



TOOLS FOR PREDICTING BLACK WAGYU PERFORMANCE IN GLOBAL PRODUCTION SYSTEMS

*THE CARCASS RULES,
OK?*

A Japanese Perspective

Takao Suzuki

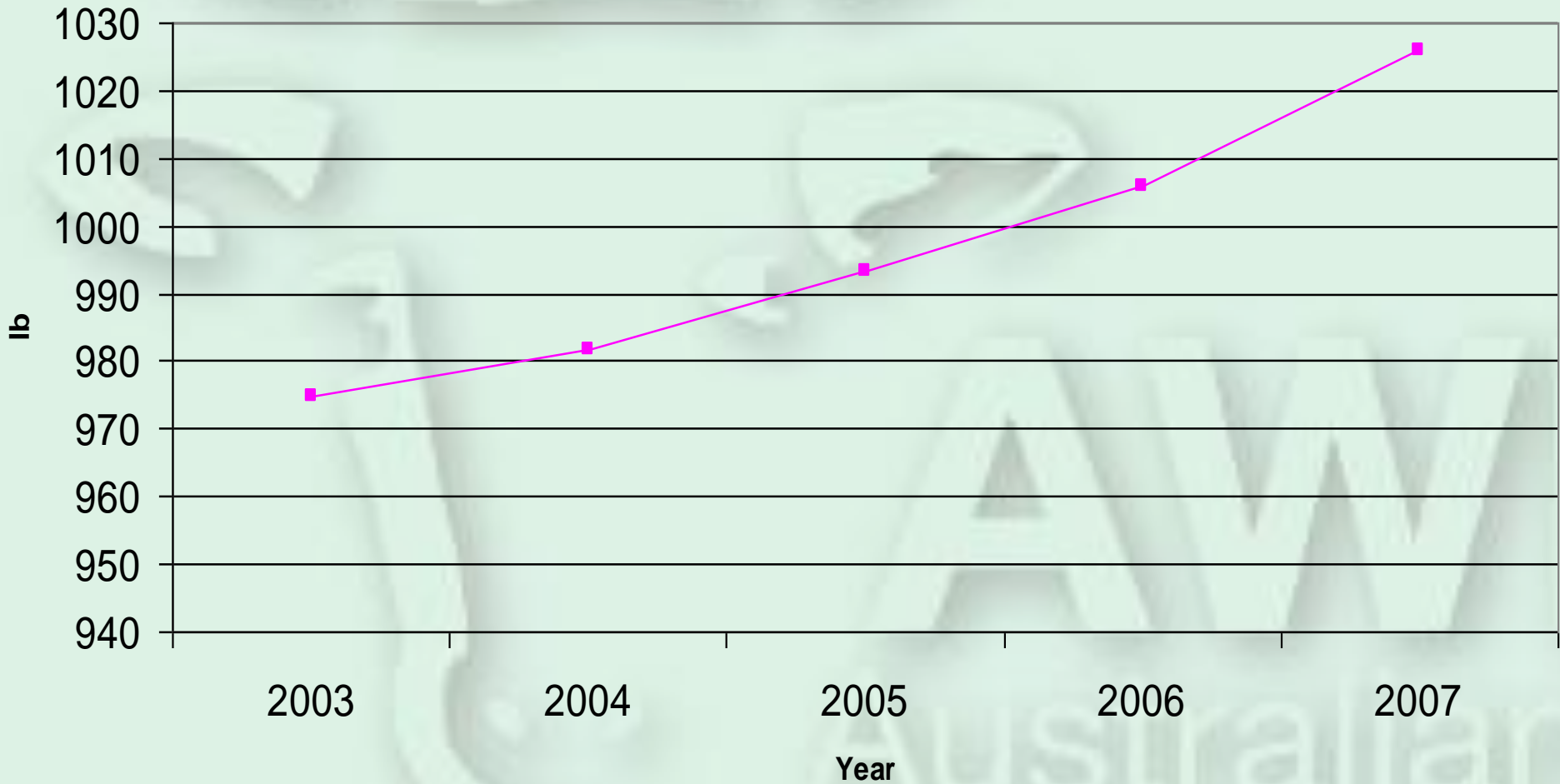
www.australianwagyuforum.com.au

JAPANESE MEASUREMENT SYSTEMS

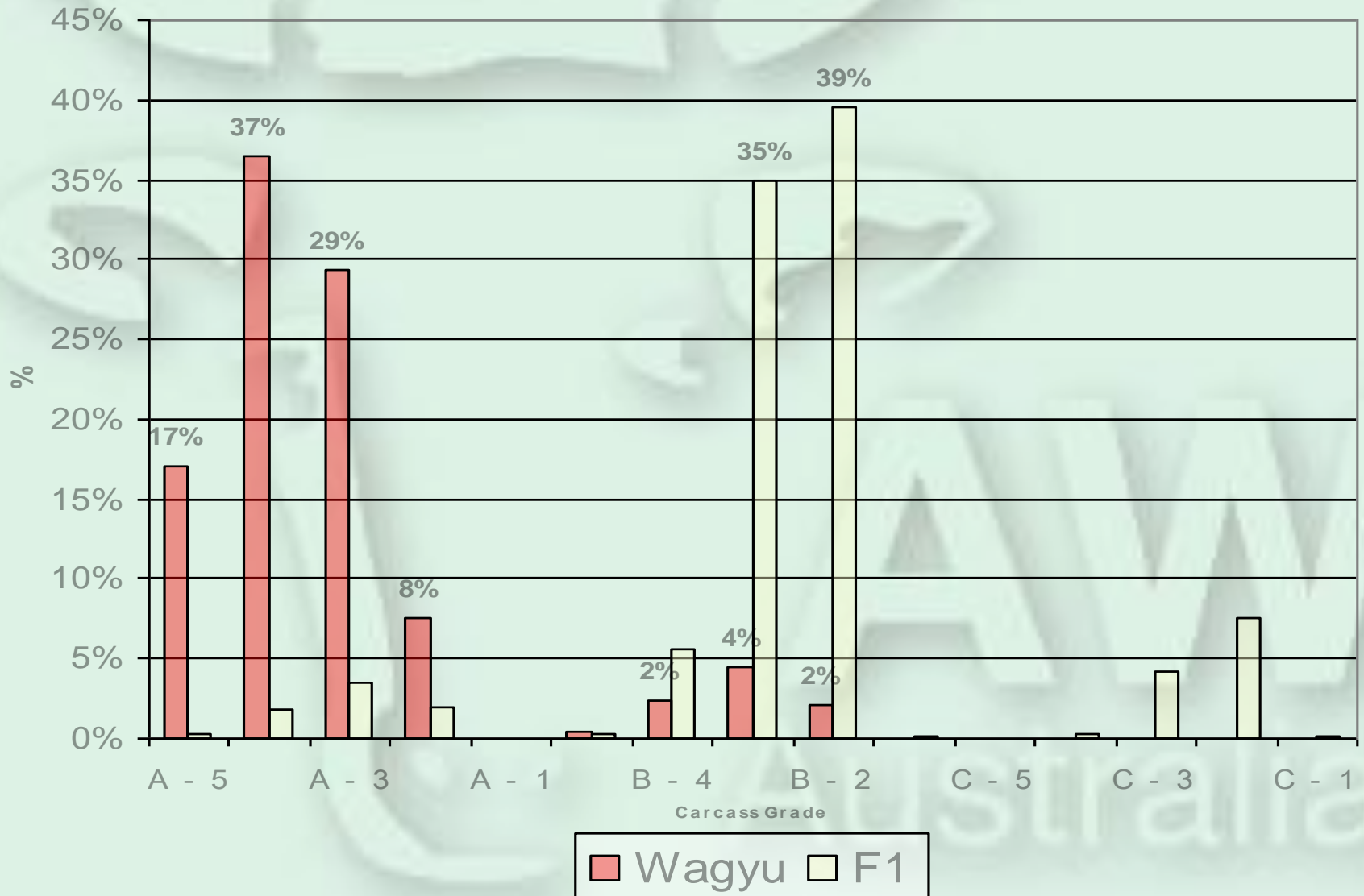
- Official national carcass database

Japanese Black Carcass Weight Trend

Average Carcass Weight



Japanese Carcass Grading Results by Breed 2005 - 2007 Steers Only



JAPANESE MEASUREMENT SYSTEMS

- Official national carcass database
- Unique Japanese SBV system

藤平茂

ふじひらしげ

◆繁殖者：藤井敬司氏
◆測尺値：体高 148cm
 体長 183cm (月齢 7-8)
◆個体識別番号：1015430745

気高系



Hazama
1015430745

プロフィール

「平茂勝」と岡山県でトップクラスの育種係を誇っている「ふくはな5」との交配で作出された「藤平茂」はBMS3.4、DG0.96kgと、父、平茂勝の血液を十分に引き継いだ素晴らしい成績を示しています。枝肉市場でも質・量に優れた枝肉が上場されており、安茂勝同様今一番の期待種雄牛といえます。

■直接検定成績 (検定検定 ☆1.38)				
一日増体量(kg)	脂肪交雑BMS	ロース2段階(cm)	TDN要求率	皮下脂肪厚(cm)
0.96	3.4	49	6.97	2.1
歩留基準値(%)	筋肉重量(kg)	バラの厚さ(cm)	肉質等級4・5率	
73.9	364	6.9	100% (13/13)	

※検定回数は13回 ※検定時期は平成27年4月～28年3月
※肉質等級4・5率検定回数は37回 ※検定時期は：H15.4～2014年3月

SBV (標準化育種係)								
形質	得意	▽2	▽1	▽0	▽1	▽2	得意	SBV
一日増体量	小さい						大きい	1.76
脂肪交雑	少ない						多い	1.74
ロース2段階	小さい						大きい	0.55
TDN要求率	低い						高い	1.02
皮下脂肪厚	薄い						厚い	1.03
歩留基準値	低い						高い	0.22
筋肉重量	小さい						大きい	1.59
バラの厚さ	薄い						厚い	2.44

産子審査得点分布				
75点未満	75点	80点	81点	82点以上
32	50	133	60	25

平茂勝
(岡山県・備前)
黒鹿287 (80.0)
黒鹿2441 (89.0)
★1.47
一日増体量 1.01kg
脂肪交雑BMS 3.3
ロース2段階 43cm
歩留基準値 73.0%

第20平茂
(岡山県・八頭)
黒鹿287 (80.0)
黒鹿134 (84.7)
一日増体量 0.81kg
脂肪交雑 +3.6
ロース2段階 44cm
筋肉歩留 64.0%

気高
(岡山県・高梁)
黒鹿9 (80.0)
第130ふしげ
(岡山県・八頭)
黒鹿15819 (79.0)
宝勝
(岡山県・備前)
黒鹿175 (83.0)

豊登
(岡山県・高梁)
黒鹿1 (80.0)
たけもと
(岡山県・高梁)
気高
(岡山県・高梁)
黒鹿100 (81.0)
第8気高
(岡山県・高梁)
黒鹿1 (80.0)
ほりぞえ1
(岡山県・高梁)

ふくみ
(岡山県・備前)
黒鹿301048 (80.0)
黒鹿105567 (81.0)

はつこ
(岡山県・備前)
黒鹿150582 (79.7)

福花5
(岡山県・高梁)
黒鹿1 (80.0)
つるおさ3
(岡山県・備前)

北国7の8
(岡山県・大田)
黒鹿1530 (86.7)
★1.30
一日増体量 0.94kg
脂肪交雑BMS 2.7
ロース2段階 42cm
筋肉歩留 73.0%

第7糸桜
(岡山県・大田)
黒鹿29 (81.0)

第14茂
(岡山県・高梁)
黒鹿3, 2と2と
(岡山県・仁多)

きたぐに7
(岡山県・大田)
黒鹿34962 (79.0)

糸藤
(岡山県・高梁)
黒鹿154 (83.2)

藤美
(岡山県・八頭)
黒鹿1 (80.0)
もりなゆ
(岡山県・大田)

ふくはな5
(岡山県・高梁)
黒鹿904061 (82.8)

ふくはな1
(岡山県・高梁)
黒鹿544005 (80.0)

第1ともみ
(岡山県・高梁)
黒鹿10291 (77.8)

第7糸桜
(岡山県・仁多)
ひるた1
(岡山県・高梁)
第2明石
(岡山県・備前)
かわふく
(岡山県・高梁)

JAPANESE MEASUREMENT SYSTEMS

- Official national carcass database
- Unique Japanese SBV system
- Intense pedigree analysis
 - Sub-population recombination

Calving Year: 2005
Status: Active
Registration Status: Registered
Sire: [KITATERUYASUDO J2810 HONGEN \(IMP JAP\) \(H\)](#)
Dam: [ECHIGO FARMS F Y3004 \(ET\) \(H\) \(AI\)](#)
Breeder: [ECHIGO FARMS](#)
Current Owner: [ECHIGO FARMS](#)
Grade: Fullblood
Wagyu Blood%: 100.0
Colour: Black
DNA #: 94688
Progeny: None
EBV Graph: [\[View\]](#)

————— [KIKUTERU DOI J10787 - KURO IKU \(H\)](#)

————— [TERUNAGADOI 1742 \(H\)](#)

————— [TERUNAH0 J240580 \(H\)](#)

————— **Sire: [KITATERUYASUDO J2810 HONGEN \(IMP JAP\) \(H\)](#)**

————— [YASUTANI DOI J472 - KURO IKU \(H\)](#)

————— [YOSHIMI 3 601124 \(H\)](#)

————— [YOSHIMI J206526 - KURO IKU \(H\)](#)

Animal: [ECHIGO FARMS MAIFIKU \(AI\)](#)

————— [MONJIRO J11550 \(H\)](#)

————— [MICHIFUKU \(IMP USA\) \(H\)](#)

————— [MICHIKO J655635 \(H\) \(AI\)](#)

————— **Dam: [ECHIGO FARMS F Y3004 \(ET\) \(H\) \(AI\)](#)**

————— [ITOMORITAKA J2703 HONGEN \(IMP JAP\) \(H\)](#)

————— [WESTHOLME YOSHIMORI U6 \(IMP USA\) \(ET\) \(H\) \(AI\)](#)

————— [YOSHIE J1946247 - W82 \(H\)](#)

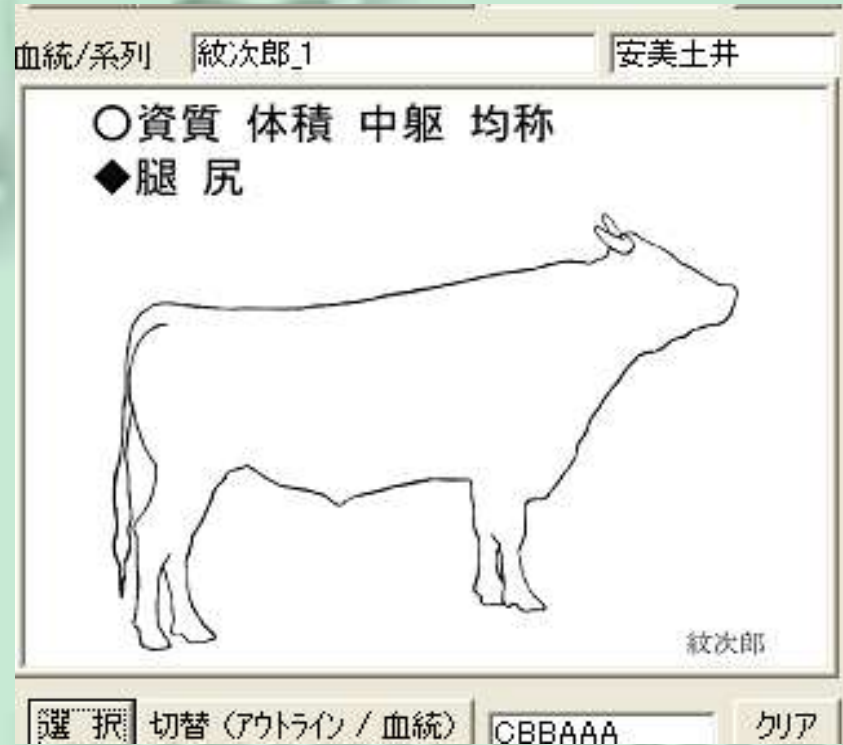
TYPICAL BLACK WAGYU SUB-POPULATION PHENOTYPE DIFFERENCES

Tottori Sire



HIRASHIGEKATSU

Hyogo Sire



MONJIRO

TYPICAL BLACK WAGYU SUB-POPULATION PHENOTYPE DIFFERENCES



HIRASHIGEKATSU



MONJIRO

Progeny Test Results

	<u>Tottori</u>	<u>Hyogo</u>
	(HIRASHIGEKATSU)	(MONJIRO)
• ADG(lb/Day)	2.24	1.93
• CWT(lb)	832	739
• BMS	3.3	3.3

WESTERN RELEVANCE OF JP MEASUREMENT TOOLS

- Carcass database: No
- JP SBVs No
- JP Progeny Test No
- JP Pedigree (16/16) Analysis Yes

WESTERN PERFORMANCE MEASUREMENT TOOLS

- Carcass Feedback = Mission critical
- Gene marker technology

and had consistent effects on Meat Standards Australia (MSA) consumer taste panel scores. The marker effects appear to be additive in their effects on tenderness.

- The effect of T3 was not consistent in British breeds and T4 does not appear to be a useful marker for tenderness in these breeds.

Marbling Results

The marker effect as either individual markers or as increasing 'stars' was neither statistically significant ($P > 0.05$) or consistent for IMF, MSA marble score or AUS-MEAT marble score in any of the populations tested, including the Angus progeny test animals. Points to note with respect to the IMF and marbling results include:

- None of the four marbling markers had a consistent effect either individually or collectively on IMF or marble score.
- The extreme gene frequencies of these markers made it difficult to assess the difference between 0 and 2 star or 1 and 2-star genotypes in most breeds.
- Animals tested for these markers were grain-fed for up to 180 days but there were no very long-fed animals in these datasets.

and feed conversion ratio) were very similar effects on NFI.

Because the feed efficiency (FE) markers were discovered from research on some of the CRCI temperate and tropically adapted animals it was expected the effect of the markers would be statistically significant in that population. However, the marker effects were not statistically significant in any other population, showing that when tested in totally independent populations, the estimated marker effects were not consistent or informative. Points to note with respect to the NFI results include:

- The variance explained by the four FE markers in the CRCI temperate breeds (i.e. comprising the direct parent animals) was about 1.8% of the phenotypic variance for the trait.



Ref: Beef CRC "SmartGene" 2008

WESTERN PERFORMANCE MEASUREMENT TOOLS

- Carcass Feedback = Mission critical
- Gene marker technology
- EBVs/EPDs = global scientific recognition

EBV's

Table 3. Carcase results of high and low IMF EBV sires

	Average IMF EBV values	Predicted difference in IMF% of carcase based on EBVs	Average progeny carcase IMF%	Average marble score
Top 5 sires on IMF (intramuscular fat) EBVs	1.1		5.5	2.8
Bottom 5 sires on IMF EBVs	-0.5		4.9	2.4
Difference	1.6	0.8 [§]	0.6	0.4

§ Prediction if based on the differences seen in EBVs = 0.8 – ie half the difference between the EBVs of the sires

MLA Tips & Tools “The accuracy and success of EBVs”

<http://www.mla.com.au/NR/rdonlyres/8712E9F3-B57E-4B95-A666-1520881F9521/0/TipstoolsAccuracyandsuccessofEBVs2005.pdf>

Hirashigetayasu Hongen



ADG lb	BMS	EMA 5/6 Rib	Backfat	Carcase Yield %	Av. Carcase Grade
2.15	2.4	45 cm ²	1.9	73.3	A.4.7

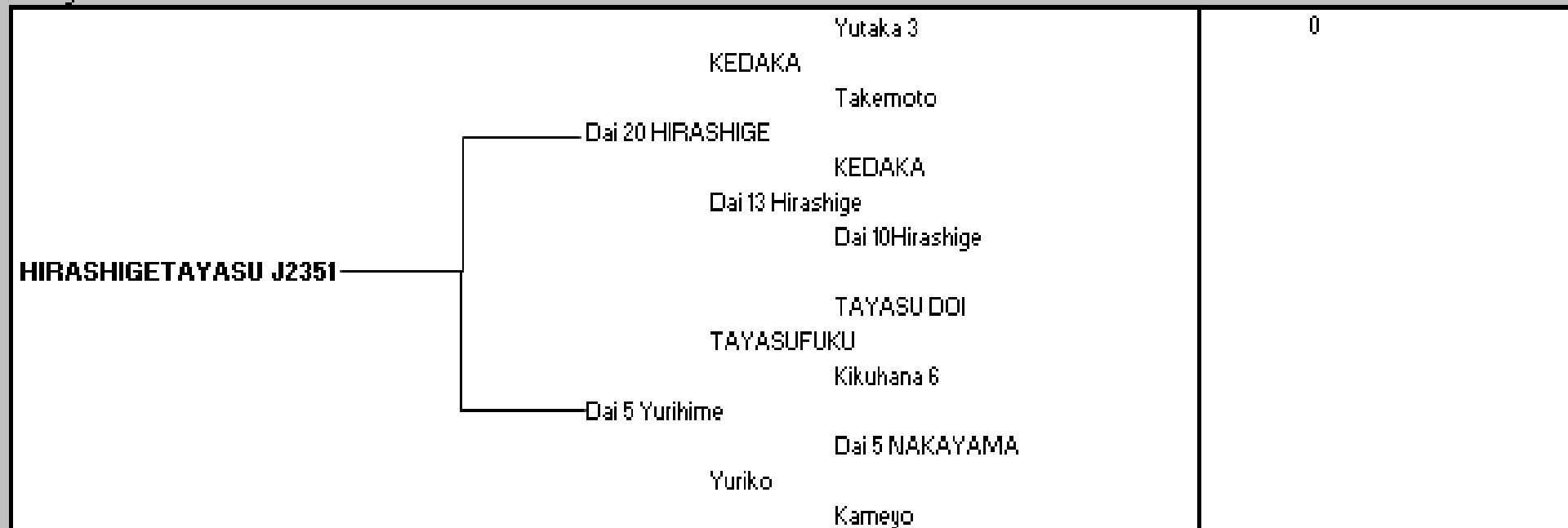
Hirashigetayasu

16/16 Analysis

Sire Name	Group	Tajima	Kedaka	Tottori	Itozakura	Shimane	Okagama	Hiroshima	Other	Total
HIRASHIGETAYASU J2351	C	4.0	6.0	2.0	-	-	4.0	-	-	16
		25%	38%	13%	0%	0%	25%	0%	0%	

Pedigree

Comment:



0

Hirashigetayasu

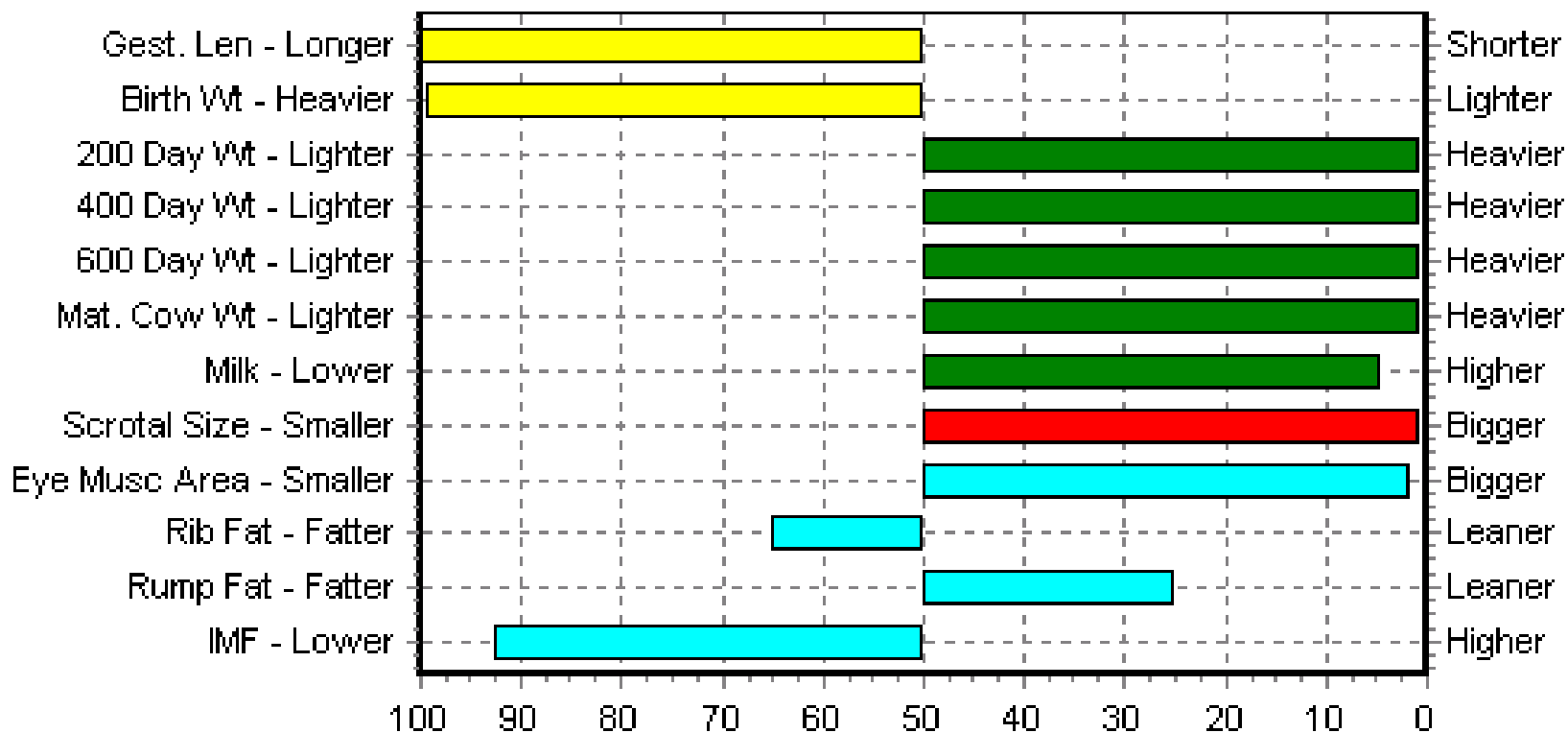
Gene Marker Analysis

- Marbling GeneStars (2005) = 2
- GH-Exon 5 (2005) = Type AB

Hirashigetayasu

AWA 2009 Spring Wagyu Group Breedplan

EBV Percentiles for HIRASHIGETAYASU J2351 HONGEN (IMP JAP) (I
2009 SPRING WAGYU GROUP BREEDPLAN EBVS



GINJO B901

Pedigree

┌───────────┐ KEDAKA J7212 - KURO IKU (H)
┌───────────┐ DAI 20 HIRASHIGE J287 - KURO IKU (H)
┌───────────┐ DAI 13 HIRASHIGE J1137022 - KURO KOH (H)
┌───────────┐ **Sire: HIRASHIGETAYASU J2351 HONGEN (IMP JAP) (H)**
┌───────────┐ TAYASUFUKU J157 - KURO IKU (H)
┌───────────┐ DAI 5 YURUHIME J187250 - KURO KOH (H)
┌───────────┐ YURIKO J28677 - KURO KOH (H)

Animal: GINJO MARBLEMAX HIRANAMI B901 (ET) (AI)

┌───────────┐ ITOSHIGENAMI (IMP USA) (H)
┌───────────┐ GINJO F W100 (ET) (AI)
┌───────────┐ GINJO CHARITY (ET) (H) (AI)
┌───────────┐ **Dam: GINJO F Z158**
┌───────────┐ KIKUYASU 400 (IMP JAP) (H)
┌───────────┐ GINJO PRANCER (ET) (H) (AI)
┌───────────┐ TF DAI 2 KINNTOU 35/3 (IMP USA) (ET) (H)

GINJO B901

16/16 Analysis

Sire Name	Group	Tajima	Kedaka	Tottori	Itozakura	Shimane	Okayama	Hiroshim a	Other	Total
GINJO B901	C	6	4	3	2	0	1	0	-	16
		37%	25%	18%	14%	0%	7%	0%	0%	

Pedigree

Comment:

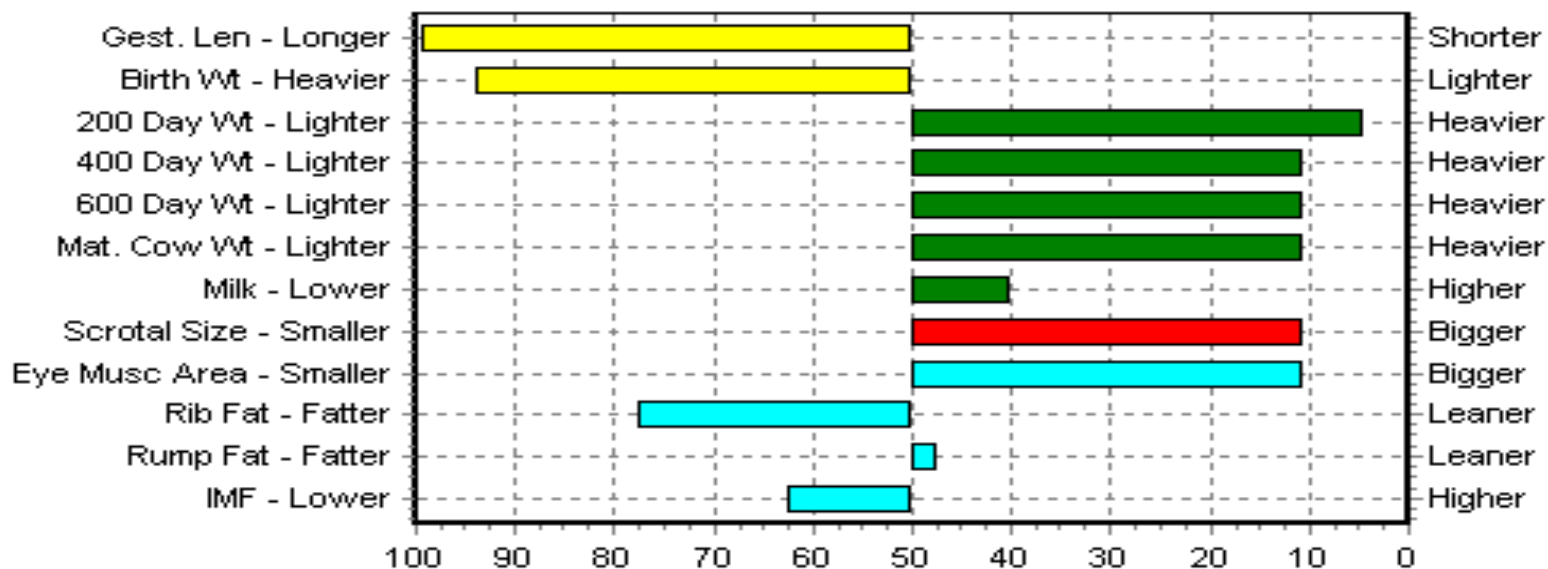
GINJO B901



GINJO B901

AWA 2009 Spring Wagyu Group Breedplan

EBV Percentiles for GINJO MARBLEMAX HIRANAMI B901 (ET) (AI) 2009 SPRING WAGYU GROUP BREEDPLAN EBVS



50th Percentile is the Breed Avg. EBVs for 2007 Born Calves

2009 SPRING WAGYU GROUP BREEDPLAN EBVS												
	Gest. Len. (days)	Birth Wt. (kg)	200 Day Wt. (kg)	400 Day Wt. (kg)	600 Day Wt. (kg)	Mat. Cow Wt. (kg)	Milk (kg)	Scrotal Size (cm)	Eye Muscle Area (sq.cm)	Rib Fat (mm)	Rump Fat (mm)	IMF %
EBV	+2.7	+3.0	+18	+24	+32	+34	+3	+0.7	+2.0	+0.3	+0.1	0.0
Acc	50%	53%	53%	53%	53%	51%	50%	51%	51%	52%	52%	51%

GINJO B901

Actual Full Sibling Carcass Data

DOF:	525
ADG	2.02lb
HDCW	957.93lb
EMA	54
BMS	10

AWW
Australian

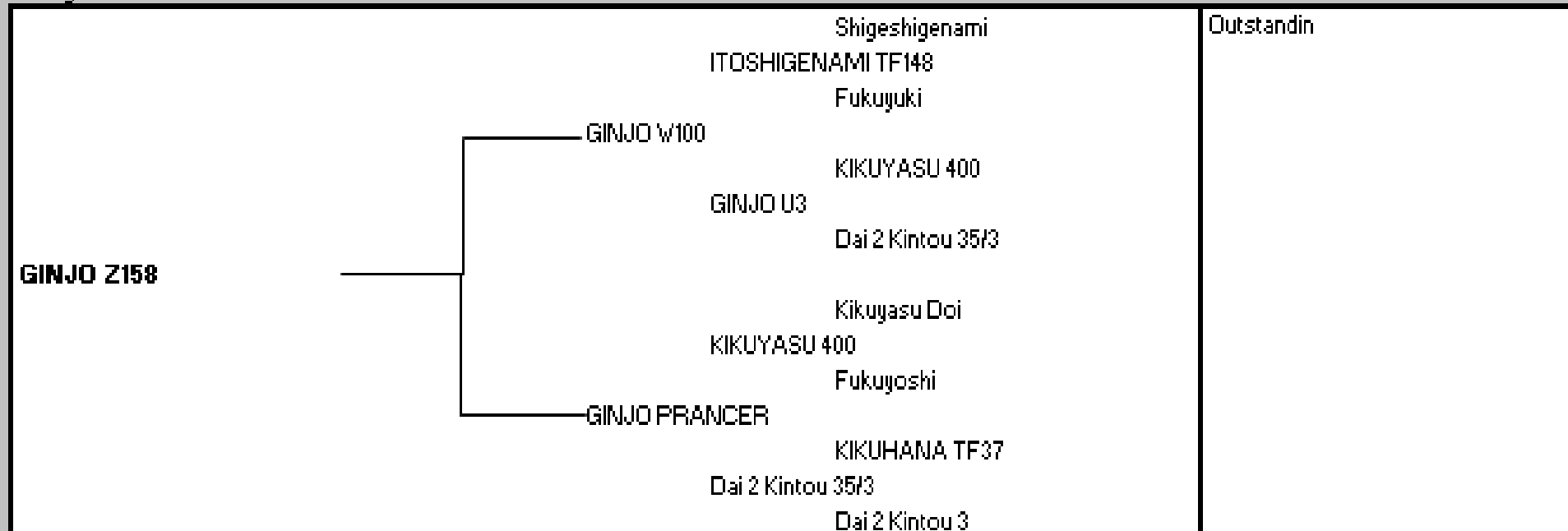
GINJO Z158

16/16 Analysis

Sire Name	Group	Tajima	Kedaka	Tottori	Itozakura	Shimane	Okayama	Hiroshima	Other	Total
GINJO Z158	C	10.0	-	-	5.0	1.0	-	-	-	16
		62%	0%	0%	31%	6%	0%	0%	0%	

Pedigree

Comment:



Outstandin

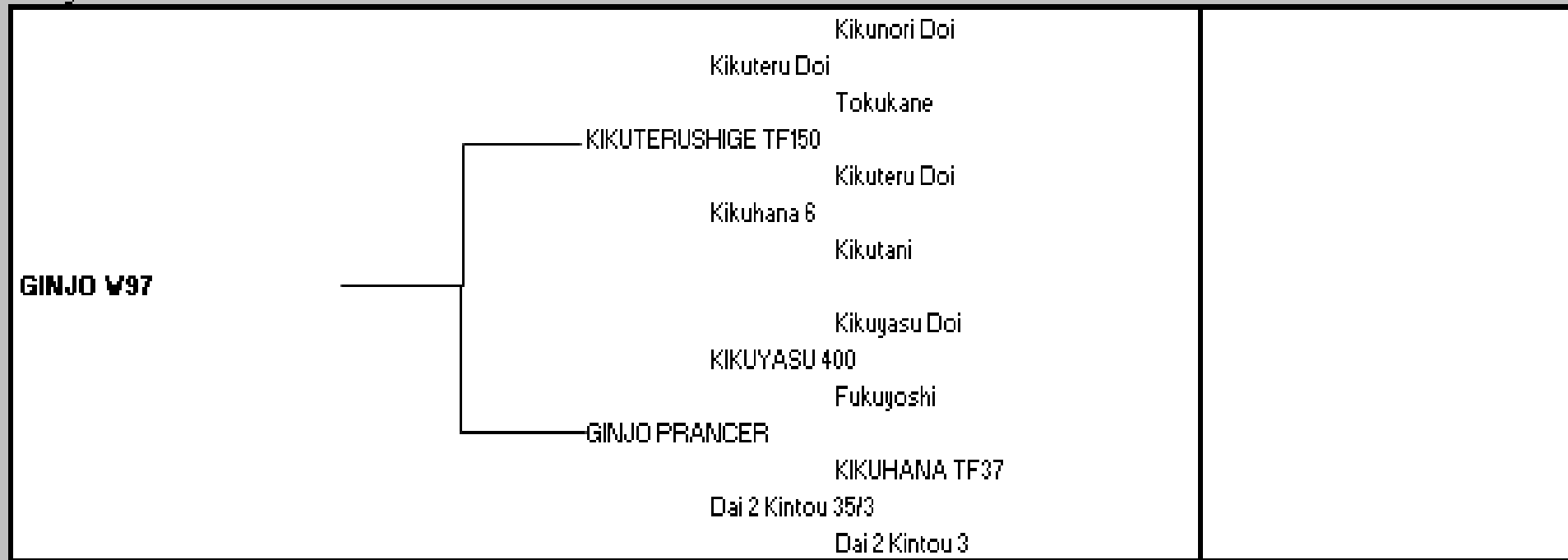
GINJO W97

16/16 Analysis

Sire Name	Group	Tajima	Kedaka	Tottori	Itozakura	Shimane	Okayama	Hiroshim a	Other	Total
GINJO W97	C	12.0	-	-	3.0	1.0	-	-	-	16
		75%	0%	0%	19%	6%	0%	0%	0%	

Pedigree

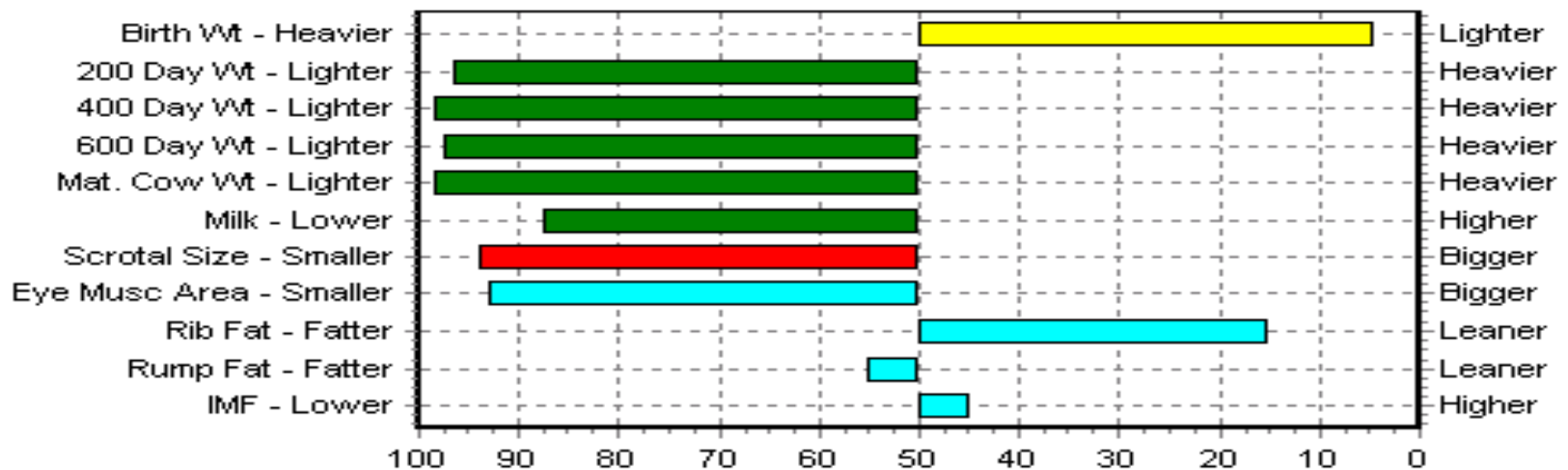
Comment:



GINJO W97

AWA 2009 Spring Wagyu Group Breedplan

EBV Percentiles for GINJO F W097 (ET) (AI) 2009 SPRING WAGYU GROUP BREEDPLAN EBVS



50th Percentile is the Breed Avg. EBVs for 2007 Born Calves

2009 SPRING WAGYU GROUP BREEDPLAN EBVS

	Birth Wt (kg)	200 Day Wt (kg)	400 Day Wt (kg)	600 Day Wt (kg)	Mat. Cow Wt (kg)	Milk (kg)	Scrotal Size (cm)	Eye Muscle Area (sq. cm)	Rib Fat (mm)	Rump Fat (mm)	IMF %
EBV	-1.4	-1	-5	-5	-16	-4	-1.1	-2.1	-0.2	+0.2	+0.1
Acc	57%	56%	56%	56%	53%	49%	50%	52%	53%	53%	51%
Breed Avg. EBVs for 2007 Born Calves Click for Percentiles											
EBV	+0.9	+9	+14	+18	+18	+2	-0.1	+0.5	+0.1	+0.1	+0.1

GINJO W97

Actual Full Sibling Carcass Data

- **DOF:** 525
- **ADG** 1.67lb
- **HDCW** 829.4lb
- **EMA** 47
- **BMS** 10

AWW
Australian

Questions Arising:

- How do EBVs account for marbling performance differentials between major sub-populations ?
- How useful are WY marbling EBVs without carcass proof ?

HOW WOULD A JAPANESE BREEDER PROCEED ?

- Primary Inputs
 - Pedigree Analysis (16/16)
 - Phenotype Evaluation
 - Carcass Data
- Secondary Inputs
 - EBVs/EPDs
 - Gene Markers

Conclusions

- Focus on foundation tools & primary data
- Pedigree analysis & carcass data

Then

- Secondary inputs



*The carcass is
King!*