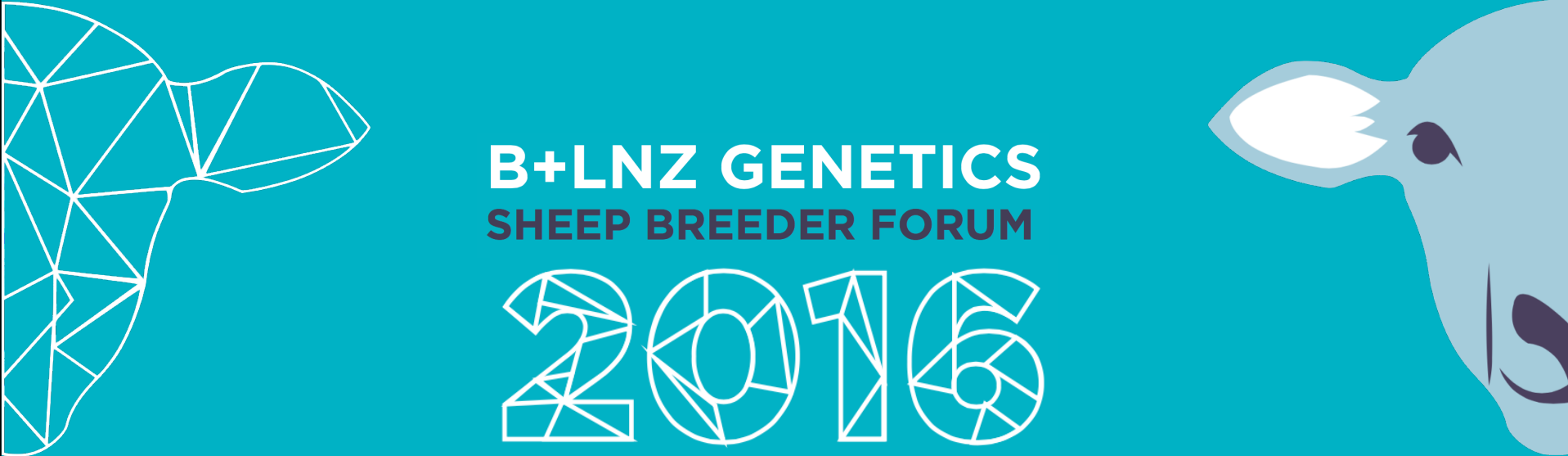




B+LNZ GENETICS
SHEEP BREEDER FORUM

2016

**New Zealand National
Evaluation and reporting by
connectedness**

Dr Sheryl-Anne Newman, AgResearch

Outline

- Background
- Recent Developments
- NZGE Summary
- NZGE Validation
- NZGE Reporting

Background

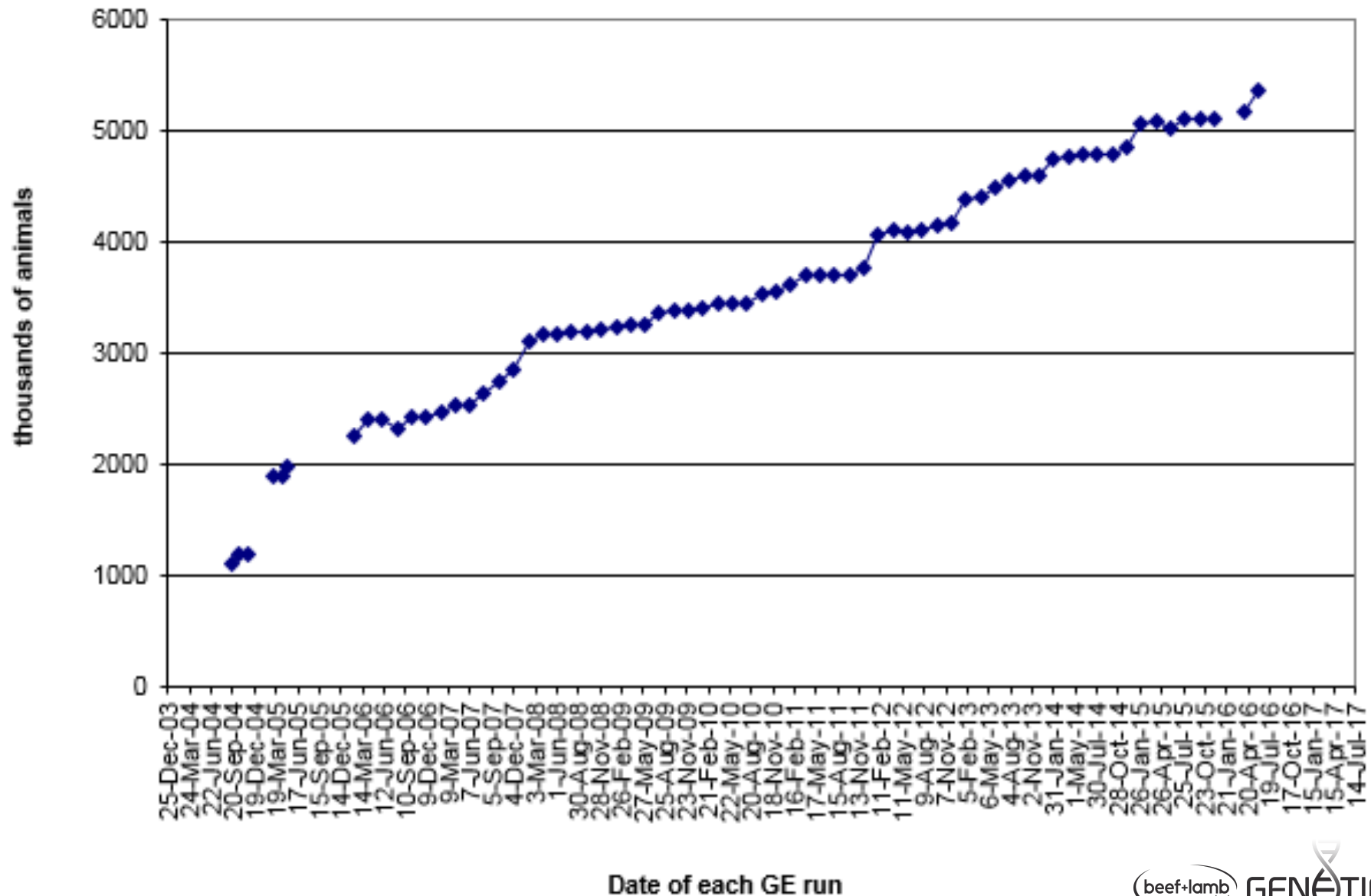
1999 SIL provided routine across flock evaluations

Increasing number of across flock evaluations
But variation in analyses means breeding values differ

2004 SIL-ACE with 152 flocks & 1.1 million animals

2016 SIL-ACE has 457 flocks & 5.3 million animals

Number of animals in each SIL-ACE GE run



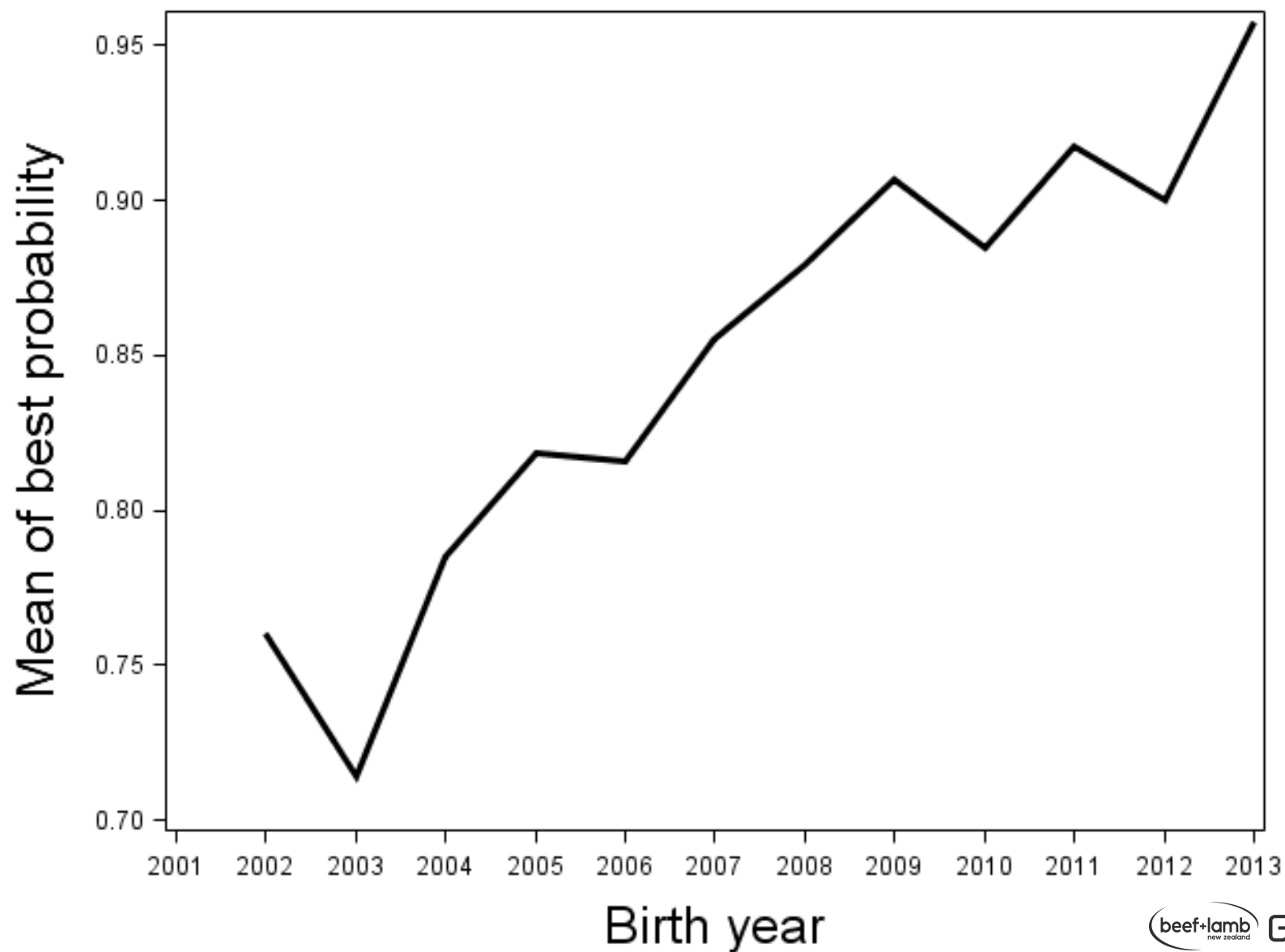
Goal

- **Single National Genetic Evaluation (NZGE)**
 - all active and reference flocks
 - all goal trait groups (18)
 - all data, including CT and VIAscan in Meat

Recent developments

- DNA parentage update
- Software alternatives
- Survival data filtering

Accuracy of DNA parentage assignment



Alternative software

Genetic Engine processing times

Analysis	Flocks	Goal trait groups	Animals (1000s)	Current SIL	New SIL
Texel	79	5	492	15 hours	0.5 hours
Perendale	57	9	654	33 hours	1.5 hours
Coopworth	101	7	1,613	48 hours	4 hours
NGE 2-weekly	154	9	3,564	4 days • multiple computers	9.5 hours
SIL-ACE	456	9	5,348	1 week • multiple computers	26 hours
NZGE	>1000	18	8,264	NA	32 hours

NZGE Summary

- >1000 flocks
- All 18 goal trait groups and breeding values
- Data extraction 30 hours
- Analysis 32 hours
- Load eBVs 3 hours
- Total 65 hours / 2½ - 3 days

NZGE validation

- Comparison with ACE
- Comparison with industry analyses
- Changes in connected flocks
- Comparison of breeding values and accuracies
- Comparison with SIL-ACE sire rankings

Connectedness

Total no. flks	reprod	survival	growth	adult size	meat	wool	worm fec	feczema	dag	ACE dp
830	408	343	422	180	251	189	42	32	32	169
456	233	244	281	147	195	145	37	28	29	125

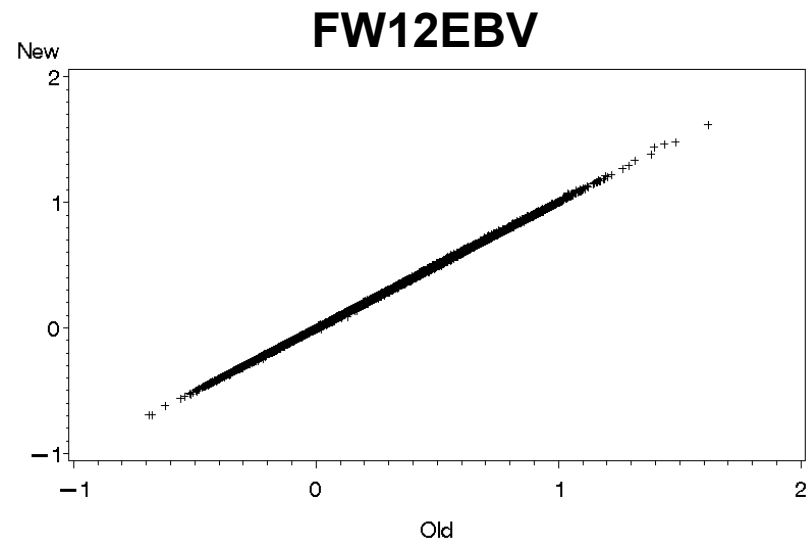
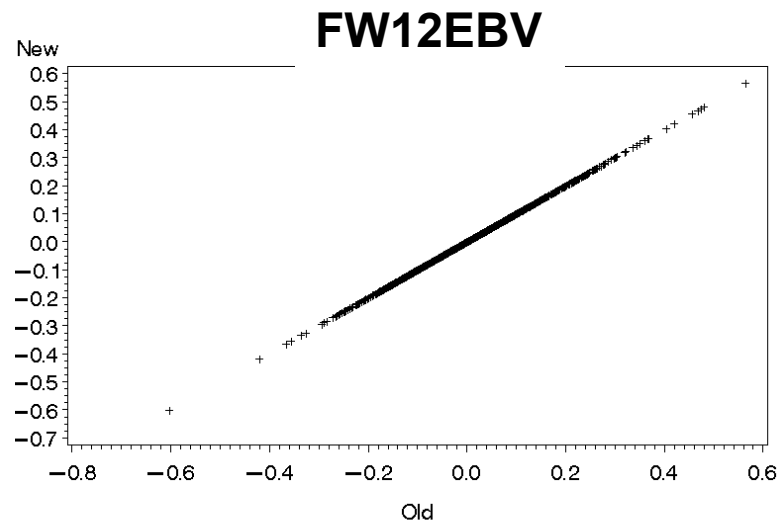
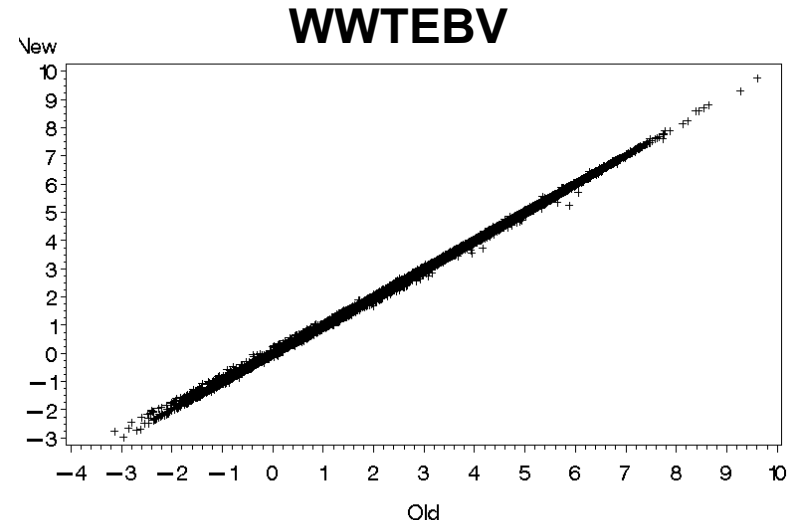
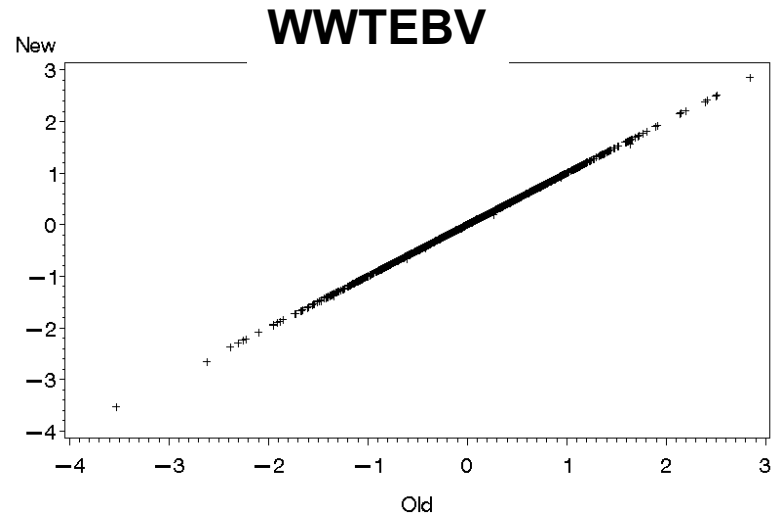
Connectedness

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Extra connected flks	175	99	141	33	56	44	5	4	3	44

Connectedness

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456	233	244	281	147	195	145	37	28	29	125
Extra connected flks	175	99	141	33	56	44	5	4	3	44
Extra ACE flks	57	14	15	1	3	3	0	1	0	13

Breeding value comparison



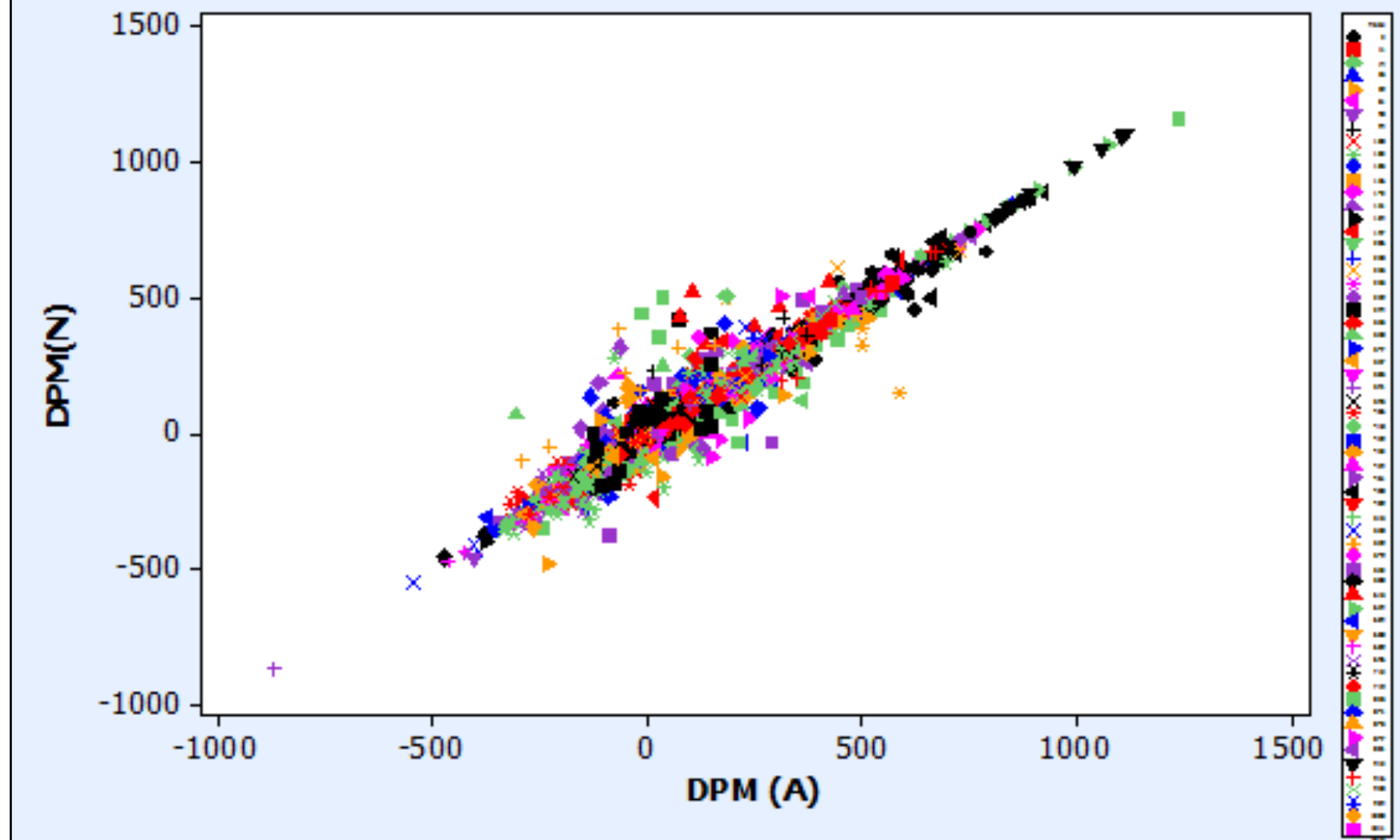
Sire from last 3 years

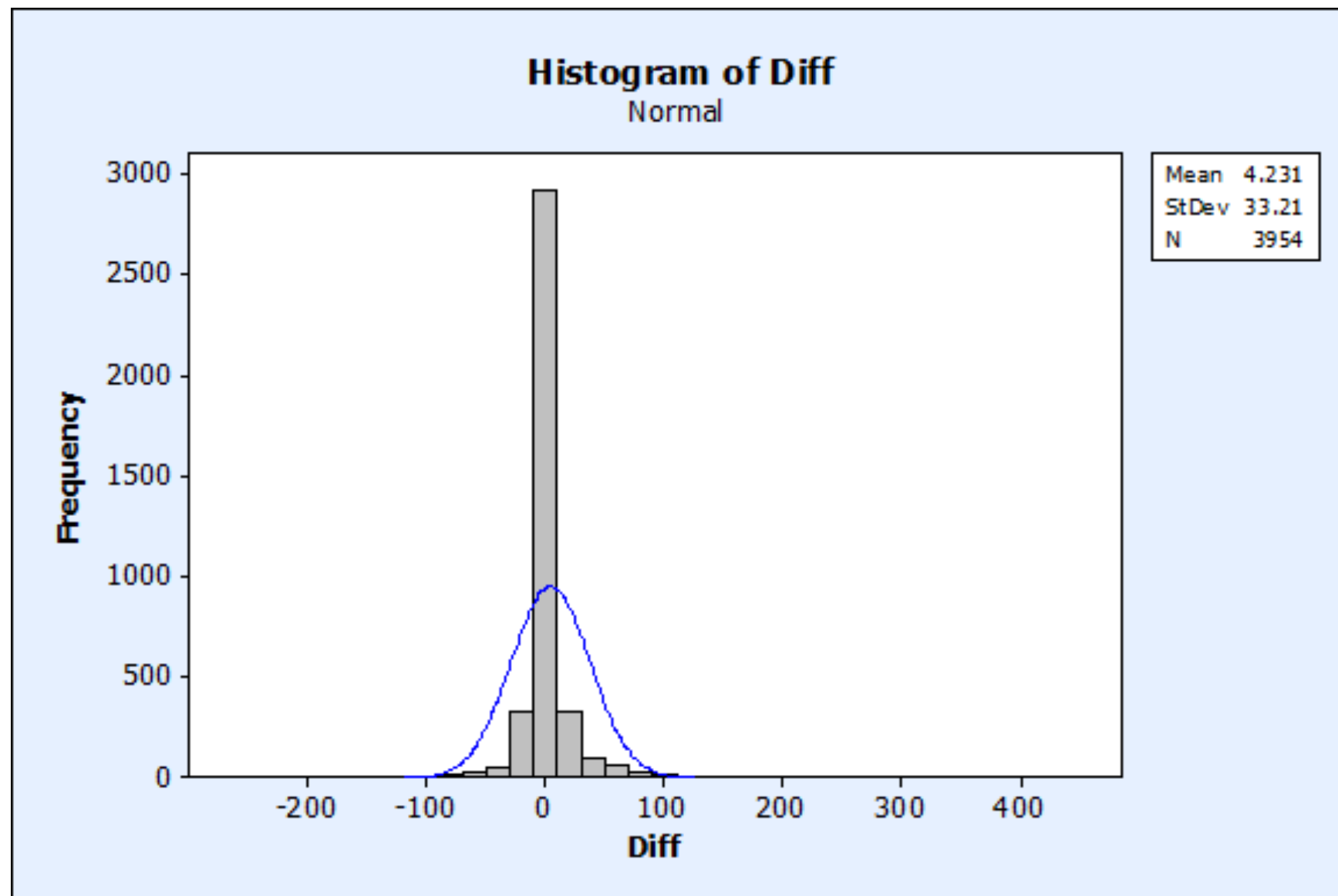
2015 born progeny

Comparison with SIL-ACE sire rankings

	DPM (A)	DPM(N)	Diff N-A	LEANY (A)	LEANY(N)	FATY (A)	FATY (N)
Av	94	101	-4	0.201	0.216	-0.299	-0.375
Std Dev	219	216	51	0.451	0.444	0.496	0.488
Min	-873	-869	-431	-1.728	-1.721	-2.934	-2.330
Max	1239	1165	466	2.544	2.390	1.776	1.750
Count	2941	2568	2567	2941	2568	2941	2568
Correl	97.1%			97.2%		97.9%	

Scatterplot of DPM(N) vs DPM (A)





Reporting from NZGE

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
34/13	2830	785	302	1557	-340	362	164
33/13	3017	785	371	1759	-413	354	161
236/13	1802	357	325	1623	-793	217	73
95/13	655	140	-61	1312	-1033	143	154
6504/13	668	258	180	1000	-973	-21	223
4846/13	1347	329	365	1154	-772	93	178
1152/13	298	37	-22	463	-235	42	14
398/13	968	302	198	773	-547	88	153
1045/13	794	45	83	2136	-1413	159	-216
176/13	864	-155	-35	1944	-1079	195	-6

With across flock evaluations, the system generates
BV's and indexes for all animals

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
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What about when a flock does not measure or is not connected for a trait, so comparison not valid?

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
34/13	2830	785	302	1557	-340	362	164
33/13	3017	785	371	1759	-413	354	161
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With across flock evaluations, the system generates BVs and indexes for all animals
 SIL says we should not display values for trait(s) if they are not measured or not connected

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
34/13	2830	785	302	1557	-340	362	164
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SIL says we should not display an index for trait(s) if they are not connected.
Should they get an overall index where some traits are connected and others aren't?

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
34/13	2830	785	302	1557	-340	362	164
33/13	3017	785	371	1759	-413	354	161
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Another option is to “flag” the eBVs and indexes where some traits are not connected

NZGE generates BVs for all animals

Proposed NZGE reporting

Is flock connected?

Not connected

Connected

Is eBV accuracy above threshold?

Low accuracy

High accuracy

BVs & indexes reported within flock only
Values blank on an across flock report

BVs & indexes reported
across or within flock

Across flock sire summary

ID	NZMW	DPR	DPS	DPG	DPA	DPW	DPM
34/13	2830	785	302	1557	-340	362	164
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1045/13	794	45	83	2136	-1413	159	-216
176/13	864	-155	-35	1944	-1079	195	-6

SIL prefers not to display an index for trait(s) if they are not connected or have low accuracy



THANK YOU