestation Length EBV (days) is based on AI records. Lower (negative) GL EBVs indicate shorter gestation lengths which generally relate to easier calving and increased growth after birth.

BWT: Birth Weight EBV (kg) is based on the measured birth weight of animals, 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.

SS: Scrotal Size EBV (cm) is an indicator of male fertility in regards to semen quality and quantity. Higher (positive) EBVs indicate higher fertility. There is also a small negative correlation with age of puberty in female progeny.

GROWTH

MILK: 200-Day Milk EBV (kg) is an estimate of an animal's milking ability. For sires, this EBV is indicative of their daughter's milking ability as it affects the 200-day weight of their calves.

200: 200-Day Growth EBV (kg) is calculated from the weight of animals taken between 80 and 300 days of age. Values are adjusted to 200 days and for dam age. This EBV is the best single estimate of an animal's genetic merit for growth to early ages.

400: 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 dam age. This EBV is the best single estimate of an animal's genetic merit for yearling weight.

600: 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 dam age. This EBV is the best single estimate of an animal's genetic merit for growth beyond yearling age.

MWT: Mature Cow Weight EBV (kg) is an estimate of the genetic difference in cow weight at 5 years of age. Smaller, or more moderate EBVs are generally more favourable.

CARCASE

Eye Muscle Area: The EMA EBV (cm²) estimates genetic differences in eye muscle area at the 12/13th rib site of a 300kg dressed carcass. More positive EBVs indicate better muscling on animals.

Rib Fat: The Rib Fat EBV (mm) estimates the genetic differences in fat depth at the 12/13th rib in a 300kg dressed carcass. More positive EBVs indicate more subcutaneous fat and earlier maturity.

Rump Fat: The Rump Fat EBV (mm) estimates the genetic differences in fat depth at the P8 site of a 300kg dressed carcass. More positive EBVs indicate more subcutaneous fat and earlier maturity.

Retail Beef Yield Percent: The RBY% EBV (%) represents total (boned out) meat yield as a percentage of a 300kg dressed carcass. A more positive EBV indicates higher percentage yield for the 300kg carcass size.

INDEXES

An index combines the EBVs 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 you should also consider both the index and the component EBVs when selecting animals for your production system.

Indexes are under development for Wagyu.

The following disclaimer should also be included in your sale catalogue:

<p>The Wagyu GROUP BREEDPLAN Estimated Breeding Values contained in this Sale Catalogue were compiled by the Agricultural Business Research Institute (ABRI) from data supplied by the breeders. Neither the Australian Wagyu Association nor the ABRI oversee or audit the collection of this data.</p>
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