Genetic Diversity and MateSel

Dr Matt McDonagh – AWA CEO

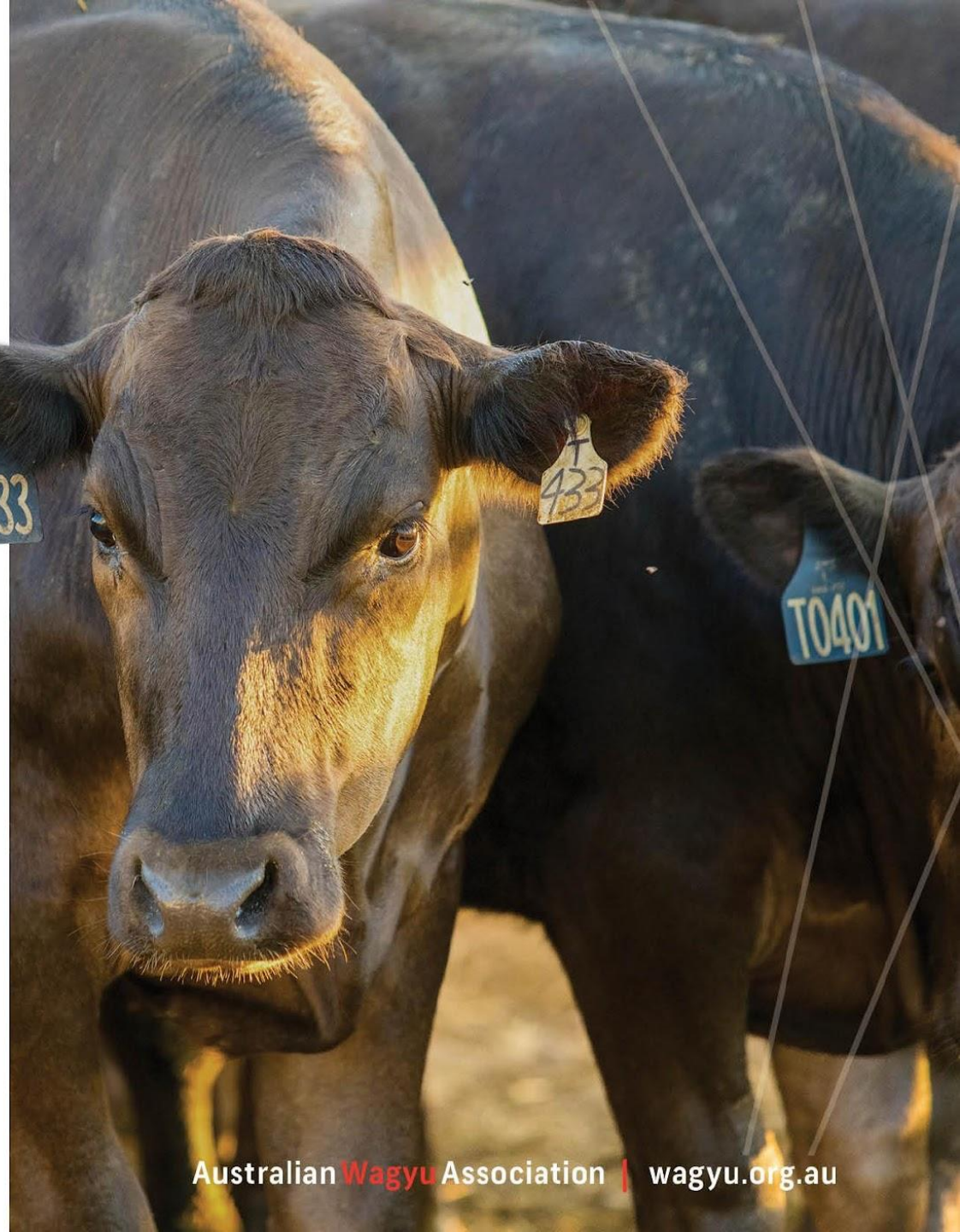
12 months of innovation

- Genetic Diversity released
- Genomic Inbreeding released
- Selection Index updates
- Wagyu Feeder Check **2.0**
- Carcase data hits 50,000 records
- Developing new fatty acid test
- AWAPTP carcase data coming in
- Helical database ready to go
- Discovering new recessives
- Biotechnology Applications

Genetic Diversity and Genomic Inbreeding

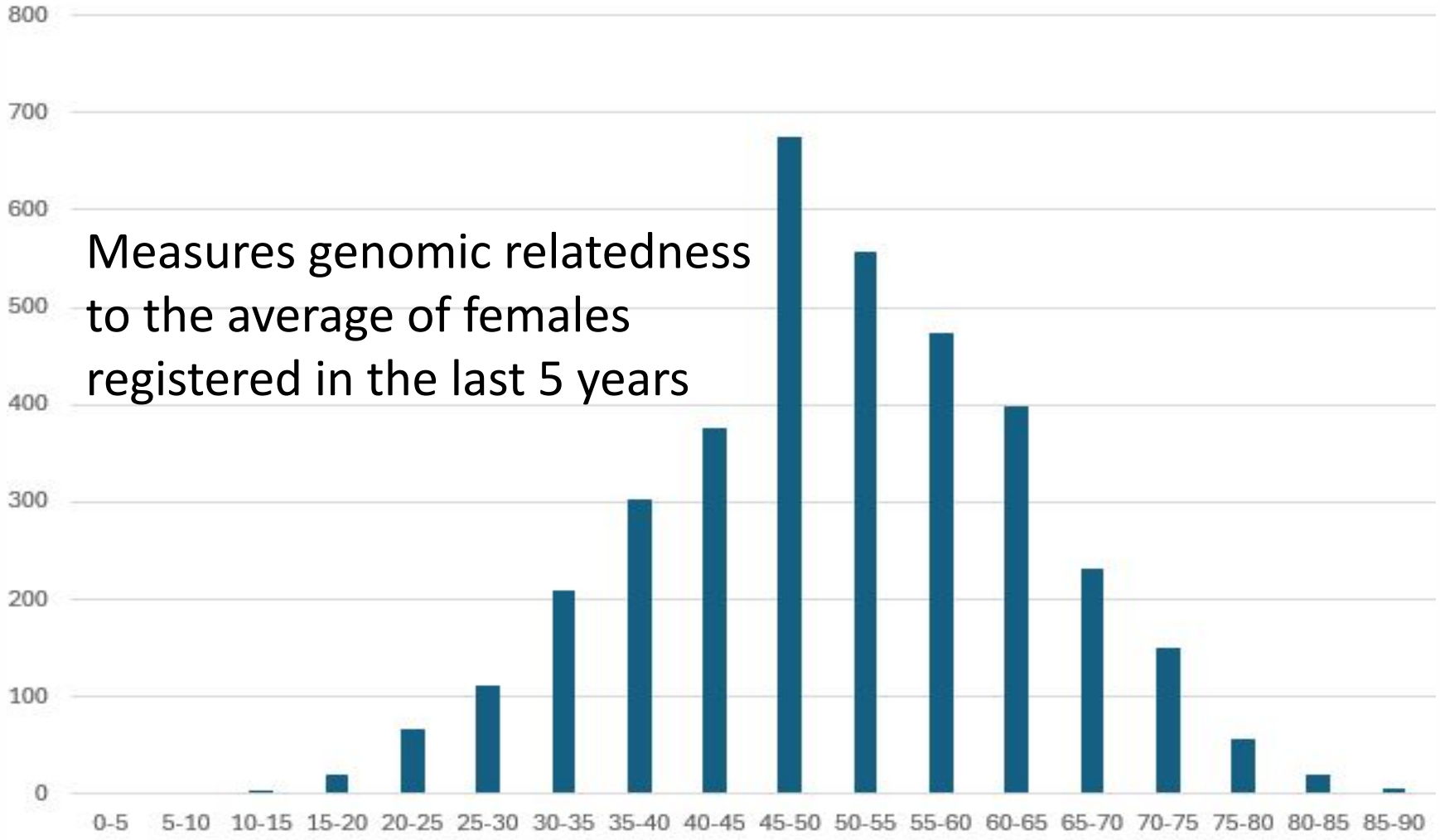
Require Genomic Genotypes (Currently 100K best)

Fullblood Japanese Black Only



WORLDS LUXURY BEEF

Fullblood Black – Genetic Diversity



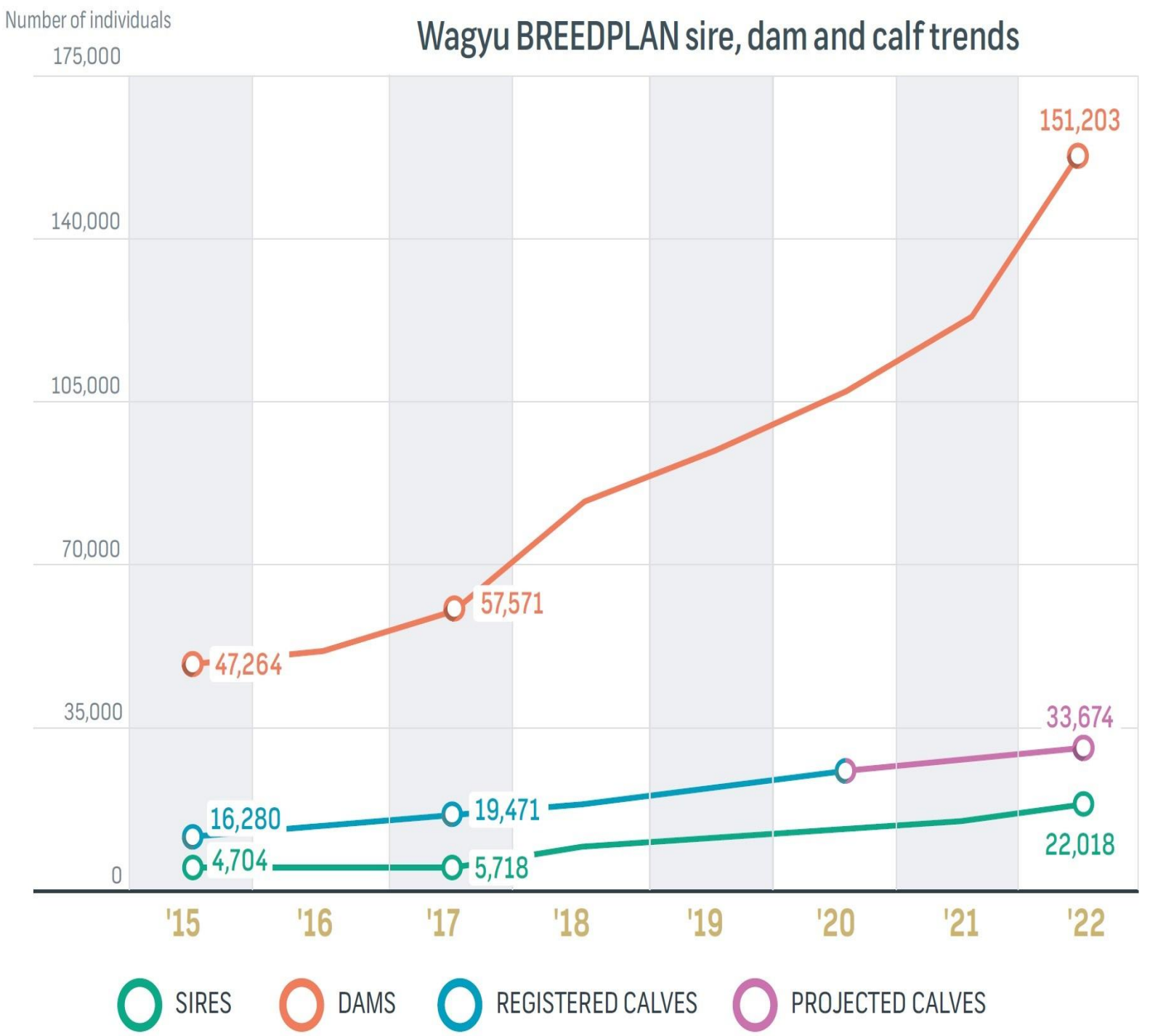
Measures genomic relatedness to the average of females registered in the last 5 years

WORLDS LUXURY BEEF

From 222 to > 350,000 registered Wagyu

Now at 2025

- **>230,000 cows (have calves recorded against them)**
- **>25,000 sires (have calves recorded against them)**
- **>100,000 calves registered not yet with calves of their own**

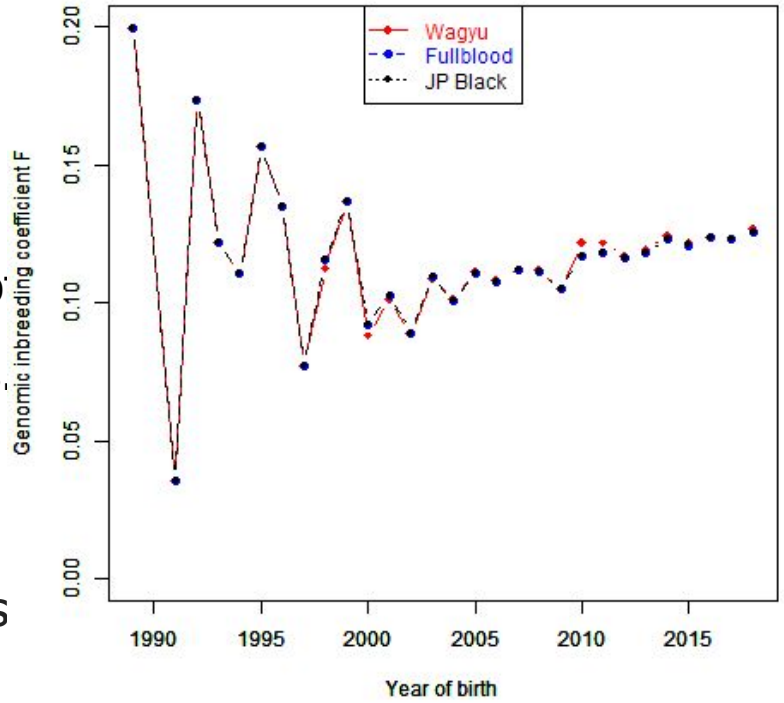


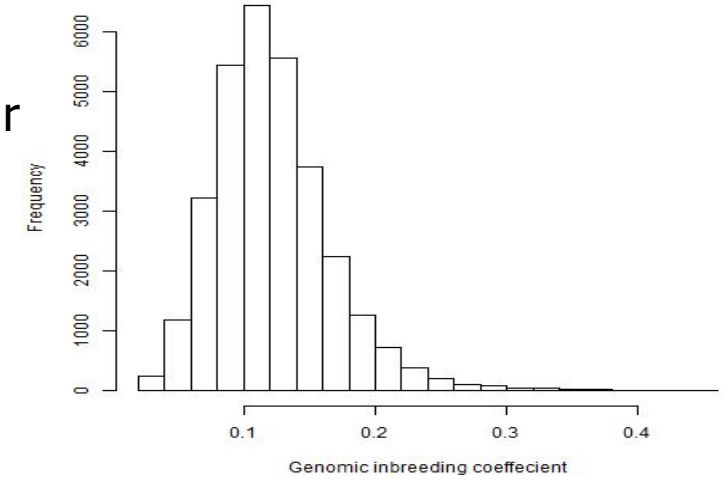
Inbreeding trends in Wagyu

Inbreeding depression is the reduced survival and fertility of offspring o
documented in wild animal and plant populations, as well as in humans.

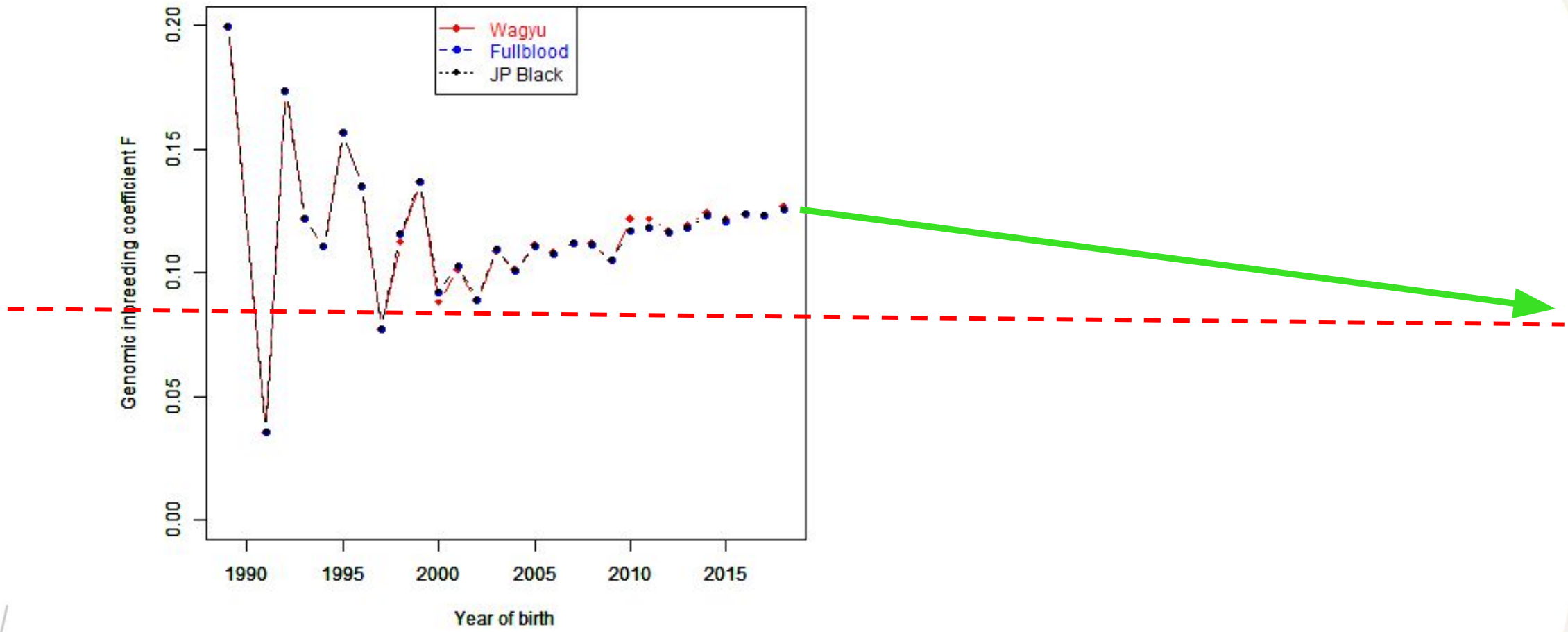
Inbreeding depression is predominantly caused by recessive deleterious

Intercrossing inbred strains improves performance (heterosis), particular





Future breeding trends in Wagyu

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WAGYU
ASSOCIATION
MateSel
Australian Wagyu Association | wagyu.org.au

What is MateSel?

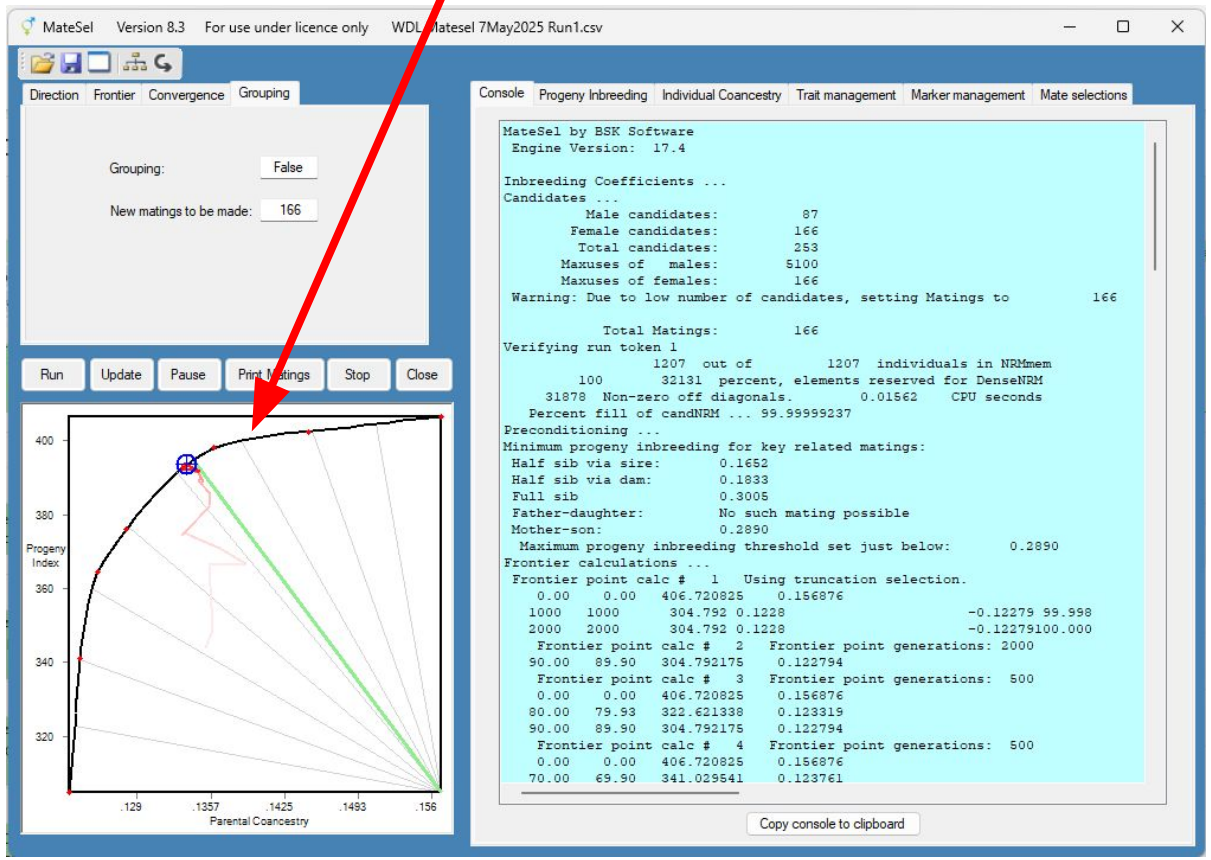
- MateSel is a software package used to optimise your breeding program.
- It makes selection and mating decisions while balancing genetic gain and diversity
- It also accommodates specific technical and logistical constraints as specified by the user.
- It is widely used across different industries (beef, sheep, dairy, pigs, fish, trees, crops, etc..)

Strategies for MateSel runs

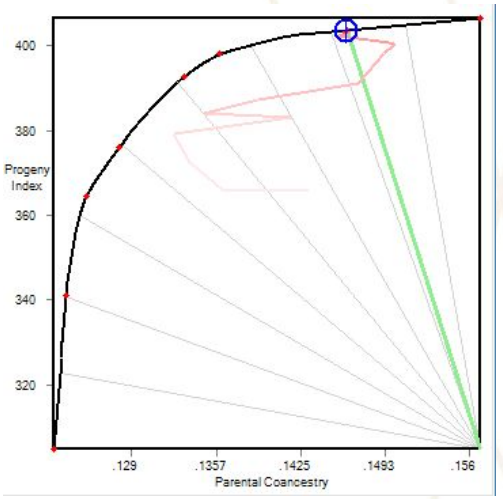
- Manage genetic defects
- Manage trait distributions, including Tactical Desired Gains
- Handle the use of reproductive technologies (AI, IVF, ET)
- Impose a wide range of constraints on animal movement, numbers of matings, patterns of mating, and others
- Use genomic information for mating decisions as well as for selection
- Can run on thousands of animals

MateSel's interface

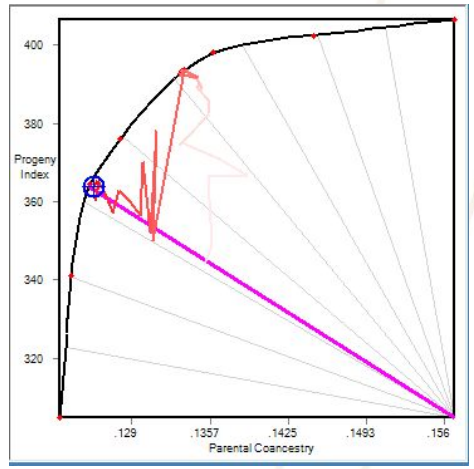
The software creates a **frontier**, which reflects the emphases on $Index (e.g. BFI) vs Diversity (i.e. Coancestry)



More emphasis on $Index

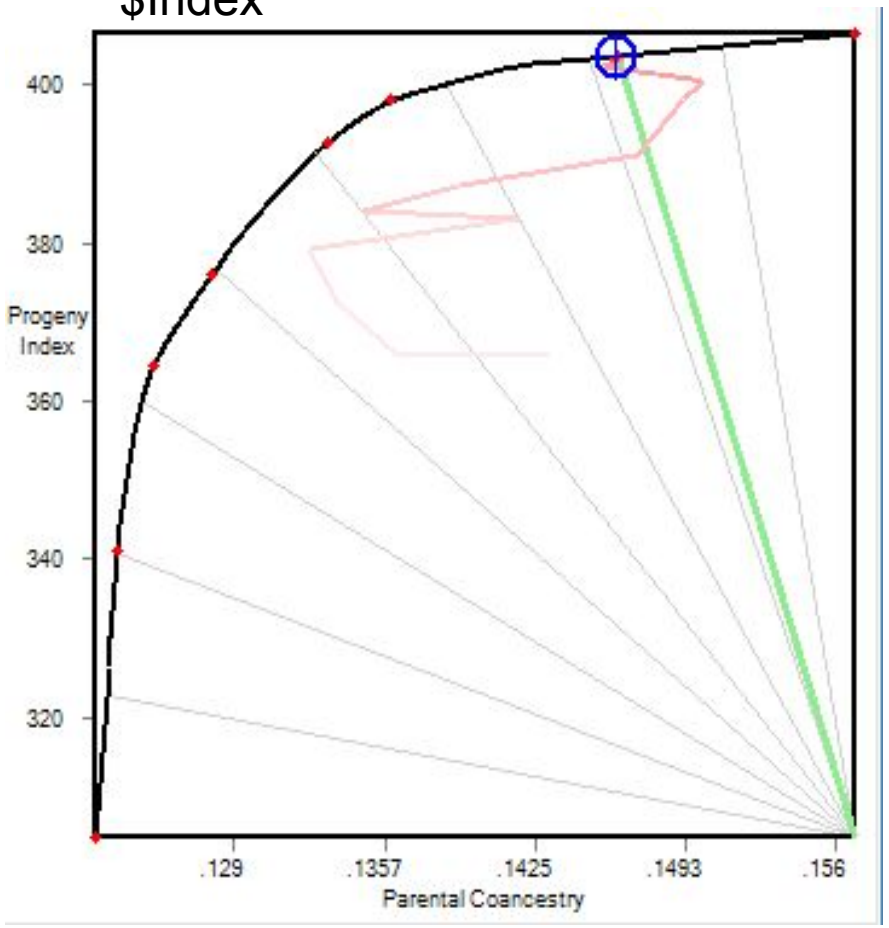


More emphasis on Diversity

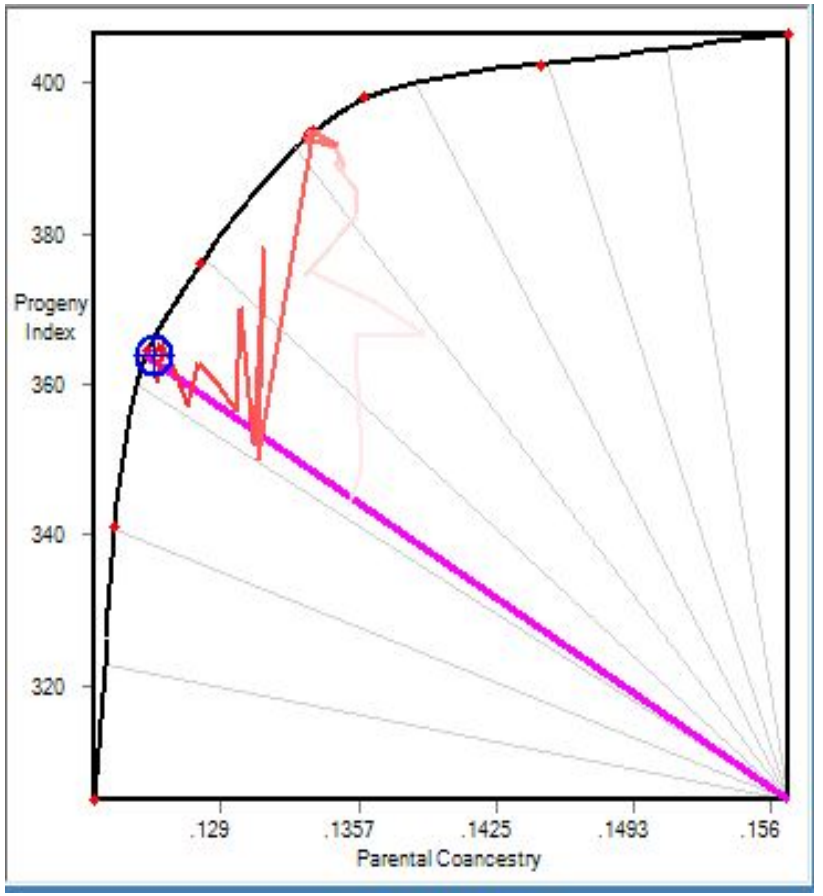


Selection Frontier

More emphasis on BFI $Index

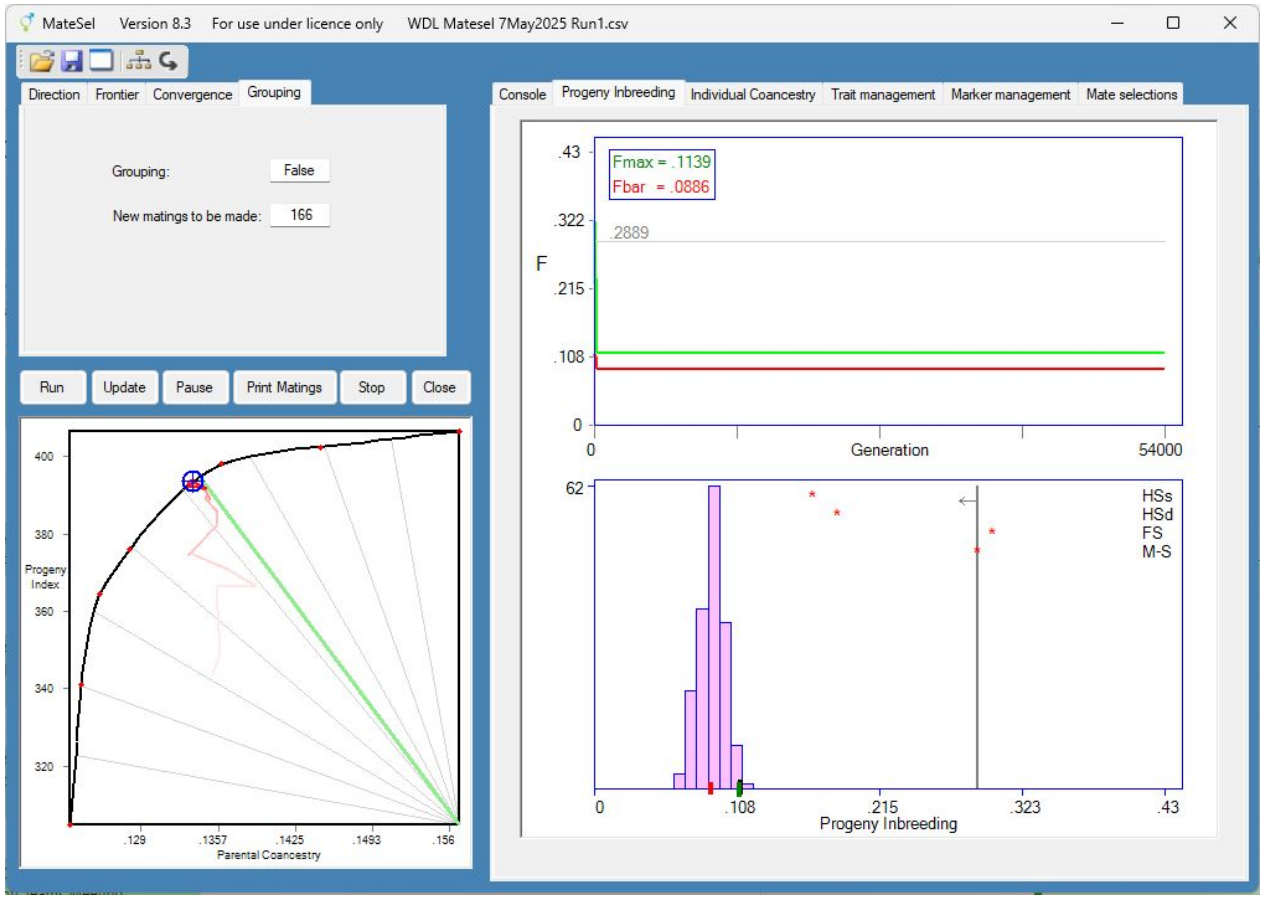


More emphasis on Diversity



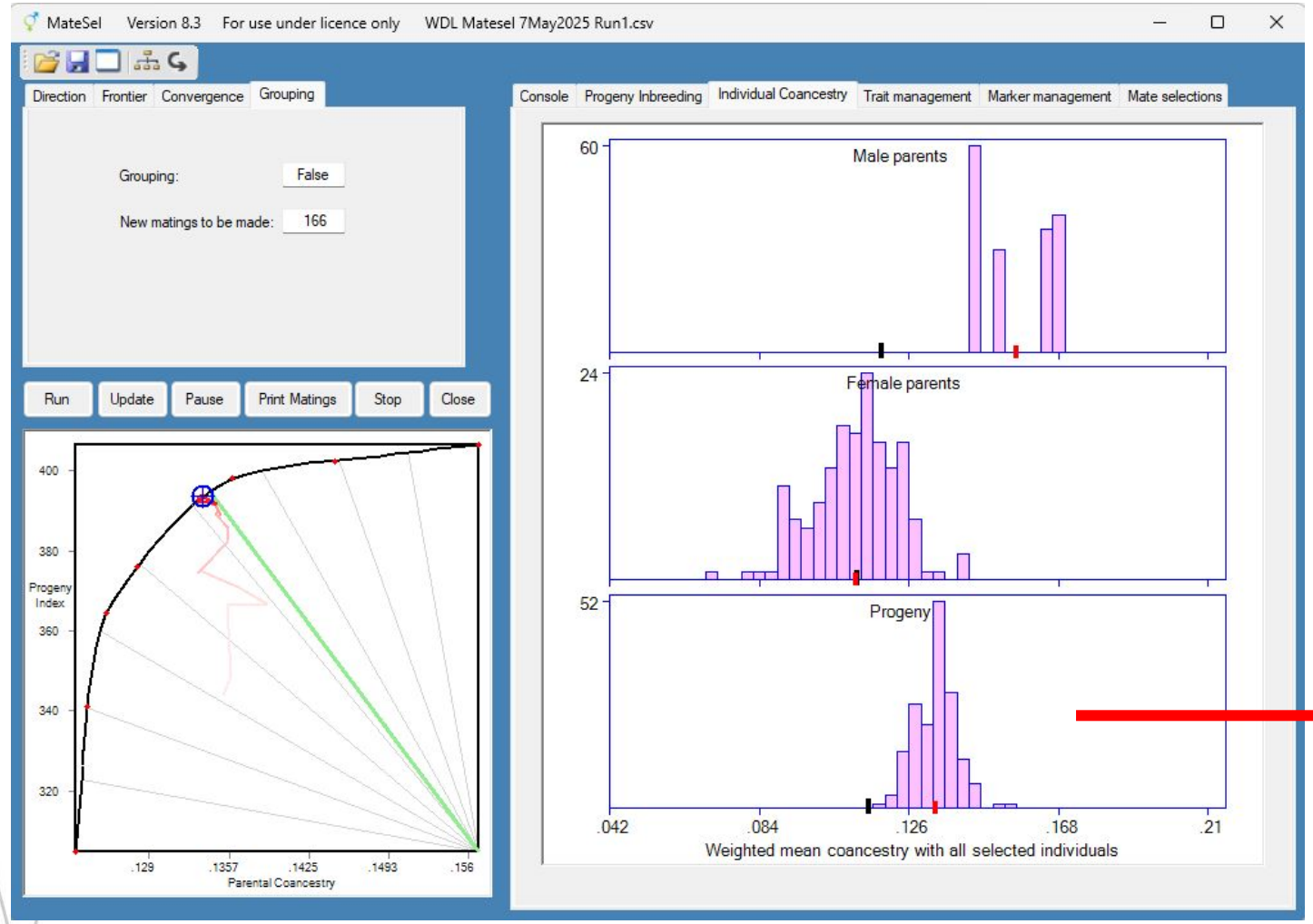
Progeny Inbreeding

Once the software converges, the progeny inbreeding from the proposed mating is calculated

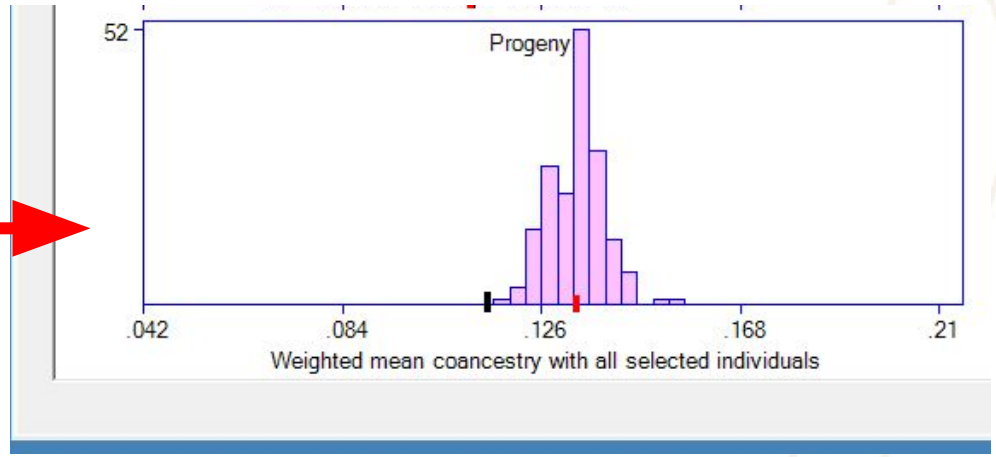


In this example the Inbreeding (F) ranges from 8.9% to a max 11.4%

Progeny Diversity (Coancestry)

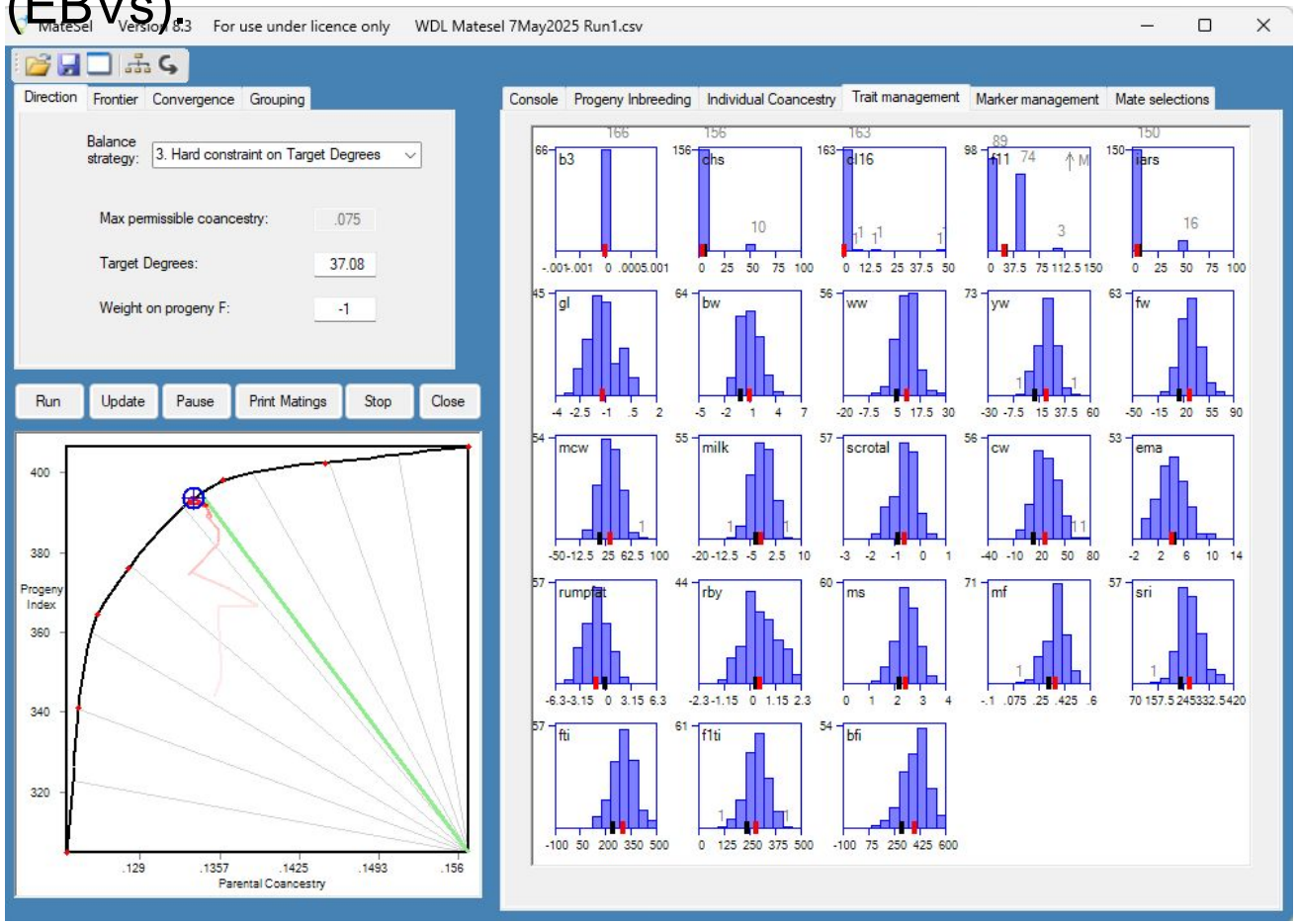


The level of co-ancestry in the progeny is an indication of common ancestors in the population



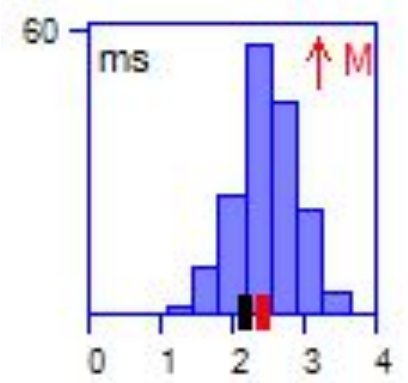
Fine Tunning

We can impose restrictions on different traits (EBVs).

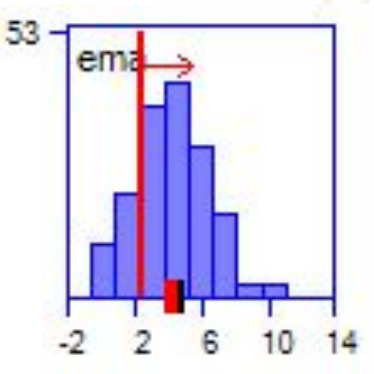


For example:

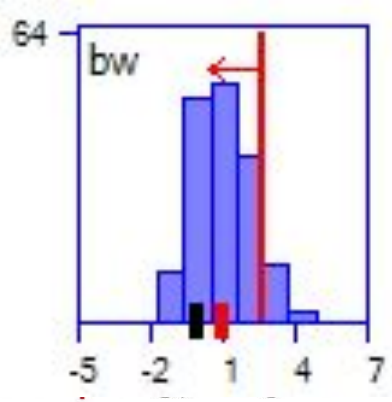
1) We can force to increase the mean of MS on the progeny



2) We can force a Min value on the EMA of the progeny

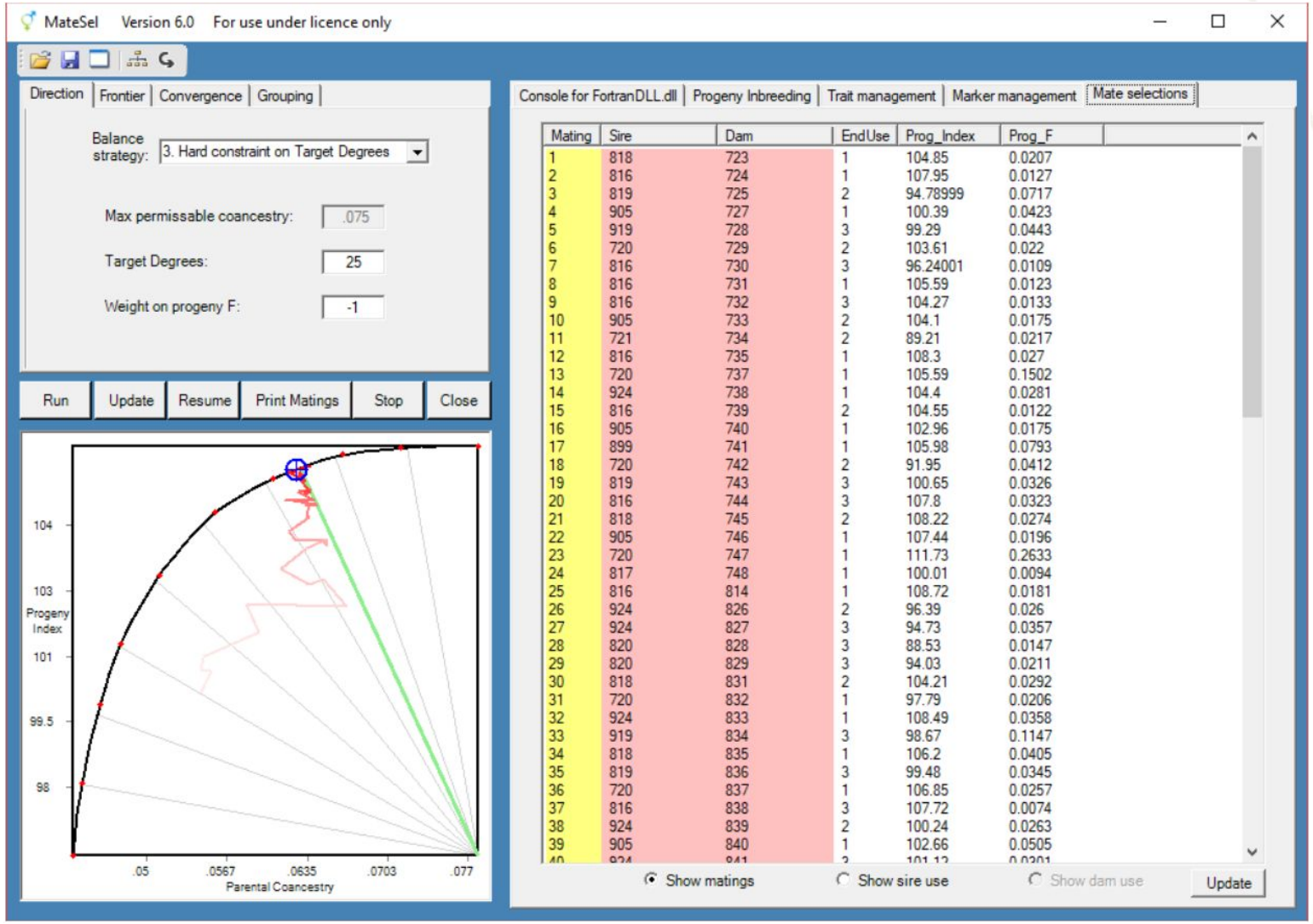


3) We can force a Max value on the BW of the progeny



Proposed Mating List:

Once that the run is completed a list of Matings with the Progeny $Index and Progeny Inbreeding is provided



Examples with AWA-PTP sires

Example

MateSel

100 V Heifers from Sahara Park herd
92 Bulls from AWA-PTP Cohorts 1-3

Min Use for Bulls set at 10
Max Use for Bulls set at 30

Scenario 1: Set Objective at high BFI
Scenario 2: Set Objective at balanced BFI and diversity
Scenario 3: Set Objective at high diversity

Scenario 1
High BFI

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Direction | Frontier | Convergence | Grouping

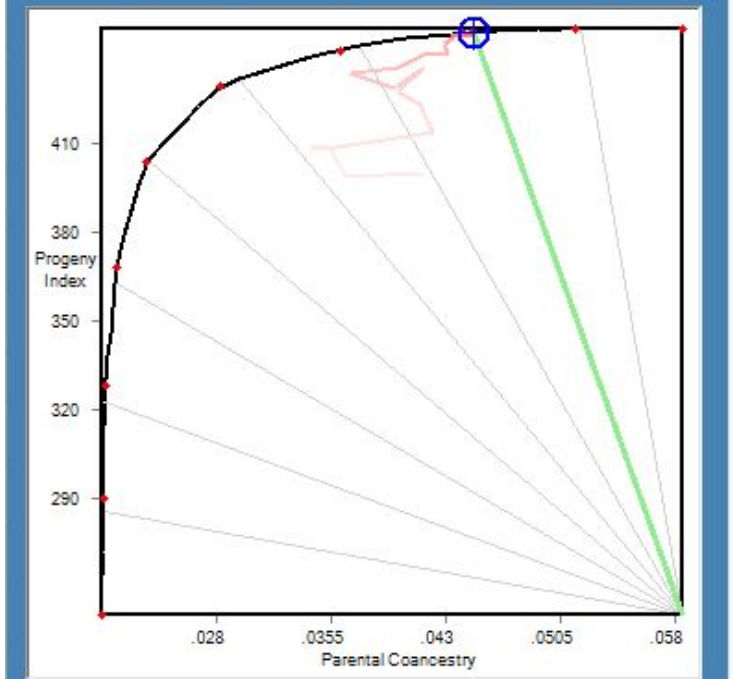
Balance strategy: 3. Hard constraint on Target Degrees

Max permissible coancestry: .075

Target Degrees: 20

Weight on progeny F: -1

Run | Update | Pause | Print Matings | Stop | Close



Console | Progeny Inbreeding | Individual Coancestry | Trait management | Marker management | Mate selections

Mating	Sire	Dam	Prog_Index	Prog_F
1	SYNF23U16	SPWF24V165	448.5	0.0078
2	SYNF23U16	SPWF24V108	408.6	0
3	SYNF23U16	SPWF24V112	417.3	0.0078
4	SYNF23U16	SPWF24V148	432.85	0
5	SYNF23U16	SPWF24V152	489.8	0
6	SYNF23U16	SPWF24V161	444.55	0.001
7	SYNF23U16	SPWF24V162	497.8	0
8	SYNF23U16	SPWF24V171	436.45	0
9	SYNF23U16	SPWF24V158	464.95	0.0039
10	SYNF23U16	SPWF24V164	402.15	0
11	SYNF23U16	SPWF24V167	427.5	0
12	SYNF23U16	SPWF24V168	359.4	0
13	SYNF23U16	SPWF24V151	481.5	0
14	SYNF23U16	SPWF24V155	391.65	0
15	SYNF23U16	SPWF24V178	451.85	0
16	SYNF23U16	SPWF24V182	447.75	0.0078
17	OGWFS033	SPWF24V153	338.15	0
18	OGWFS033	SPWF24V189	533.9	0
19	OGWFS033	SPWF24V125	378.1	0
20	OGWFS033	SPWF24V139	319.3	0
21	OGWFS033	SPWF24V150	305.5	0
22	OGWFS033	SPWF24V149	434.45	0
23	OGWFS033	SPWF24V154	437.35	0.002
24	OGWFS033	SPWF24V157	522.8	0
25	OGWFS033	SPWF24V172	449.65	0.002
26	OGWFS033	SPWF24V186	374.95	0
27	OGWFS033	SPWF24V185	486	0
28	WYNFR308H	SPWF24V170	529.8	0.002
29	WYNFR308H	SPWF24V175	384.15	0.002
30	WYNFR308H	SPWF24V180	512.05	0.002
31	WYNFR308H	SPWF24V100	534.9	0.0039
32	WYNFR308H	SPWF24V102	546.95	0.0039

Show matings | Show sire use | Update

DamID	#Backups	Primary	F	100%	Backup1	F	%	Backup2	F	%	Backup3	F	%
SPWF24V165	3	SYNF23U16	0.0078	100	TRIF22T7704K	0.0081	99.5	LTCF22T342	0.0278	98.4	LSRFQ0102	0.0514	97.7
SPWF24V108	3	SYNF23U16	0	100	TRIF22T7704K	0.0078	99.1	LTCF22T342	0.0391	97.4	OGWFS033	0	97.3
SPWF24V112	3	SYNF23U16	0.0078	100	TRIF22T7704K	0.0117	99.3	LTCF22T342	0.0469	97.4	OGWFS033	0.0078	97.3
SPWF24V148	3	SYNF23U16	0	100	TRIF22T7704K	0.0079	99.1	LSRFQ0102	0.0188	99	LTCF22T342	0.0157	98.6
SPWF24V152	3	SYNF23U16	0	100	TRIF22T7704K	0.012	98.9	LTCF22T342	0.0356	97.6	OGWFS033	0	97.3
SPWF24V161	3	SYNF23U16	0.001	100	TRIF22T7704K	0.0156	98.7	LTCF22T342	0.043	97.3	OGWFS033	0.001	97.3
SPWF24V162	3	SYNF23U16	0	100	TRIF22T7704K	0.0127	98.8	LTCF22T342	0.0372	97.5	OGWFS033	0	97.3
SPWF24V171	3	SYNF23U16	0	100	TRIF22T7704K	0.0083	99.1	LTCF22T342	0.0284	98	LSRFQ0102	0.0451	97.6
SPWF24V158	3	SYNF23U16	0.0039	100	TRIF22T7704K	0.0078	99.3	LTCF22T342	0.0274	98.2	LSRFQ0102	0.0461	97.8
SPWF24V164	3	SYNF23U16	0	100	TRIF22T7704K	0.0088	99	LSRFQ0102	0.0246	98.7	LTCF22T342	0.0176	98.6
SPWF24V167	3	SYNF23U16	0	100	TRIF22T7704K	0.0156	98.7	OGWFS033	0	97.3	LTCF22T342	0.043	97.2
SPWF24V168	3	SYNF23U16	0	100	TRIF22T7704K	0.0083	99.1	LSRFQ0102	0.0216	98.9	LTCF22T342	0.0166	98.6
SPWF24V151	3	SYNF23U16	0	100	TRIF22T7704K	0.0122	98.9	LSRFQ0102	0.034	98.2	LTCF22T342	0.0245	98.2
SPWF24V155	3	SYNF23U16	0	100	TRIF22T7704K	0.0122	98.9	LSRFQ0102	0.0339	98.2	LTCF22T342	0.0244	98.2
SPWF24V178	3	SYNF23U16	0	100	TRIF22T7704K	0.0132	98.8	LTCF22T342	0.0264	98.1	LSRFQ0102	0.0397	97.9
SPWF24V182	3	SYNF23U16	0.0078	100	TRIF22T7704K	0.0085	99.4	LTCF22T342	0.0171	99	LSRFQ0102	0.0338	98.6
SPWF24V153	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	MAXFS25	0	95.1
SPWF24V189	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	MAXFS25	0	95.1
SPWF24V125	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	MAXFS25	0	95.1
SPWF24V139	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	BPGFS0054	0.0157	95.1
SPWF24V150	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	BPGFS0054	0.0157	95.1
SPWF24V149	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0157	93.5
SPWF24V154	3	OGWFS033	0.002	100	MYMF22T0725	0.0029	97.9	BPGFS0054	0.0167	95.2	MAXFS25	0.001	95.1
SPWF24V157	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0244	93.1
SPWF24V172	3	OGWFS033	0.002	100	MYMF22T0725	0.0029	97.9	BPGFS0054	0.0167	95.2	MAXFS25	0.001	95.1
SPWF24V186	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	MAXFS25	0	95.1
SPWF24V185	3	OGWFS033	0	100	MYMF22T0725	0	98	GINFS650	0	95.2	MAXFS25	0	95.1
SPWF24V170	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.7	LTCF22T342	0.0195	91
SPWF24V175	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.7	LTCF22T342	0.0195	91
SPWF24V180	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.7	LTCF22T342	0.0195	91
SPWF24V100	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V102	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V104	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V105	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V106	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V110	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V117	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V124	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V174	3	WYNFR308H	0.0024	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0044	91.7	LTCF22T342	0.0205	91
SPWF24V101	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V109	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V113	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V119	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V120	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V121	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V122	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V123	3	WYNFR308H	0.0039	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0078	91.6	LTCF22T342	0.0391	90.1
SPWF24V159	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0044	91.8	LSRFQ0102	0.0152	91.7
SPWF24V160	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	TRIF22T7704K	0.0044	91.8	LSRFQ0102	0.0152	91.7

MateSel

Scenario 1 High BFI matings

Scenario 2

Balanced BFI and Diversity

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Direction | Frontier | Convergence | Grouping

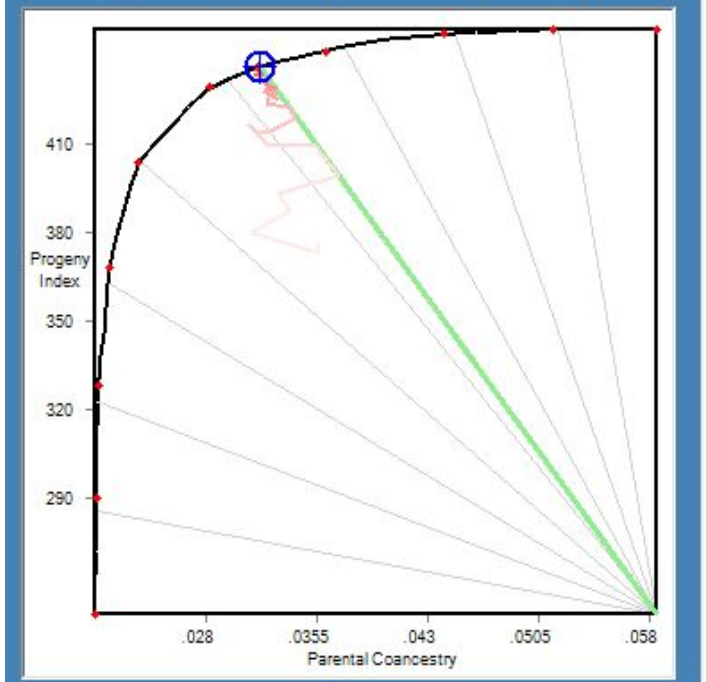
Balance strategy: 3. Hard constraint on Target Degrees

Max permissible coancestry: .075

Target Degrees: 37.08

Weight on progeny F: -1

Run | Update | Pause | Print Matings | Stop | Close



Console | Progeny Inbreeding | Individual Coancestry | Trait management | Marker management | Mate selections

Mating	Sire	Dam	Prog_Index	Prog_F
69	TRIF22T7704K	SPWF24V14	372.05	0
70	TRIF22T7704K	SPWF24V142	477.85	0
71	TRIF22T7704K	SPWF24V16	437.15	0
72	TRIF22T7704K	SPWF24V17	413.35	0
73	TRIF22T7704K	SPWF24V134	405.85	0
74	TRIF22T7704K	SPWF24V15	460.1	0
75	TRIF22T7704K	SPWF24V18	383.5	0
76	TRIF22T7704K	SPWF24V140	370.35	0
77	TRIF22T7704K	SPWF24V143	430	0
78	TRIF22T7704K	SPWF24V163	396.35	0.0001
79	TRIF22T7704K	SPWF24V115	531.7	0
80	TRIF22T7704K	SPWF24V133	436.95	0
81	LTCF22T342	SPWF24V126	490.35	0
82	LTCF22T342	SPWF24V138	435.8	0
83	LTCF22T342	SPWF24V144	382.9	0
84	LTCF22T342	SPWF24V130	383.55	0
85	LTCF22T342	SPWF24V131	403.4	0
86	LTCF22T342	SPWF24V135	406.5	0
87	LTCF22T342	SPWF24V136	538.75	0
88	LTCF22T342	SPWF24V10	468.9	0
89	LTCF22T342	SPWF24V12	428.9	0
90	LTCF22T342	SPWF24V128	439.1	0
91	LSRFQ0102	SPWF24V147	452	0.0039
92	LSRFQ0102	SPWF24V116	476.65	0.0039
93	LSRFQ0102	SPWF24V118	402.95	0.0039
94	LSRFQ0102	SPWF24V188	388.7	0.0004
95	LSRFQ0102	SPWF24V103	428.75	0.0039
96	LSRFQ0102	SPWF24V173	341.95	0.0004
97	LSRFQ0102	SPWF24V107	450.2	0.0039
98	LSRFQ0102	SPWF24V111	465.5	0.0039
99	LSRFQ0102	SPWF24V114	398.2	0.0039
100	LSRFQ0102	SPWF24V137	404.8	0.0015

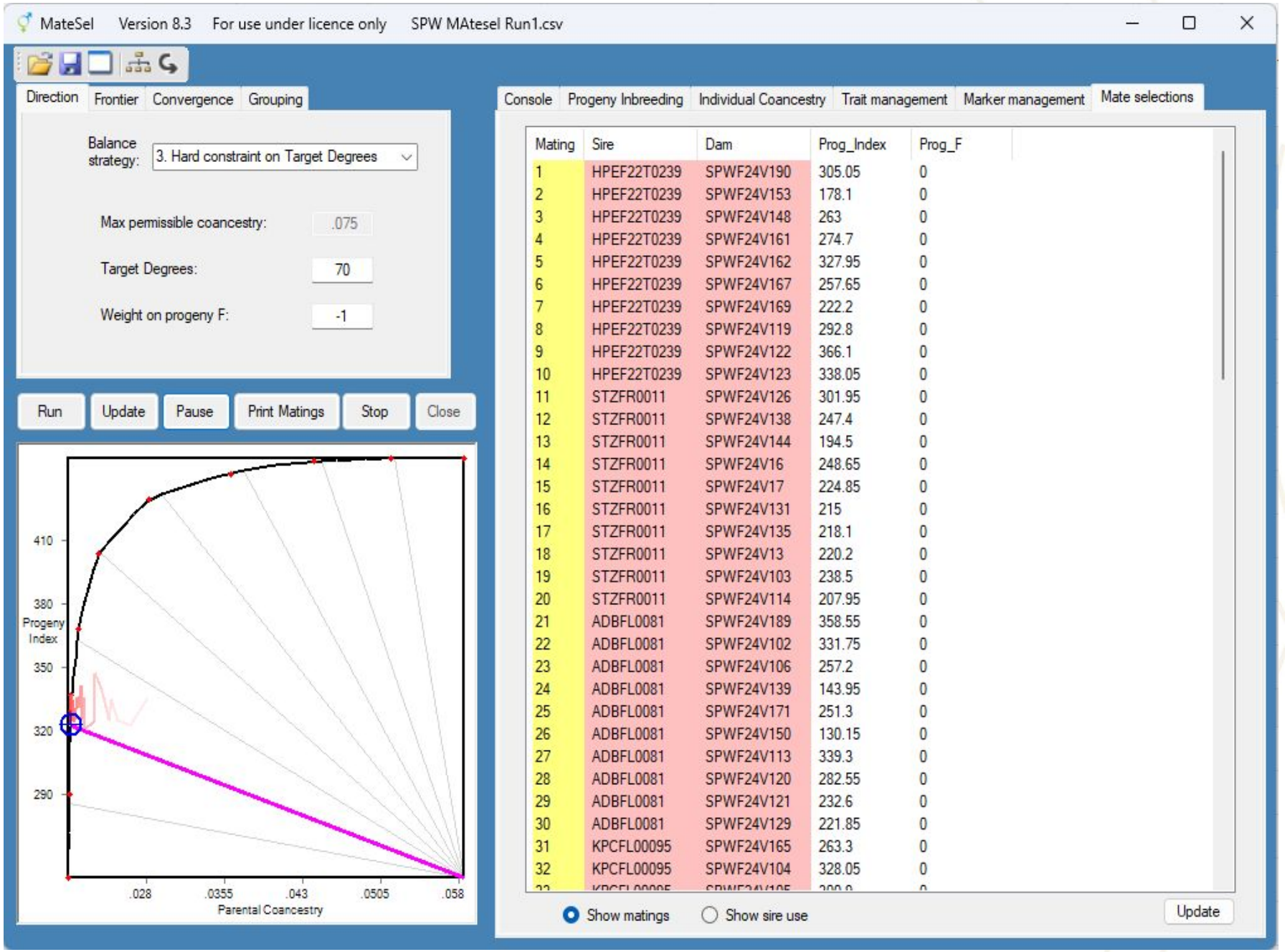
Show matings | Show sire use | Update

DamID	#Backups	Primary	F	100%	Backup1	F	%	Backup2	F	%	Backup3	F	%
SPWF24V189	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V102	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V104	3	SYNF23U16	0	100	OGWFS033	0	97.3	GINFS650	0	92.6	MAXFS25	0	92.5
SPWF24V117	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V124	3	SYNF23U16	0	100	OGWFS033	0	97.3	GINFS650	0	92.6	MAXFS25	0	92.5
SPWF24V125	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V152	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V101	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V113	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V120	3	SYNF23U16	0	100	OGWFS033	0	97.3	MYMF22T0725	0	95.3	GINFS650	0	92.6
SPWF24V153	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	BPGFS0054	0.0479	93.8
SPWF24V100	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V105	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V106	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V108	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V110	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V119	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V121	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V122	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0156	93.7
SPWF24V149	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	IGWFM0352	0.0157	93.7
SPWF24V155	3	OGWFS033	0	100	GINFS650	0	95.2	MAXFS25	0	95.1	BPGFS0054	0.0244	94.9
SPWF24V139	3	MYMF22T0725	0	100	OGWFS033	0	102	BPGFS0054	0.0157	97.2	GINFS650	0	97.1
SPWF24V162	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V164	3	MYMF22T0725	0	100	OGWFS033	0	102	BPGFS0054	0.0176	97.1	MAXFS25	0	97
SPWF24V167	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V109	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V151	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V159	3	MYMF22T0725	0	100	OGWFS033	0	102	BPGFS0054	0.0088	97.5	GINFS650	0	97.1
SPWF24V186	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V185	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V178	3	MYMF22T0725	0	100	OGWFS033	0	102	GINFS650	0	97.1	MAXFS25	0	97
SPWF24V170	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.8	LTCF22T342	0.0195	91.1
SPWF24V175	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.8	LTCF22T342	0.0195	91.1
SPWF24V180	3	WYNFR308H	0.002	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0039	91.8	LTCF22T342	0.0195	91.1
SPWF24V174	3	WYNFR308H	0.0024	100	SYNF23U16	0	92.4	TRIF22T7704K	0.0044	91.8	LTCF22T342	0.0205	91.1
SPWF24V129	3	WYNFR308H	0.0002	100	SYNF23U16	0	92.3	LSRFQ0102	0.0015	92.3	TRIF22T7704K	0.0005	91.8
SPWF24V141	3	WYNFR308H	0.0002	100	SYNF23U16	0	92.3	LSRFQ0102	0.0015	92.3	TRIF22T7704K	0.0005	91.8
SPWF24V19	3	WYNFR308H	0.0002	100	SYNF23U16	0	92.3	LSRFQ0102	0.0015	92.3	TRIF22T7704K	0.0005	91.8
SPWF24V160	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V166	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V177	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V176	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V179	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V181	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V183	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V184	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V187	3	WYNFR308H	0.0032	100	SYNF23U16	0	92.5	LSRFQ0102	0.0152	91.8	TRIF22T7704K	0.0044	91.8
SPWF24V11	3	MAXFS25	0.002	100	GINFS650	0	100.2	IGWFM0352	0.0039	99.2	MYMFQ0256	0.0039	95.8
SPWF24V148	3	MAXFS25	0	100	BPGFS0054	0.0157	100.2	GINFS650	0	100.1	IGWFM0352	0.0157	98.6

MateSel

Scenario 2
Balanced BFI and Diversity

Scenario 3
Max Diversity



DamID	#Backups	Primary	F	100%	Backup1	F	%	Backup2	F	%	Backup3	F	%
SPWF24V190	3	HPEF22T0239	0	100	GTFPS0213P	0.0039	618.6	LRXF22T157K	0.0059	616.2	PWAFP7298	0.0005	597.7
SPWF24V153	3	HPEF22T0239	0	100	GTFPS0213P	0	602.3	LRXF22T157K	0.0049	597.5	PWAFP7298	0.0009	578.6
SPWF24V148	3	HPEF22T0239	0	100	GTFPS0213P	0	621.8	LRXF22T157K	0.0137	608.9	PWAFP7298	0.0015	596.6
SPWF24V161	3	HPEF22T0239	0	100	GTFPS0213P	0.0005	587.5	LRXF22T157K	0.0122	577.1	PWAFP7298	0.001	564.8
SPWF24V162	3	HPEF22T0239	0	100	GTFPS0213P	0	600.1	LRXF22T157K	0.0052	595	PWAFP7298	0.0013	576.1
SPWF24V167	3	HPEF22T0239	0	100	GTFPS0213P	0	587.9	LRXF22T157K	0.0117	577.5	PWAFP7298	0.001	564.8
SPWF24V169	3	HPEF22T0239	0	100	LRXF22T157K	0.0062	206.4	PWAFP7298	0.0082	201.3	IGWFP0788	0.0052	201.2
SPWF24V119	3	HPEF22T0239	0	100	GTFPS0213P	0	622.1	LRXF22T157K	0.002	619.7	PWAFP7298	0.0005	597.7
SPWF24V122	3	HPEF22T0239	0	100	GTFPS0213P	0	622.1	LRXF22T157K	0.002	619.7	PWAFP7298	0.0005	597.7
SPWF24V123	3	HPEF22T0239	0	100	GTFPS0213P	0	622.1	LRXF22T157K	0.002	619.7	PWAFP7298	0.0005	597.7
SPWF24V126	3	STZFR0011	0	100	LRXF22T157K	0.0039	151.7	WSIFS513	0.0039	151.2	BDWFM0554	0	151
SPWF24V138	3	STZFR0011	0	100	LRXF22T157K	0.0039	206.4	WSIFS513	0.0039	205.3	BDWFM0554	0	204.8
SPWF24V144	3	STZFR0011	0	100	LRXF22T157K	0.0039	292.3	WSIFS513	0.0039	290.2	BDWFM0554	0	289.4
SPWF24V16	3	STZFR0011	0	100	LRXF22T157K	0.0039	204.5	WSIFS513	0.0039	203.3	BDWFM0554	0	202.9
SPWF24V17	3	STZFR0011	0	100	LRXF22T157K	0.0039	204.5	WSIFS513	0.0039	203.3	BDWFM0554	0	202.9
SPWF24V131	3	STZFR0011	0	100	LRXF22T157K	0.0039	204.5	WSIFS513	0.0039	203.3	BDWFM0554	0	202.9
SPWF24V135	3	STZFR0011	0	100	LRXF22T157K	0.0039	622.9	WSIFS513	0.0039	617.2	BDWFM0554	0	615.1
SPWF24V13	3	STZFR0011	0	100	LRXF22T157K	0.0039	204.5	WSIFS513	0.0039	203.3	BDWFM0554	0	202.9
SPWF24V103	3	STZFR0011	0	100	GTFPS0213P	0.002	589.1	LRXF22T157K	0.002	588.6	BDWFM0554	0	579.6
SPWF24V114	3	STZFR0011	0	100	LRXF22T157K	0.002	204.8	BDWFM0554	0	202.9	PWAFP7298	0	200.6
SPWF24V189	3	ADBFL0081	0	100	GTFPS0213P	0	814	LRXF22T157K	0.0039	808.6	WSIFS513	0	806
SPWF24V102	3	ADBFL0081	0	100	GTFPS0213P	0	850.3	LRXF22T157K	0.002	847.1	WSIFS513	0	841.9
SPWF24V106	3	ADBFL0081	0	100	GTFPS0213P	0	850.3	LRXF22T157K	0.002	847.1	WSIFS513	0	841.9
SPWF24V139	3	ADBFL0081	0	100	GTFPS0213P	0	849.7	WSIFS513	0	841.4	BDWFM0554	0	833.8
SPWF24V171	3	ADBFL0081	0	100	GTFPS0213P	0	845.6	LRXF22T157K	0.0059	837.6	WSIFS513	0	837.3
SPWF24V150	3	ADBFL0081	0	100	GTFPS0213P	0	849.7	WSIFS513	0	841.4	BDWFM0554	0	833.8
SPWF24V113	3	ADBFL0081	0	100	GTFPS0213P	0	850.3	LRXF22T157K	0.002	847.1	WSIFS513	0	841.9
SPWF24V120	3	ADBFL0081	0	100	GTFPS0213P	0	850.3	LRXF22T157K	0.002	847.1	WSIFS513	0	841.9
SPWF24V121	3	ADBFL0081	0	100	GTFPS0213P	0	850.3	LRXF22T157K	0.002	847.1	WSIFS513	0	841.9
SPWF24V129	3	ADBFL0081	0	100	GTFPS0213P	0	924.4	LRXF22T157K	0.0005	922.8	WSIFS513	0	915.2
SPWF24V165	3	KPCFL00095	0	100	GTFPS0213P	0.0039	689	LRXF22T157K	0.0068	685.4	WSIFS513	0.0039	682.2
SPWF24V104	3	KPCFL00095	0	100	LRXF22T157K	0.002	212.5	WSIFS513	0	211.7	BDWFM0554	0	210.5
SPWF24V105	3	KPCFL00095	0	100	GTFPS0213P	0	694.3	LRXF22T157K	0.002	691.7	WSIFS513	0	687.5
SPWF24V110	3	KPCFL00095	0	100	GTFPS0213P	0	694.3	LRXF22T157K	0.002	691.7	WSIFS513	0	687.5
SPWF24V124	3	KPCFL00095	0	100	LRXF22T157K	0.002	212.5	WSIFS513	0	211.7	BDWFM0554	0	210.5
SPWF24V152	3	KPCFL00095	0	100	GTFPS0213P	0	670.6	LRXF22T157K	0.0039	666.2	WSIFS513	0	664
SPWF24V158	3	KPCFL00095	0	100	GTFPS0213P	0.002	692.2	LRXF22T157K	0.0059	687.6	WSIFS513	0.002	685.4
SPWF24V101	3	KPCFL00095	0	100	GTFPS0213P	0	694.3	LRXF22T157K	0.002	691.7	WSIFS513	0	687.5
SPWF24V109	3	KPCFL00095	0	100	GTFPS0213P	0	694.3	LRXF22T157K	0.002	691.7	WSIFS513	0	687.5
SPWF24V149	3	KPCFL00095	0	100	WSIFS513	0	211.7	BDWFM0554	0	210.5	LRXF22T157K	0.0137	210.2
SPWF24V11	3	TBRFN185	0	100	LRXF22T157K	0.0098	177.2	WFSF22T032	0.0156	170.5	SYNF23U16	0.0156	170.5
SPWF24V100	3	TBRFN185	0	100	LRXF22T157K	0.002	479.5	WFSF22T032	0	452.3	SYNF23U16	0	452.3
SPWF24V108	3	TBRFN185	0	100	LRXF22T157K	0.002	479.5	WFSF22T032	0	452.3	SYNF23U16	0	452.3
SPWF24V117	3	TBRFN185	0	100	LRXF22T157K	0.002	479.5	WFSF22T032	0	452.3	SYNF23U16	0	452.3
SPWF24V174	3	TBRFN185	0	100	LRXF22T157K	0.0039	487.3	WFSF22T032	0	460.8	SYNF23U16	0	460.8
SPWF24V168	3	TBRFN185	0	100	LRXF22T157K	0.0117	471.5	WFSF22T032	0	451.1	SYNF23U16	0	451.1
SPWF24V145	3	TBRFN185	0	100	LRXF22T157K	0.0068	455.6	WFSF22T032	0.0312	412.5	SYNF23U16	0.0312	412.5
SPWF24V154	3	TBRFN185	0.0003	100	LRXF22T157K	0.0054	476.6	WFSF22T032	0.002	450.5	SYNF23U16	0.002	450.5
SPWF24V172	3	TBRFN185	0	100	LRXF22T157K	0.0054	475.8	WFSF22T032	0.002	449.7	SYNF23U16	0.002	449.7

MateSel

Scenario 3
Max Diversity

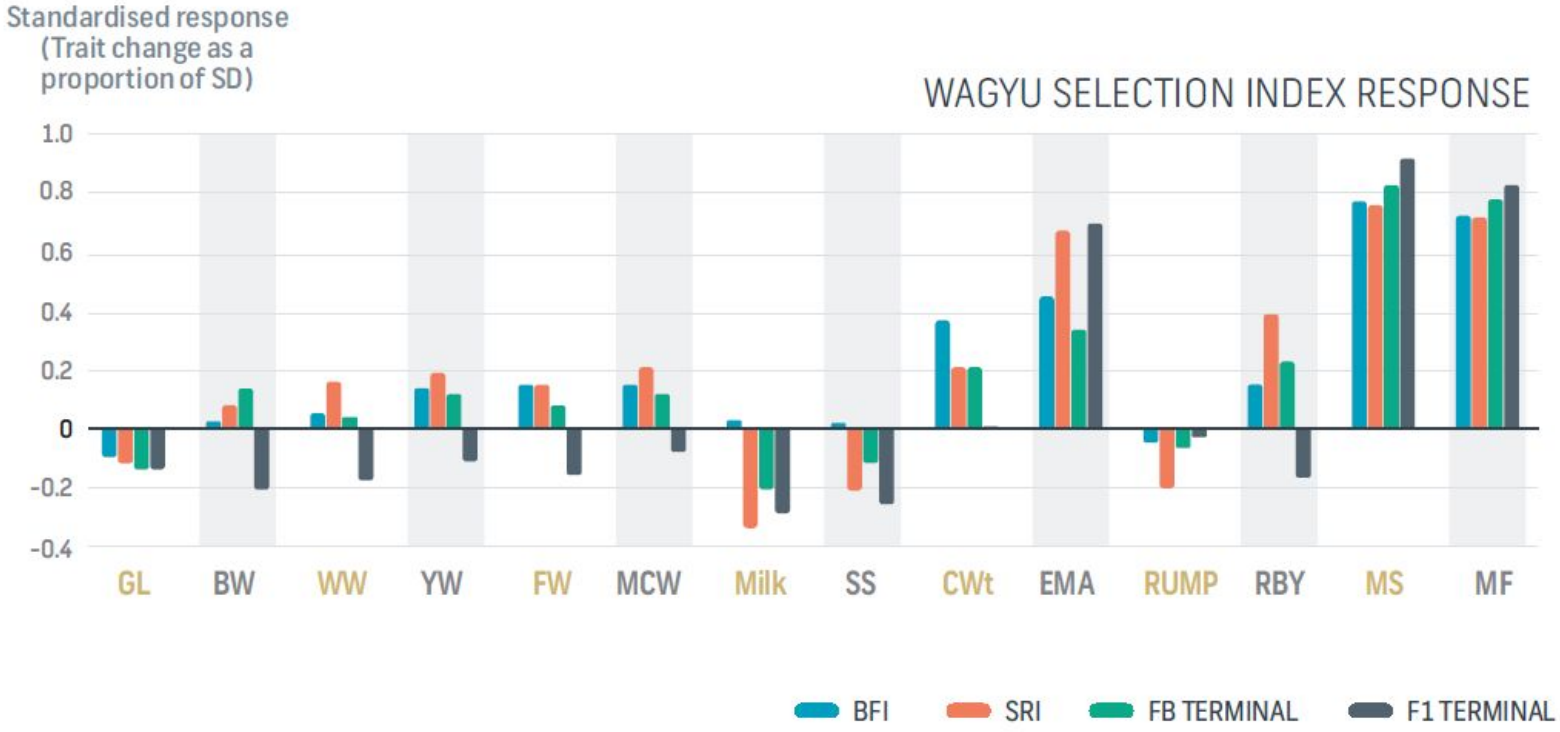
abacusbio.

BRIDGING SCIENCE & BUSINESS

Breeding and Terminal Indexes

FIGURE 6

Comparison of Index pressure on EBVs. Trait change is expressed in genetic standard deviations, with one standard deviation equivalent to approximately 30% of the available genetic range within the breed.

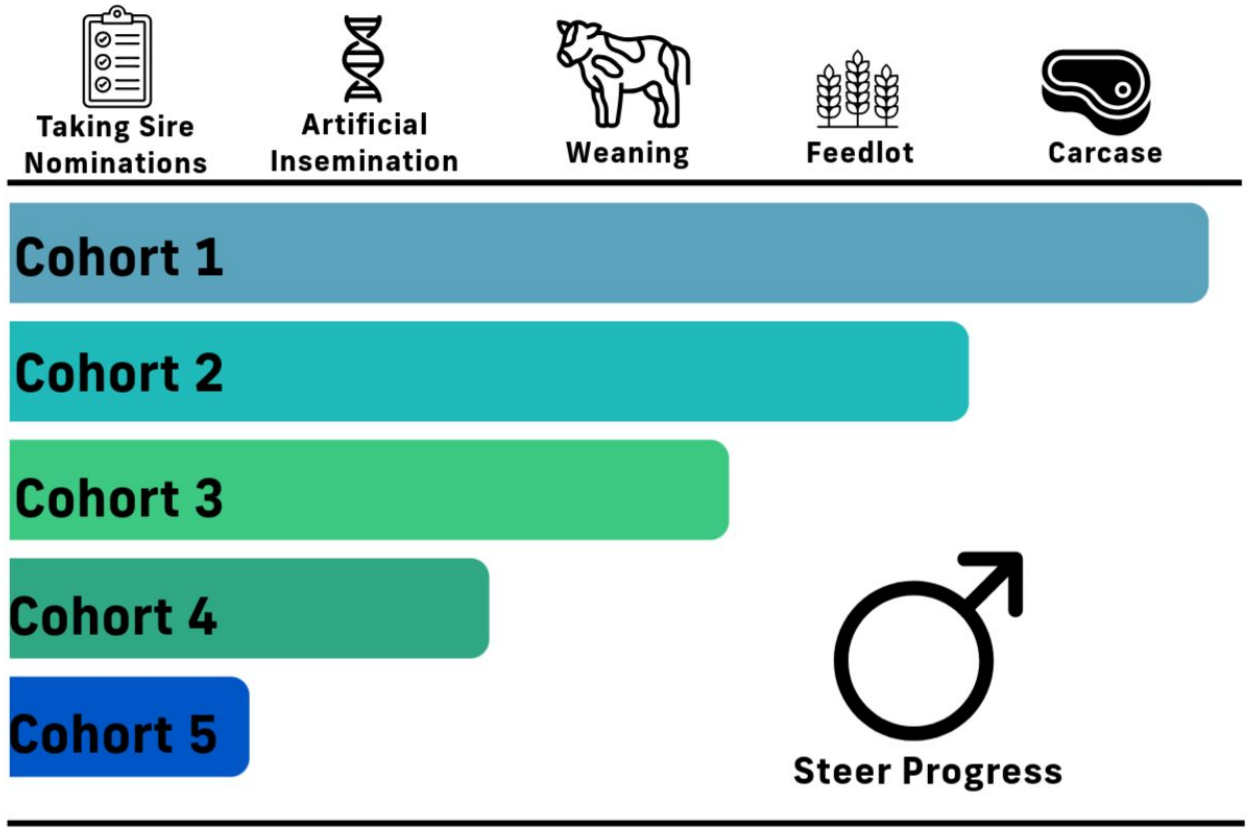


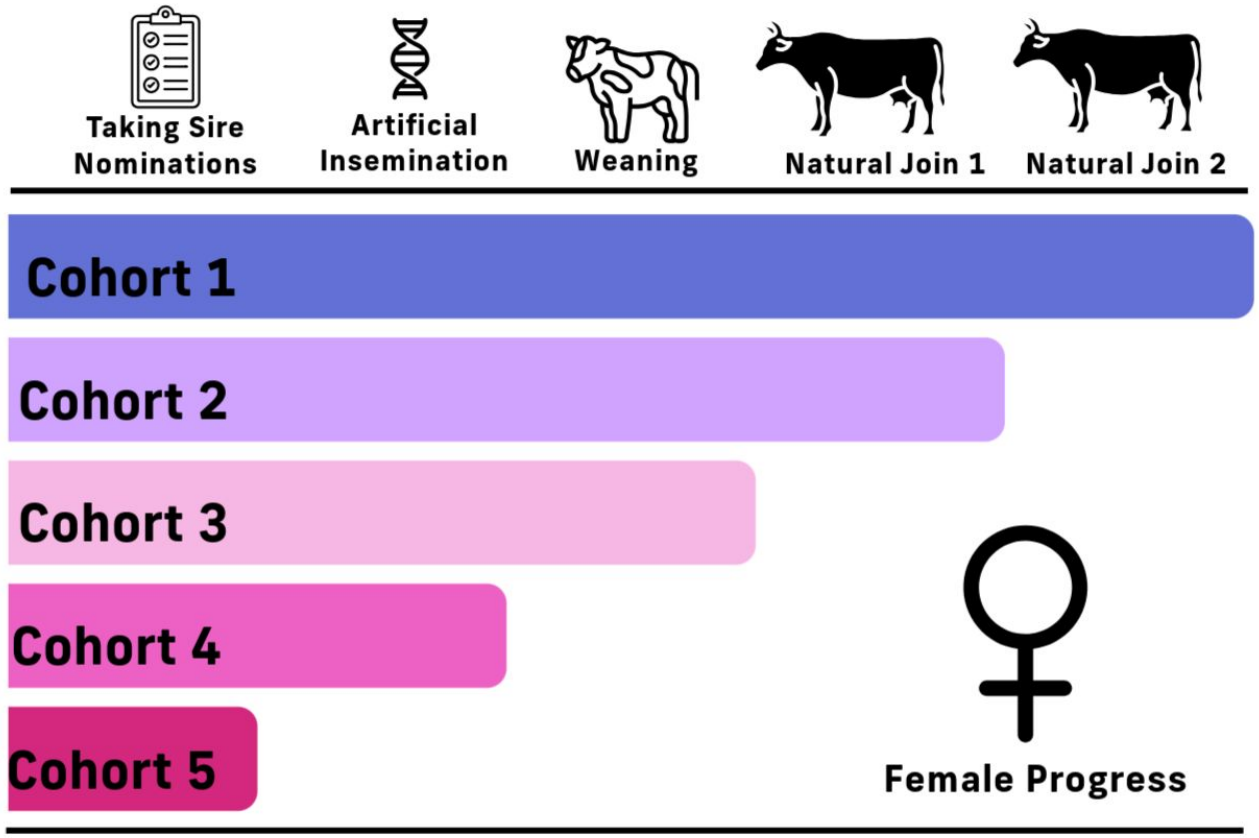
- Through collaboration with AbacusBio, the Breeder Feeder Index was introduced in FY2024.
- FBTI and F1TI now launched with AbacusBio
- Selection Indexes define breeding standards
- **SRI due to turn off June 2025**

AUSTRALIAN WAGYU ASSOCIATION™

PROGENY TEST PROGRAM

Progeny Test Program – Currently





Progeny Test Program - Numbers

70 Domestic Sires

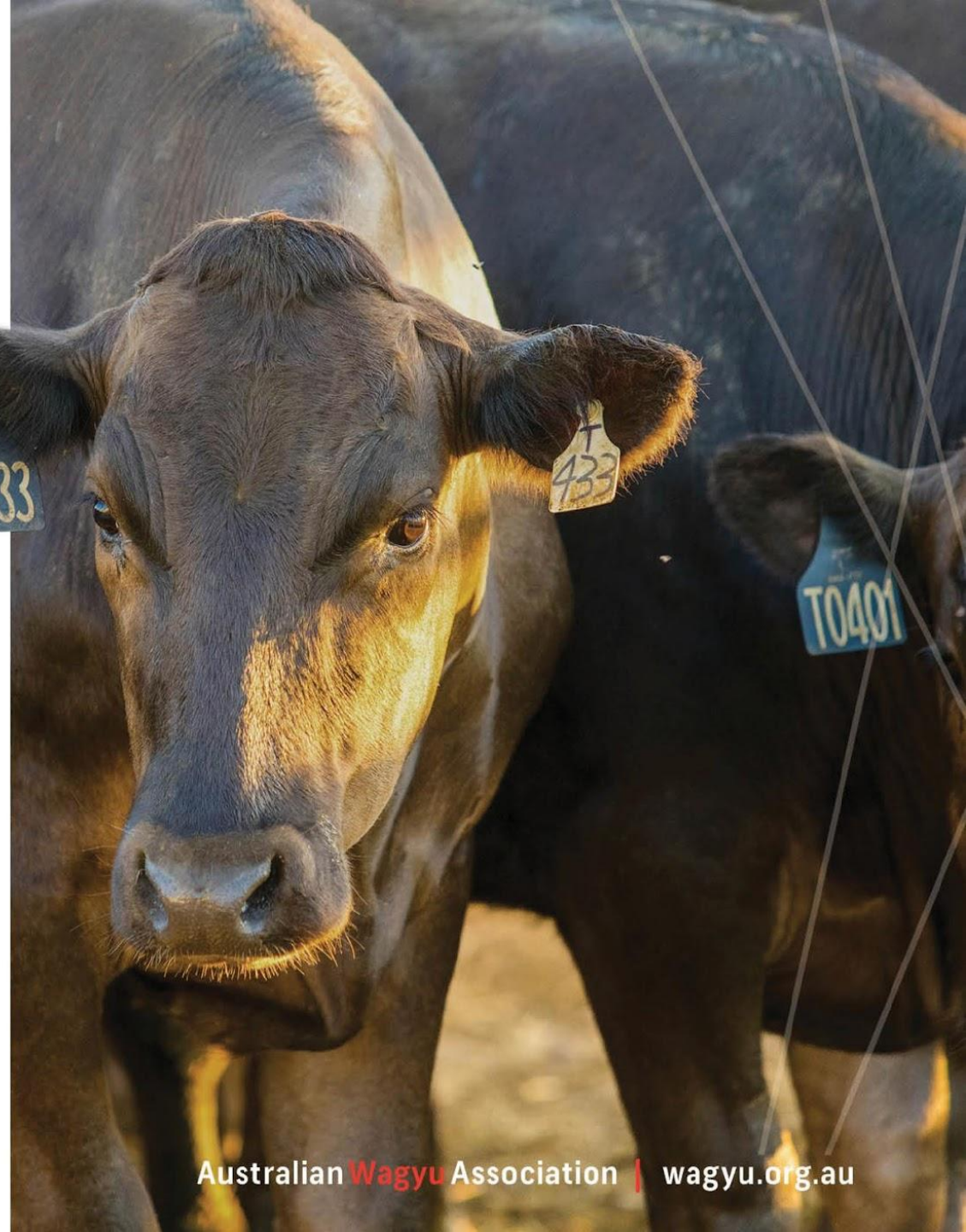
4390 Straws sold via tender

25 International Sires

3700+ Cows in the program

2 Benchmark Sires

13 Contributor Herds



Progeny Test Program –

Targets

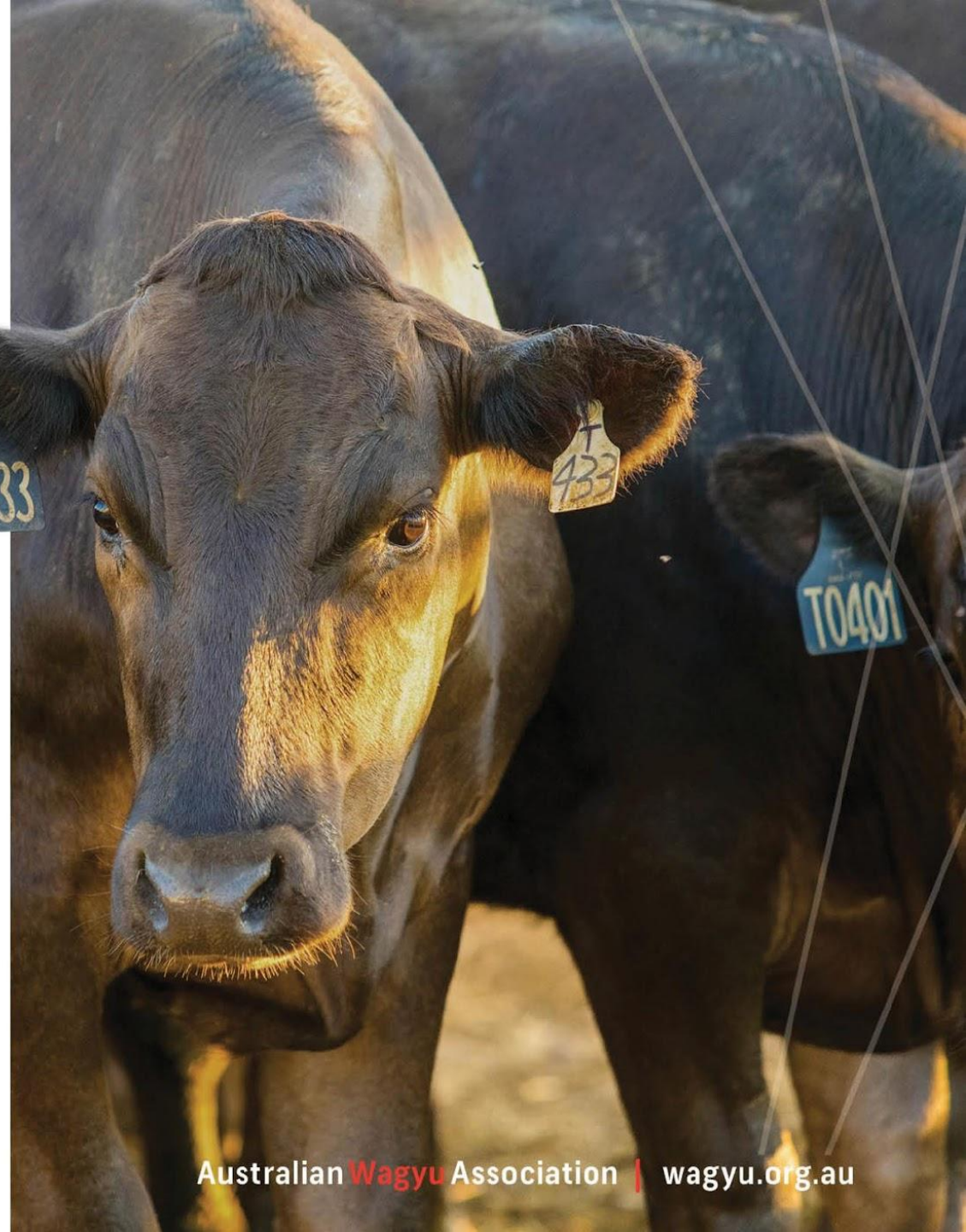
12 Steer Progeny
Per Sire

12 Female Progeny
Per sire

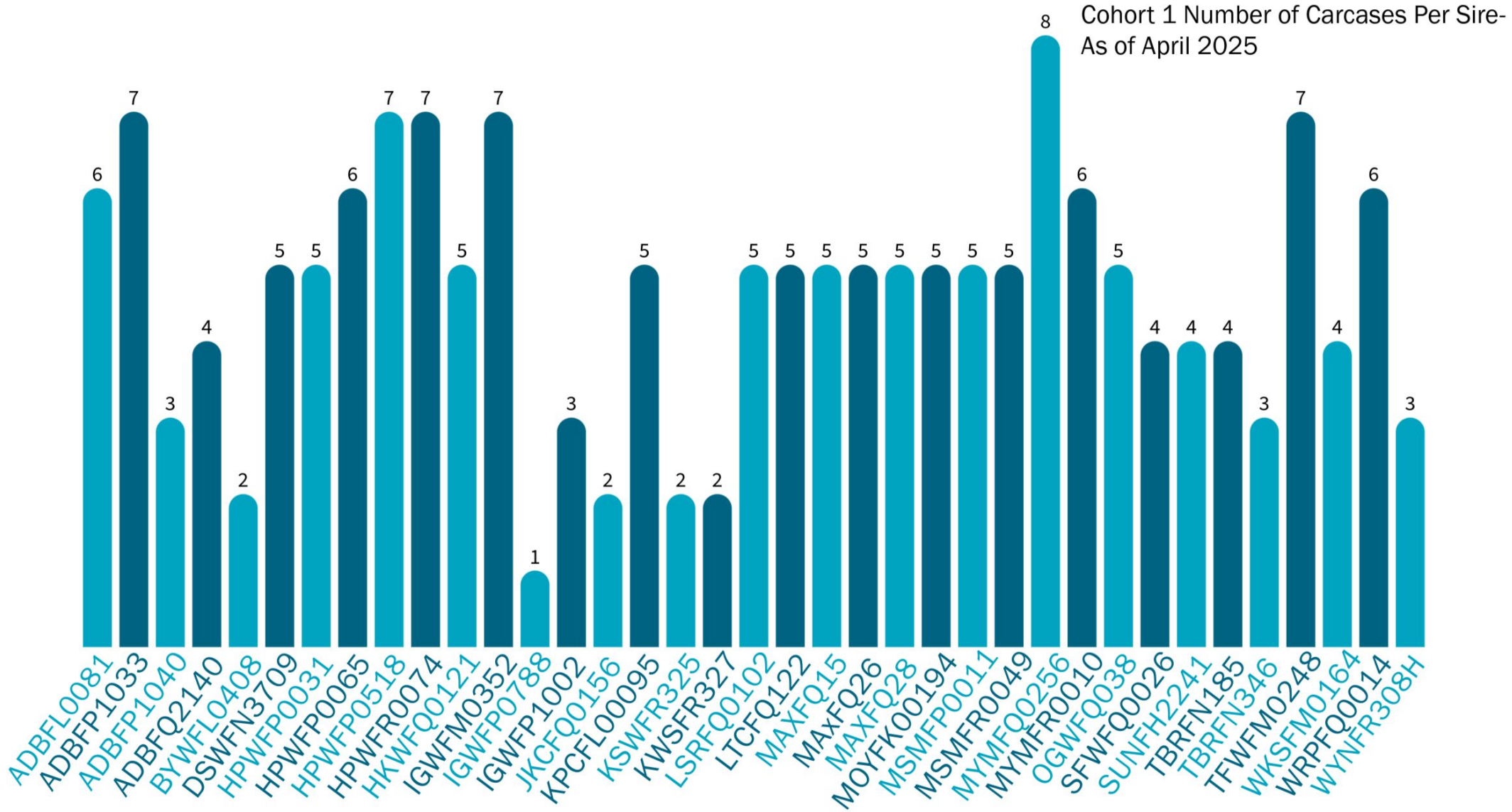
Increase EBV
Accuracy from 60%
to 80%

Test 200 Sires

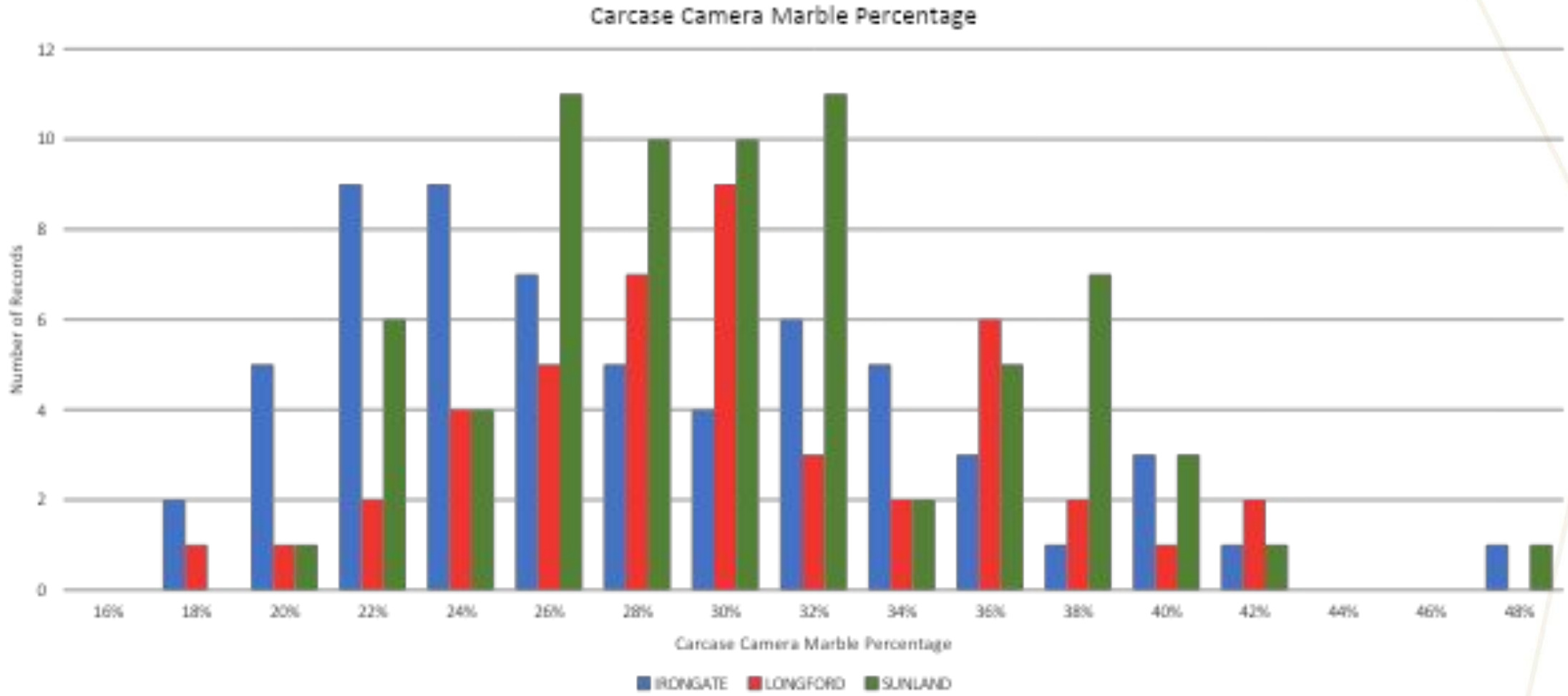
FOR OUR MEMBERS. FOR THE INDUSTRY.



Progeny Test Program – Carcases Per Sire



Raw Marble Percentage – Contributor herd



Carcase Camera Marble Score – IGWFM0352

SUNF22T3132
MS 21.83%
MS EBV +0.4

SUNF22T3147
MS 27.29%
MS EBV +1.9

SUNF22T3152
MS 35.88%
MS EBV +2.3

SUNF22T3022
MS 37.23%
MS EBV +3

Marble Score Rank Changes

Sire	October 2024 EBV data		
	MS EBV	MS Acc	Rank
WYNFR308H	4.2	69%	1
IGWFP0788	3.6	72%	2
LSRFQ0102	3.6	72%	3
ADBFP1040	3.4	93%	4
IGWFM0352	3.3	94%	5
MAXFQ28	3.3	70%	6
ADBFP1033	3	89%	7
HPWFP0518	2.9	69%	8
HWKFQ0121	2.8	76%	9
MSMFR0049	2.8	67%	10
SFWFQ0026	2.6	92%	11
WRPFQ0014	2.5	68%	12
MYMFR0010	2.4	76%	13
SUNFH2241	2.4	77%	14
HPWFR0074	2.2	69%	15
KSWFR325	2.2	68%	16
LTCFQ122	2.2	89%	17
MYMFQ0256	2.2	79%	18
OGWFQ038	2.2	69%	19
TBRFN185	2.2	67%	20
HPWFP0031	2.1	69%	21
TBRFN346	2.1	72%	22
IGWFP1002	2	85%	23
DSWFN3709	1.9	70%	24
MAXFQ15	1.9	71%	25
MAXFQ26	1.9	69%	26
JKCFQ0156	1.8	68%	27
ADBFQ2140	1.7	69%	28
HPWFP0065	1.7	67%	29
WKSFM0164	1.6	99%	30
MSMFP0011	1.5	75%	31
ADBFL0081	1.3	93%	32
KSWFR327	1.2	69%	33
BYWFL0408	0.8	70%	34
KPCFL00095	0.8	70%	35
MOYFK00194	0.5	77%	36
TFWFM0248	0.5	71%	37

Sire	April 2025 EBV data		
	MS EBV	MS Acc	Rank
WYNFR308H	4.8	76%	1
LSRFQ0102	4.3	80%	2
IGWFP0788	3.8	74%	3
ADBFP1040	3.5	95%	4
IGWFM0352	3.3	95%	5
MAXFQ28	3.3	80%	6
MSMFR0049	3.1	79%	7
HWKFQ0121	3	83%	8
TBRFN185	3	77%	9
HPWFP0518	2.9	82%	10
ADBFP1033	2.8	91%	11
HPWFR0074	2.6	81%	12
MYMFQ0256	2.6	88%	13
SFWFQ0026	2.5	93%	14
OGWFQ038	2.5	80%	15
KSWFR325	2.4	74%	16
MYMFR0010	2.3	84%	17
MSMFP0011	2.3	81%	18
WRPFQ0014	2.2	80%	19
SUNFH2241	2.2	82%	20
LTCFQ122	2.2	91%	21
HPWFP0031	2.2	79%	22
MAXFQ26	2.2	81%	23
MAXFQ15	1.9	80%	24
TBRFN346	1.8	81%	25
IGWFP1002	1.7	87%	26
DSWFN3709	1.7	78%	27
WKSFM0164	1.6	99%	28
JKCFQ0156	1.5	71%	29
KSWFR327	1.5	74%	30
ADBFQ2140	1.3	78%	31
HPWFP0065	1	79%	32
ADBFL0081	1	94%	33
BYWFL0408	1	75%	34
KPCFL00095	0.7	80%	35
MOYFK00194	0.2	83%	36
TFWFM0248	0.2	82%	37

MIJ Mobile Application

- 68 Camera users world-wide

  40 Australian-based

  28 International- based

- Has an intuitive user interface for seamless operation, image review and upload

- Can run completely offline so can be used regardless or WiFi or mobile data connection

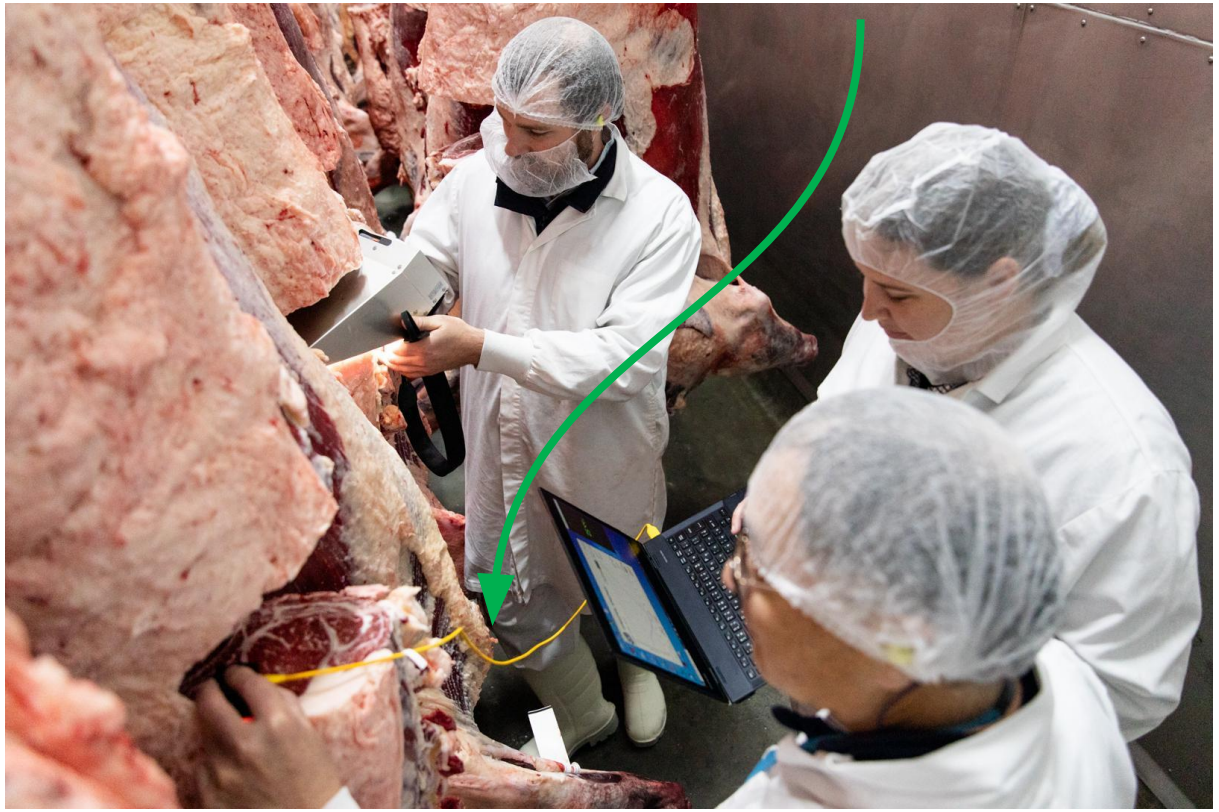
- Used world-wide with data contributing to Wagyu BREEDPLAN genetic analysis

MIJ Mobile now available to AWA members

- These devices costs $3,000 USD
- This includes an MIJ database
- Ongoing technical support
- $5 USD per image analysed.

BUILDING A GLOBAL WAGYU LANGUAGE

- 68 AWA members capturing images (now >150,000 images)
- 32,000 images captured last year
- Developing on-carcase fatty acid technology



- **NIR handheld scanning device Bluetooth to mobile r^2 0.79**
- **10 second scan can return MUFA and PUFA content percentages.**
- **Looking to launch later this year.**
- **Heritability 0.4 to 0.54, so its very selectable**

Now it is time to measure it commercially and breed for it

Thank you


AUSTRALIAN
WAGYU
ASSOCIATION
TM