

Step Change



Unlocking the value of
Herd Improvement



Presented by: Malcolm Ellis GM NZ Markets



There's always room for improvement

Shifting & sharpening the focus



- What does the future hold?
- What does the future cow for the region look like?
- What is the scale of the contribution Genetic gain can make to the future profitability and prosperity of the Waikato region?

A week is a long time when you are trying to track down the goal post



New research shows New Zealand dairy farmers have the world's lowest carbon footprint – at half the emissions of other international producers.

The AgResearch analysis confirms New Zealand retains its outstanding position in low-emission dairy milk production, with an on-farm carbon footprint 46 percent less than the average of 18 countries studied.

Commissioned by DairyNZ, the study was independently produced by AgResearch and peer-reviewed by an international specialist in Ireland.

The research analysed 55 percent of global milk production, including major milk producing countries.



And then.....



Calling for.....
15% reduction in
stock numbers
over the next 9
years.



What is absolutely clear

We will need to be more efficient, we will need to look to produce at least as much from less and we will need to maintain profitability and competitiveness.



There's always room for improvement

Guiding principles

- “Efficiency is efficiency irrespective of the farm system”
- Kg MS/Kg LWT needs to be the key driver while acknowledging the non-negotiable per cow costs
- “The ‘P’ word is profit not production”
- Don’t underestimate the value of Herd Improvement and ensuring we have the right cow for the job

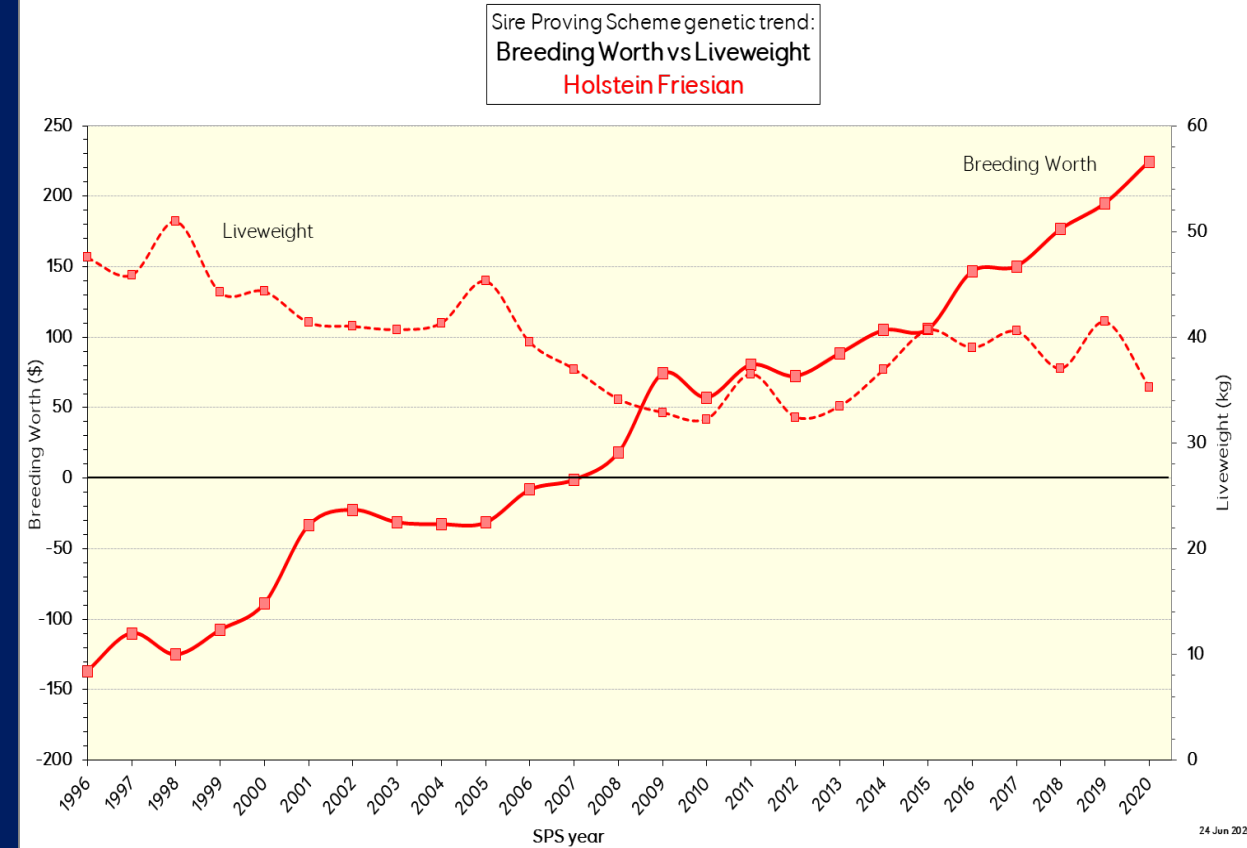
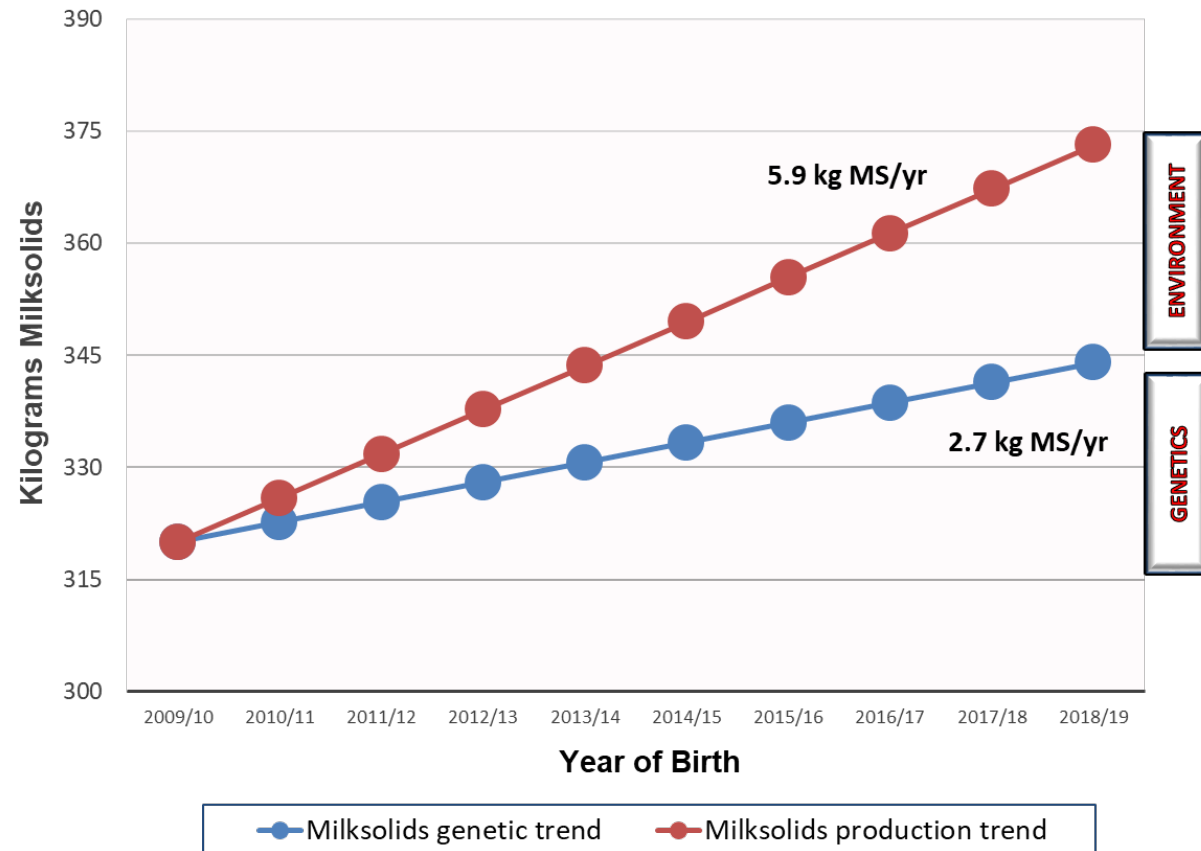


There's always room for improvement

Factual considerations

What might the future look like?

10 year genetic and phenotypic trends



Genetic gain and the call to make the boat go faster



Striving to take the current 9BW/yr out to 15-20 and capturing the associated productivity gains.

Being crystal clear of the contribution from both sides of the equation

Firstly

The role of both Genomics and sexed semen from the mating sire perspective.

	Friesian	Jersey	KiwiCross
AE March 2021	Differential		
2017 Team	19.8	32.2	34
2018 Team	16.2	15.4	50.6

There's always room for improvement

Validation of Genomic prediction

16 Code HF example

July 2019 gBW Ranking

ARKAN MGH BACKDOP-ET S2F	DICKSONS BG MANDATE S1F	AWAKAU BG MADDOX S1F	WEDERS DE OVERTIME S1F	PAYNES BG ARCHIE S1F	EDWARDS DE KICKSTART S1F	LIGHTBURN SB GIOVANI S3F	STOUPES BG TRIUMPHANT S1F	HILLSVIEW MH PACER-ET S2F	DICKSONS GI ESCALADE S3F	LIGHTBURN GB DYLAN-ET S3F	ARKAN HF FREELANCE S2F	SPRING TRALEE BEAT-ET S1F	AZREEL MGH JOVIAL S2F	BUSY BROOK MGH MORDOR S2F	ARKAN MGH BESTSELLER S2F	MCLACHLANS MGH TREAT S2F	SPRING TRALEE BASS-ET S2F	INAHIA GI UNDENIABLE S2F	TAFIS SD TRANSFORMER S1F	GALATEA MGH REGIMENT S1F	MEANDER SB ALAMO S2F	TELESIS BG BURGHLEY S1F	FOOTEHILLS BG LINCOLN S1F	ARKAN ML BABYLON-ET S1F	PEMBERTON GI PHASE-ET S2F	ON-DER-REY MA APPROVE S2F	IONIC RTD RENITION S2F	BLACKSTOCK WE EMBLAZE S2F	TELESIS ML HASHTAG S1F	LARENKO DE PROMINENT S1F	CAVALIER M CAPTAIN-ET S3F	MEANDER ML RAMPANT S1F	SPRING TRALEE BRAX-ET S1F	BUSY BROOK H REALMET S2F	CHARLTONS HF FAME-ET S2F	MCLACHLANS ML TRICK S1F	BUSY BROOK SB REPUTE S2F	BAGWORTH WE STEADFAST S2F	MEANDER BR ABRAXAS-ET S2F	BAGWORTH DE ZEPHYR S1F	OAKLINE SD TROOPER S1F	WESTEDGE OUT-A HERE S2F	ESTEE MGH FANATIC-ET S2F	HILLSVIEW WE ATTITUDE S2F	BLACKWELL GB GENUINE S2F	LIGHTBURN B MALBEC-ET S3F	CLOVERLEA MH GUTSY-ET S2F	BUSY BROOK H FABULOUS S2F	WOODCOTE MH MOJITO-ET S3F	LIGHTBURN SB MITEE-ET S3F	TRONNOCO GI SERGLET S3F	WAITARIA ESTEEM MCCAW S2F	VALDEN ML DANIEL-ET S1F	TRONNOCO MGH SYRUS-ET S2F	KEASTS GI SURETHING S2F	AVONLEA GB MAGNETIC S2F	KAIMORE ML REBELLION S1F	GRANGE MGH REMARKABLE S1F	WOODCOTE MGH LEXUS-ET S2F	POWELLS WE GRANDIOSE S2F	WHITE CLIFFS ML BOWIE S1F	BAGWORTH GB DELUXE S3F	WESTEDGE ML LOMU S2F	LORNALACE GB DEMO-ET S3F	BALLS MH HIGHLANDER S2F	WAITARIA DE HANSEN S1F	SCOTT'S GF TORRENT-ET S2F	SPELDHURST MA OCTANE S3F	GLENMEAD WE MAYDAY-ET S2F	SCOTT'S GF STAUNCHET S3F	WAITARIA MAXIMA JONAH S2F	ALLANS RTD ARISTOCRAT S2F	HOWARDS SB SABBATH S2F	TRONNOCO GI SPIKE-ET S3F	TELESIS MGH RANFURLY S2F	COSTERS MH POLLSTAR P S1F	LIGHTBURN GF SABRE-ET S3F	BERAKAH MGH SIMON-ET S2F	LIGHTBURN HOT GEAR-ET S3F	RIVER HEIGHTS DUDE-ET S2F	BUSY BROOK MH MATADOR S3F	WELLS GB IMPRESSION S3F	MITCHELLS RMS HIATUS S1F	ARON-AMY GI SYNTAX-ET S2F	MITCHELLS RMS FLUX-ET S1F	CLOVERLEA GF GAUGE-ET S2F	ARON-AMY MH SALUTE-ET S2F	WOODCOTE MGH VEGAS-ET S2F	SHEPPARD RTD ADAMANT S2F	GREEN-FIELDS GO-PRO S1F	TANGLEWOOD WE FOREST S3F	KAIMORE MA MEDALLION S3F	MARCHEL ML MARVEL S1F	GYDELAND ML FORTITUDE S1F	PASSMORE EMPIRE VISA S1F	HILLSVIEW WE PAYDAY S3F	LIGHTBURN HM BONO S3F	OTAHI GB TRITON S3F	CAVALIER M CLETUS-ET S3F	MEANDER ML AMPLIFY-ET S1F	SCOTT'S GF TENACITY-ET S2F	GLENFALLOCH HOT MAGMA S2F	KAILEY ML ZIGGY S1F	LORNALACE MH DELROY-ET S2F	CLOVERLEA WE OPULENT S2F	TOTARA VIEW QUEST-ET S2F	BROWNS WP FORMIDABLE S3F	SCOTT'S AM TORQUE S3F
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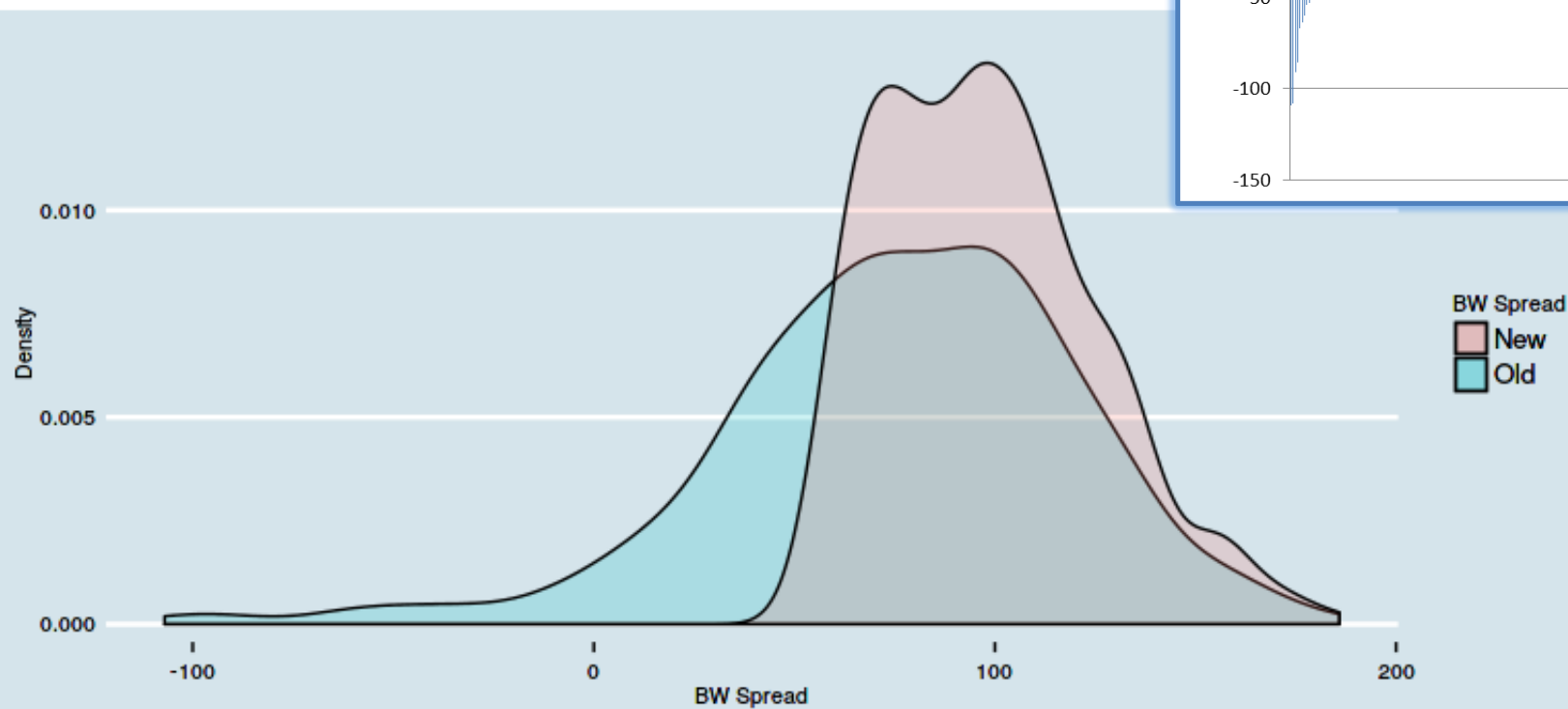
May 2020 gBW Ranking

WEDERS DE OVERTIME S1F	LIGHTBURN SB GIOVANI S3F	PAYNES BG ARCHIE S1F	EDWARDS DE KICKSTART S1F	STOUPES BG TRIUMPHANT S1F	ARKAN MGH BACKDOP-ET S2F	SPRING TRALEE BEAT-ET S1F	SPRING TRALEE BABY-ET S2F	TAFIS SD TRANSFORMER S1F	MEANDER SB ALAMO S2F	BLACKSTOCK WE EMBLAZE S2F	ARKAN HF FREELANCE S2F	LIGHTBURN GB DYLAN-ET S3F	BUSY BROOK H REALMET S2F	MEANDER BR ABRAXAS-ET S2F	GALATEA MGH REGIMENT S1F	ARKAN ML BABYLON-ET S1F	WESTEDGE ML LOMU S2F	FOOTEHILLS BG LINCOLN S1F	TRONNOCO MGH SYRUS-ET S2F	BUSY BROOK MGH MORDOR S2F	TELESIS ML HASHTAG S1F	DICKSONS BG MANDATE S1F	DICKSONS GI ESCALADE S3F	IONIC RTD RENITION S2F	LIGHTBURN B MALBEC-ET S3F	AWAKAU BG MADDOX S1F	ESTEE MGH FANATIC-ET S2F	HILLSVIEW WE ATTITUDE S2F	PASSMORE EMPIRE VISA S1F	CAVALIER M CAPTAIN-ET S3F	LORNALACE GB DEMO-ET S3F	BUSY BROOK MH MATADOR S3F	BLACKWELL GB GENUINE S2F	KEASTS GI SURETHING S2F	WOODCOTE MGH LEXUS-ET S2F	ALLANS RTD ARISTOCRAT S2F	MITCHELLS RMS HIATUS S1F	ARON-AMY MH SALUTE-ET S2F	GYDELAND ML FORTITUDE S1F	WAITARIA MAXIMA JONAH S2F	TELESIS MGH RANFURLY S2F	CLOVERLEA MH GUTSY-ET S2F	PEMBERTON GI PHASE-ET S2F	BALLS MH HIGHLANDER S2F	INAHIA GI UNDENIABLE S2F	KAIMORE ML REBELLION S1F	KAILEY ML ZIGGY S1F	GRANGE MGH REMARKABLE S1F	GREEN-FIELDS GO-PRO S1F	HOWARDS SB SABBATH S2F	ARON-AMY GI SYNTAX-ET S2F	MARCHEL ML MARVEL S1F	BUSY BROOK H FABULOUS S2F	GLENMEAD WE MAYDAY-ET S2F	POWELLS WE GRANDIOSE S2F	BERAKAH MGH SIMON-ET S2F	COSTERS MH POLLSTAR P S1F	SCOTT'S GF TORRENT-ET S2F	RIVER HEIGHTS DUDE-ET S2F	BROWNS WP FORMIDABLE S3F	SHEPPARD RTD ADAMANT S2F	MITCHELLS RMS FLUX-ET S1F	BAGWORTH GB DELUXE S3F	GLENFALLOCH HOT MAGMA S2F	KAIMORE MA MEDALLION S3F	CLOVERLEA GF GAUGE-ET S2F	WOODCOTE MGH VEGAS-ET S2F	OTAHI GB TRITON S3F	WAITARIA DE HANSEN S1F	MEANDER ML AMPLIFY-ET S1F	LIGHTBURN GF SABRE-ET S3F	SCOTT'S GF STAUNCHET S3F	LIGHTBURN HM BONO S3F	SCOTT'S GF TENACITY-ET S2F	CAVALIER M CLETUS-ET S3F	LORNALACE MH DELROY-ET S2F	HILLSVIEW WE PAYDAY S3F	TANGLEWOOD WE FOREST S3F	WELLS GB IMPRESSION S3F	CLOVERLEA WE OPULENT S2F	TOTARA VIEW QUEST-ET S2F
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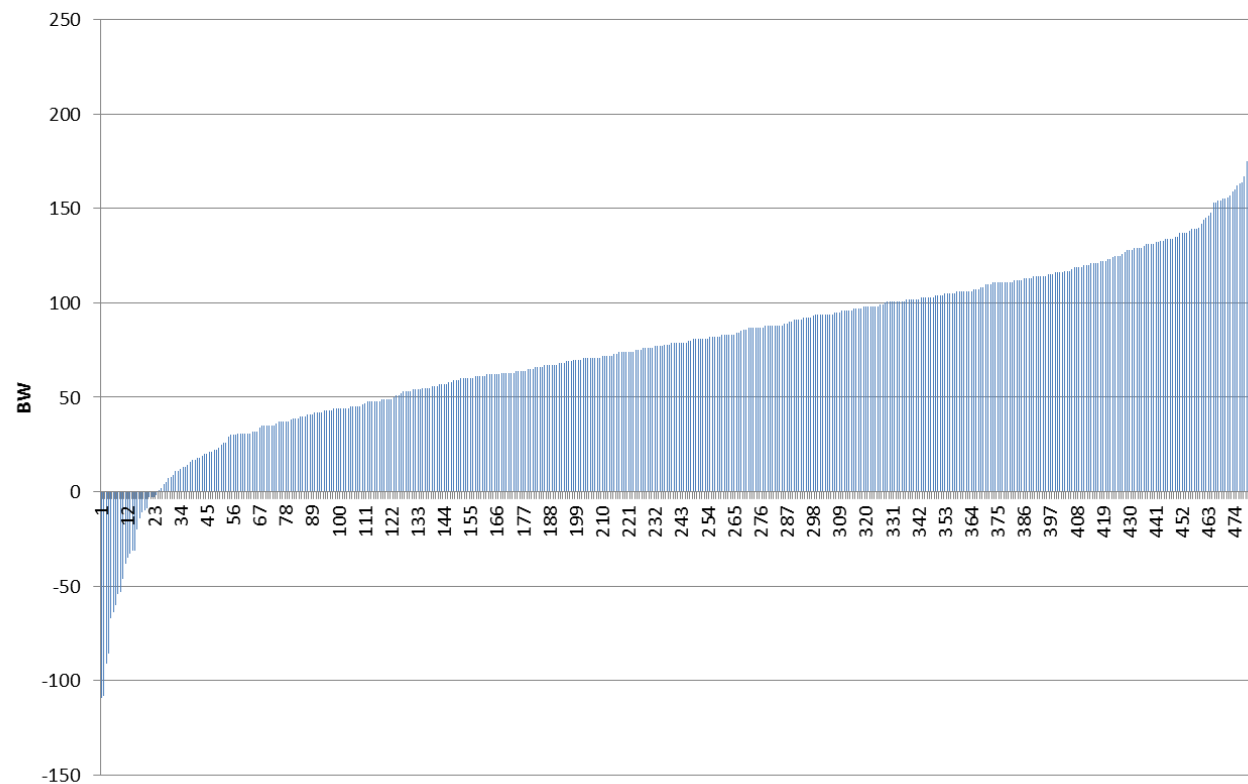
Sharpening the focus on herd improvement within the herd

Secondly

Herd Improvement

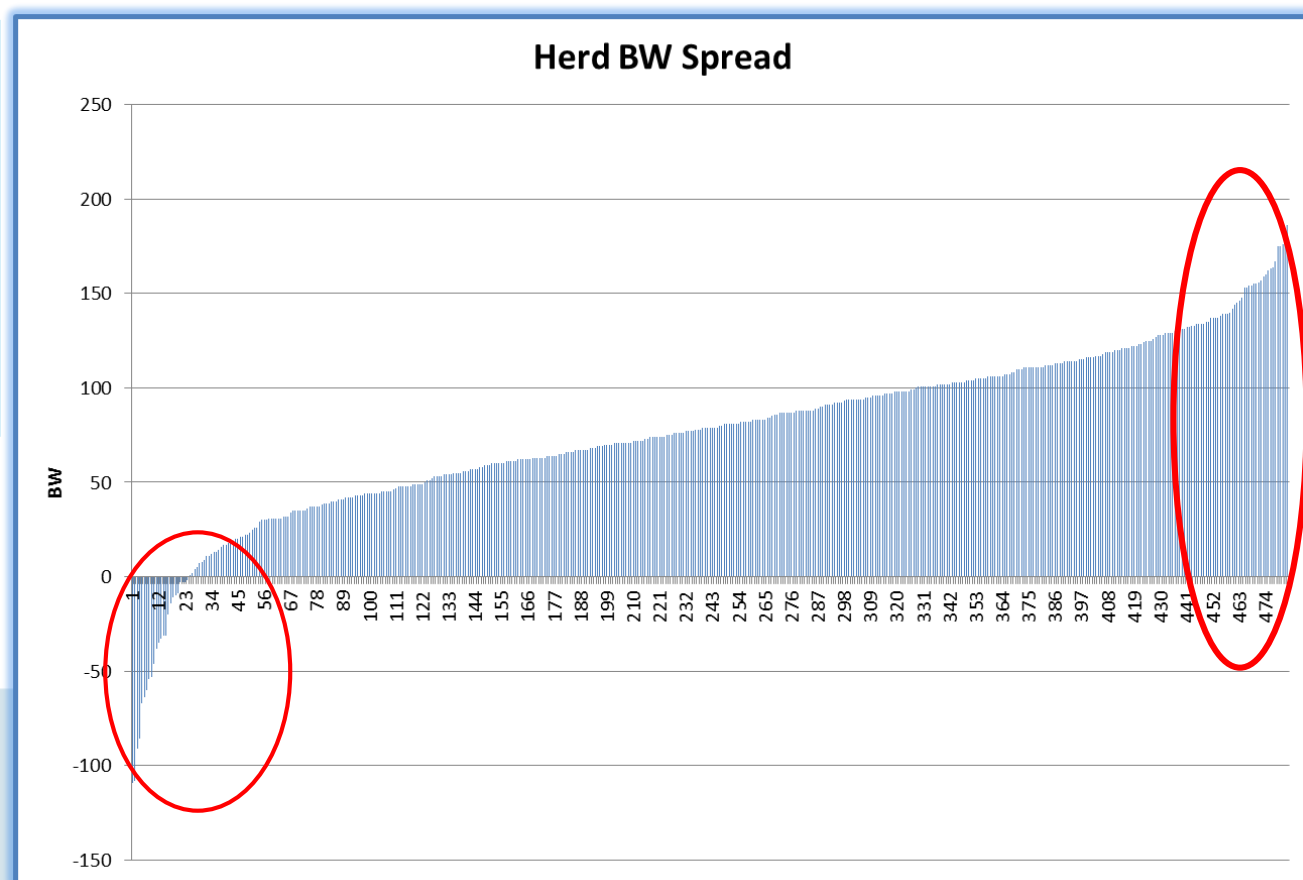


Herd BW Spread

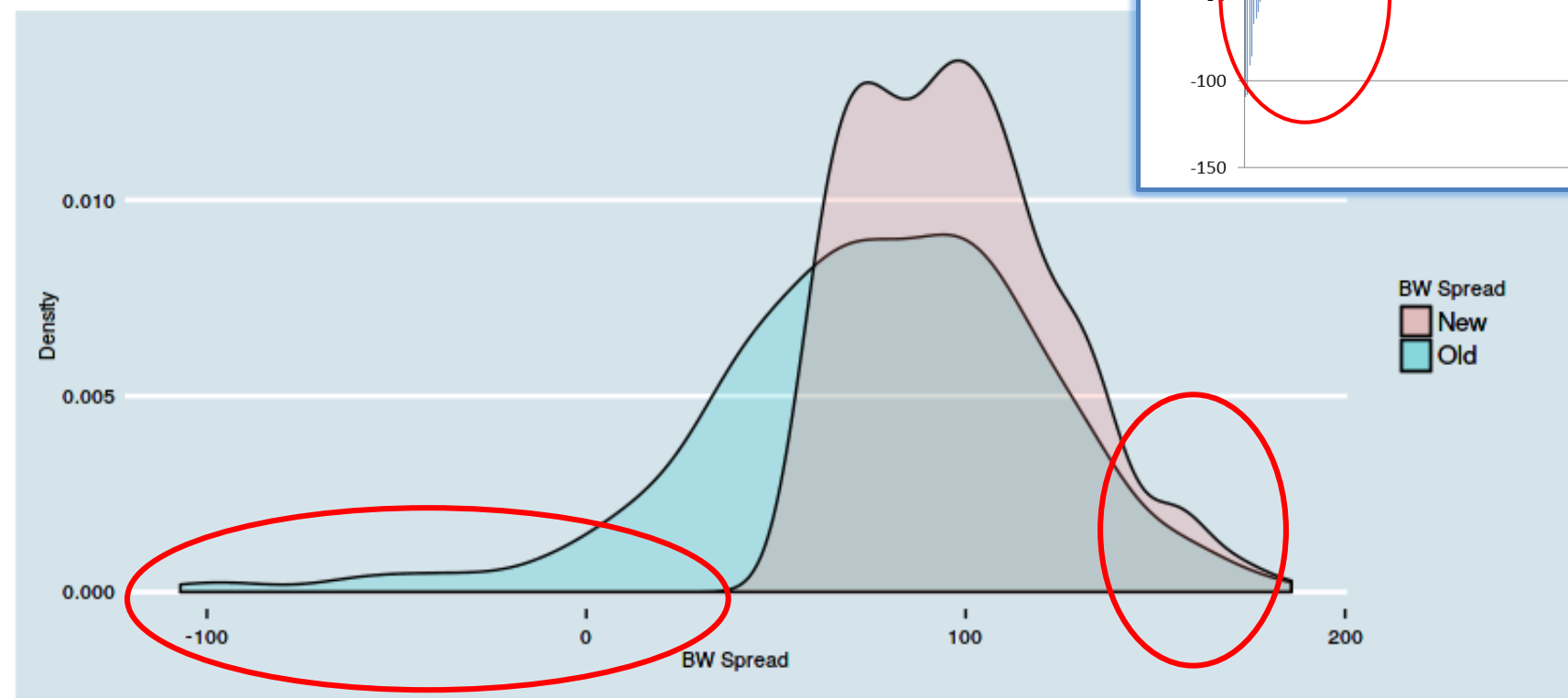


Sharpening the focus on herd improvement within the herd

Secondly



Herd Improvement



The power of Selection pressure

Tag Number	Birth ID	BW	PW	Dam Birth ID	Dam BW	Dam PW
286	17-79	-43.1	-155.6	09-66	15.2	64.3
336	10-49	-29.5	-310.3	00-68	-42.3	-215.2
129	15-66	-20.8	-93.3	07-105	-14.0	-45.1
295	16-57	-20.0	-108.7	09-43	-51.7	-187.7
108	14-77	-16.4	-65.7	04-22	75.0	67.7
20	11-52	-11.5	-216.0	06-40	-35.1	31.9
305	10-16	6.3	85.3	05-6	-108.2	-97.3
321	11-51	28.1	9.7	08-40	-24.4	10.6
235	14-9	31.9	-65.3	08-37	-18.9	-72.1
329	10-17	33.5	30.2	06-32	-15.4	-78.3
314	15-76	35.1	-84.5	07-22	-7.3	37.7
147	10-52	35.2	76.5	04-35	4.7	136.7
227	12-58	37.9	23.8	07-37	12.3	50.9
155	11-11	38.3	-110.2	08-2	50.9	-29.1
293	15-47	40.3	-98.8	08-15	-54.9	-172.9
217	14-49	40.5	-12.1	03-25	-75.5	-139.2
62	12-34	40.7	-12.4	05-6	-108.2	-97.3
115	16-37	40.8	-131.1	07-16	-18.3	49.4
337	14-82	41.7	53.0	08-30	59.4	11.7
24	14-81	45.5	306.7	07-20	71.7	41.6
27	12-52	45.6	143.1	03-41	-70.8	-134.3
45	14-78	45.9	65.1	05-50	-19.3	-99.7
326	13-48	46.5	-72.0	08-78	-20.7	-116.4
296	14-20	49.3	-86.4	08-27	21.6	-87.1
184	15-68	49.9	23.4	06-67	-17.3	81.6
107	15-79	49.9	-25.2	04-9	-9.0	131.0
285	16-22	56.9	-141.6	12-54	97.0	99.9

Tag Number	Birth ID	BW	PW	Dam Birth ID	Dam BW	Dam PW
157	13-5	185.9	223.6	09-11	131.4	174.2
59	15-58	186.4	399.7	10-18	147.2	331.2
256	17-45	187.7	255.2	14-43	184.6	293.1
327	17-53	187.8	308.5	12-21	165.6	135.3
89	17-26	188.1	186.6	14-68	141.9	88.7
317	17-16	189.2	350.3	13-59	148.6	235.2
360	15-34	190	270.5	12-33	117.9	193
67	16-53	190.6	345.4	11-27	161.4	268.6
271	13-33	191.6	323.2	09-12	98.8	191.1
287	15-10	194.3	268.7	11-44	135.0	192.3
32	16-58	198.4	435.9	10-29	120.4	86.5
169	17-22	200.4	190.7	12-69	167.6	203.0
244	15-41	204.3	225.8	12-60	156.8	299.1
31	13-69	206.1	304.3	10-5	116.8	93.4
96	14-21	207.4	447.3	11-20	121.8	204.4
328	17-70	208.9	192.1	11-5	128.0	207.4
224	17-46	212.3	279.7	13-87	119.1	159.6
318	17-48	217.4	320.0	12-73	114.4	262.9
195	17-76	220.7	288.1	11-44	135.0	192.3
323	17-18	244.9	524.4	14-62	122.9	169.6

Efficiency defined as;

$$A + B - C / LWT$$

And she certainly needs to get in calf

There's always room for improvement

Regional Analysis highlighting efficiency and effectiveness of BW

- Herds with minimum of 90% recorded ancestry
- Spring calving
- 4 – 8 year olds
- Minimum days in milk = 200
- Minimum 4 herd tests (at least the first 2 as AM/PM sampling)

Waikato

F15/16 – BW / Production / Liveweight

Ranked by BW	# Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg volume	Avg livewt bv	Avg fertility bv	Ave Friesian 16ths
Q1	3,125	491	119	167	160	5777	31.7	0.3	15.7
Q2	3,131	469	69	85	83	5768	31.4	-0.1	15.8
Q3	3,129	460	34	28	32	5840	33.1	-0.5	15.8
Q4	3,125	483	-32	-51	-35	6430	48.4	-1.7	15.8
12,510		476	48	57	60	5954	36.2	-0.5	15.8

Waikato – the crossbred consideration (F9 to 12)

Liveweight and Production

Ranked by BW	# Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg livewt bv	Avg fertility bv	Ave Friesian 16ths
Q1	4,620	495	169	247	245	-1.1	0.5	10.3
Q2	4,639	474	123	174	176	2.4	0.6	10.5
Q3	4,630	463	89	123	128	4.8	0.4	10.7
Q4	4,623	452	42	44	61	8.7	0	11.0
	18,512	471	106	147	153	3.7	0.4	10.6

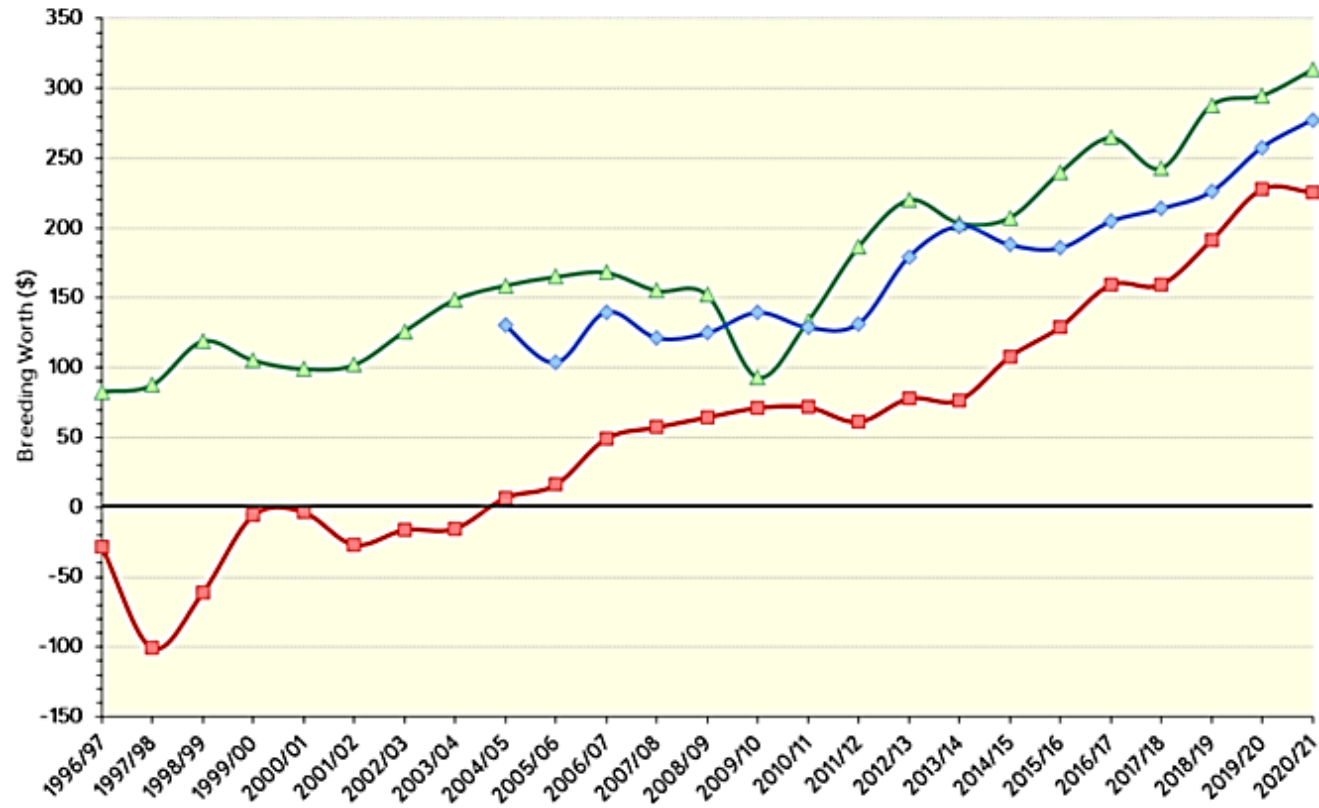
Waikato

J15/16 - BW

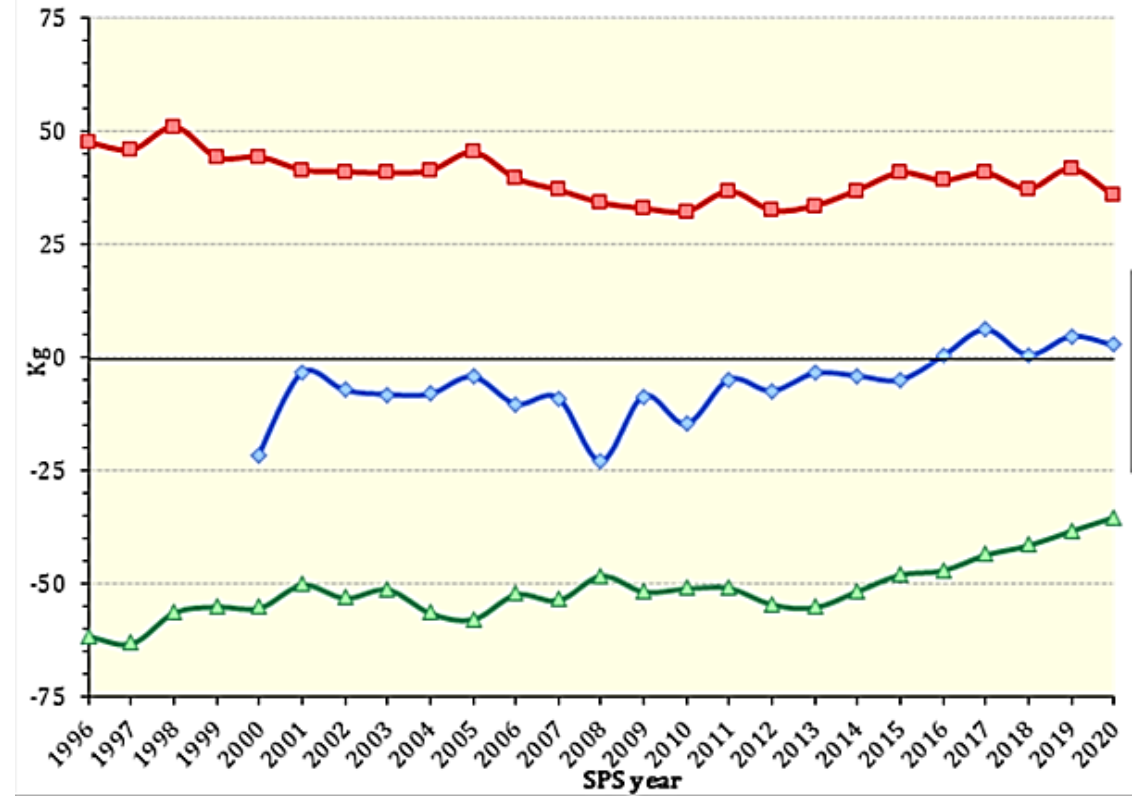
Ranked by BW	# Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg livewt bv	Avg fertility bv	Ave Friesian 16ths
Q1	2,108	433	229	278	272	-49.3	2.5	0.1
Q2	2,100	407	191	209	208	-49	2.3	0.1
Q3	2,110	386	164	161	160	-48.6	2.2	0.1
Q4	2,107	381	99	92	97	-49.6	1.3	0.1
	8,425	402	171	185	184	-49.1	2.1	0.1

Jerseys - heading in the right direction

PREMIER SIRES genetic trend:
Breeding Worth (Feb 2020 REVs)



Sire Proving Scheme genetic trend:
Liveweight BV



This is real! Quartiles investigation – BW (Herd 2)

2020/21 Season YTD – Mature cows – min DIM = 150

Ranked by BW	# Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg DIM	Avg livewt bv	Avg fertility bv	Ave Friesian 16ths
Q1	139	468	73	161	120	175	8.4	-0.6	9.9
Q2	139	459	6	73	60	175	29.1	-2.1	11.4
Q3	139	449	-44	-5	0	173	47.0	-2.9	12.8
Q4	138	435	-110	-102	-57	171	58.5	-4.4	13.6
	555	452	-19	32	31	174	35.7	-2.5	11.9

There's always room for improvement

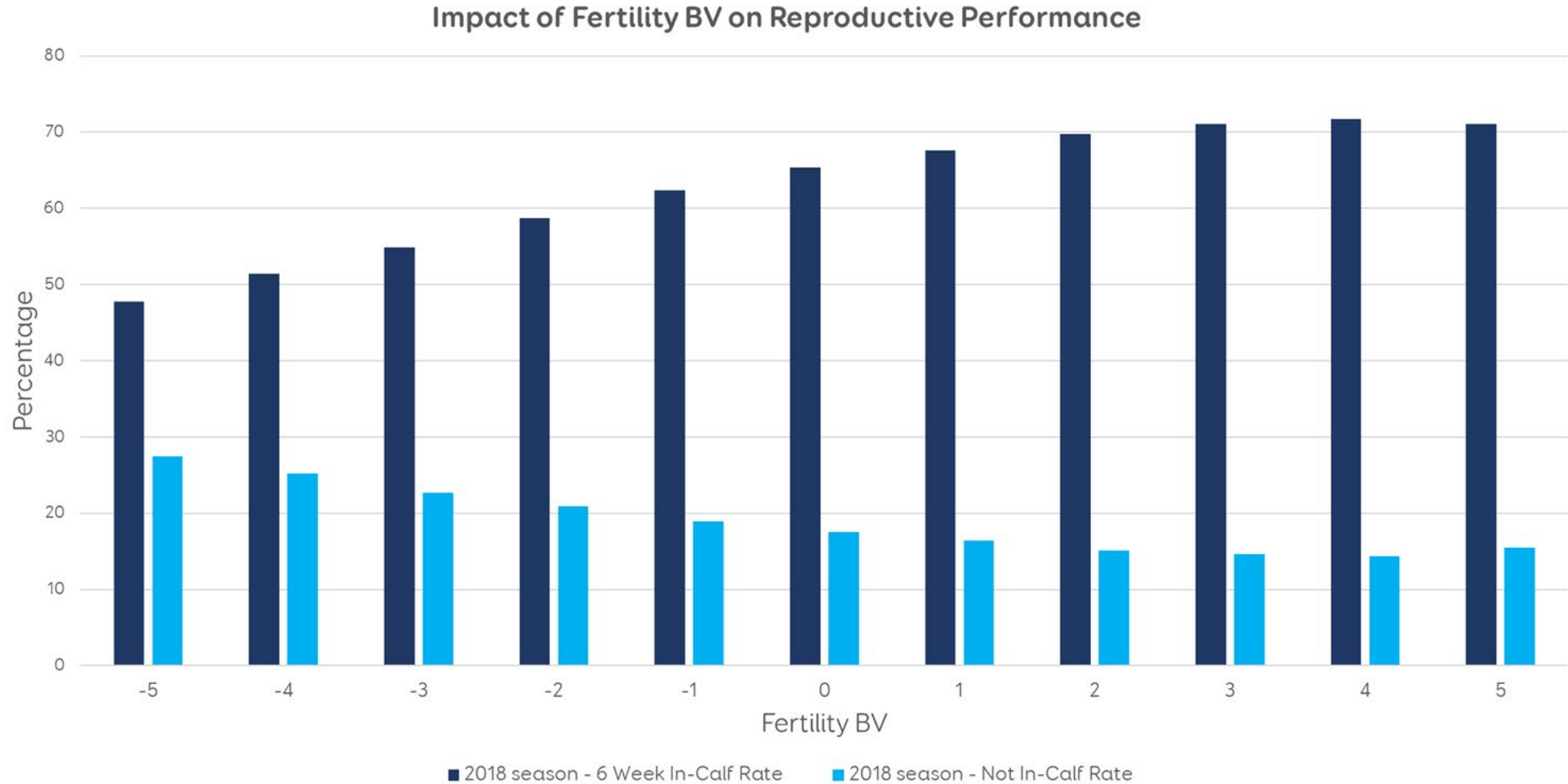
This is real! Quartiles investigation – LWT (Herd 2)

2020/21 Season YTD – Mature cows – min DIM = 150

Ranked by Liveweight bv	# Animals	Avg KgMS	Avg BW	Avg PW	Avg LW	Avg DIM	Avg livewt bv	Avg fertility bv	Ave Friesian 16ths
group 1	111	447	-84	-42	-40	171	73.4	-4.2	15.3
group 2	111	465	-49	12	5	173	60.0	-2.7	14.3
group 3	111	453	-7	21	16	174	40.1	-1.8	13.3
group 4	111	450	-1	45	56	174	14.9	-2.3	9.8
group 5	111	448	47	124	119	175	-9.9	-1.4	6.9
	555	452	-19	32	31	174	35.7	-2.5	11.9

There's always room for improvement

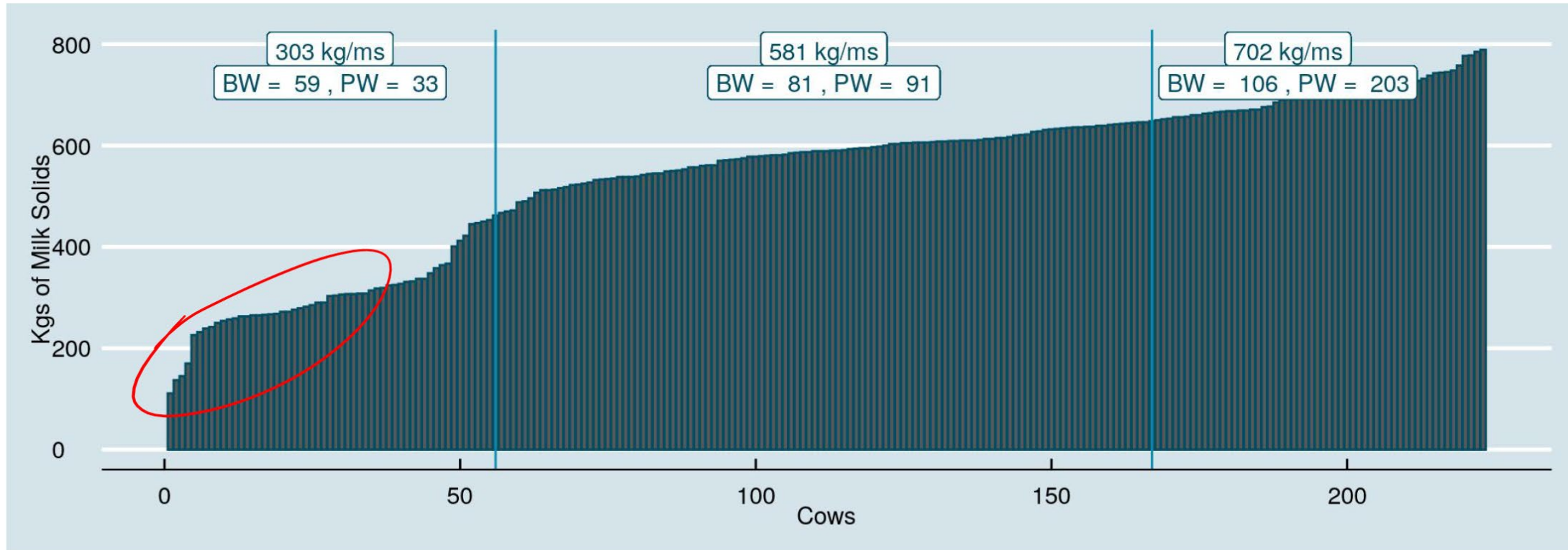
That fertility BV will cost you on farm



There's always room for improvement

In reality we already have the cows with the desired levels of productivity, we just need more of them!

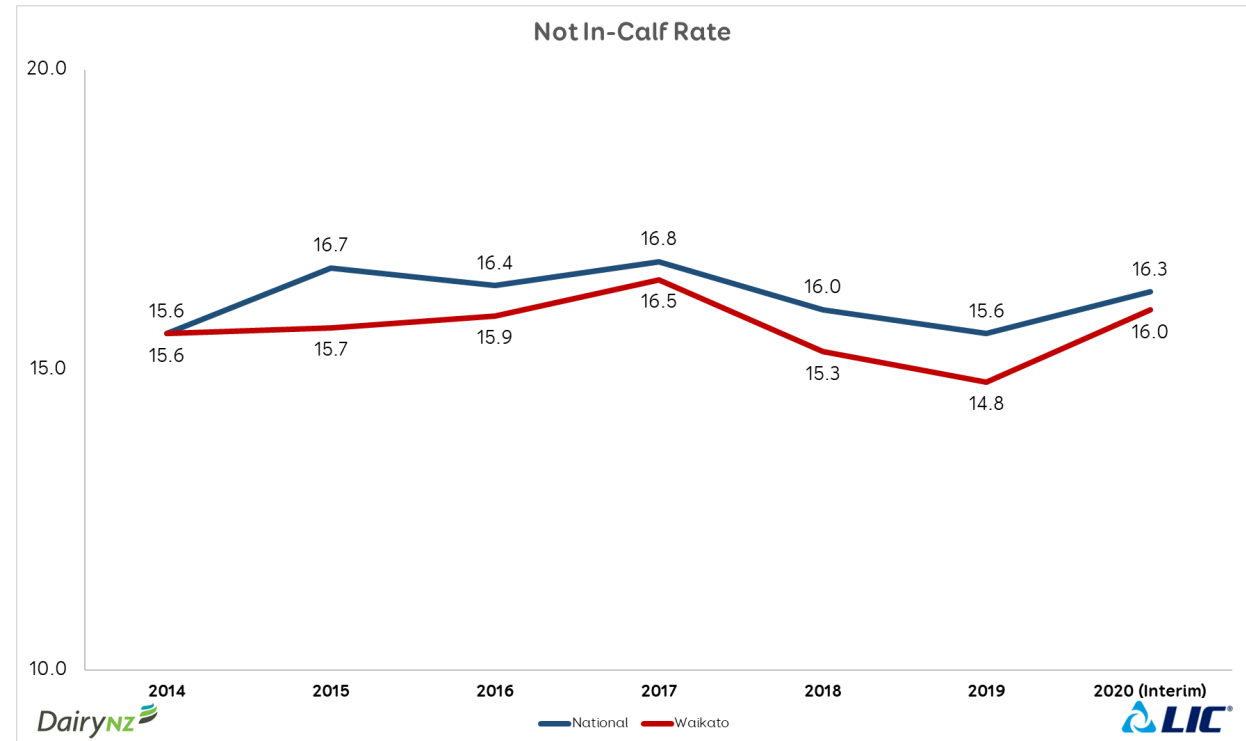
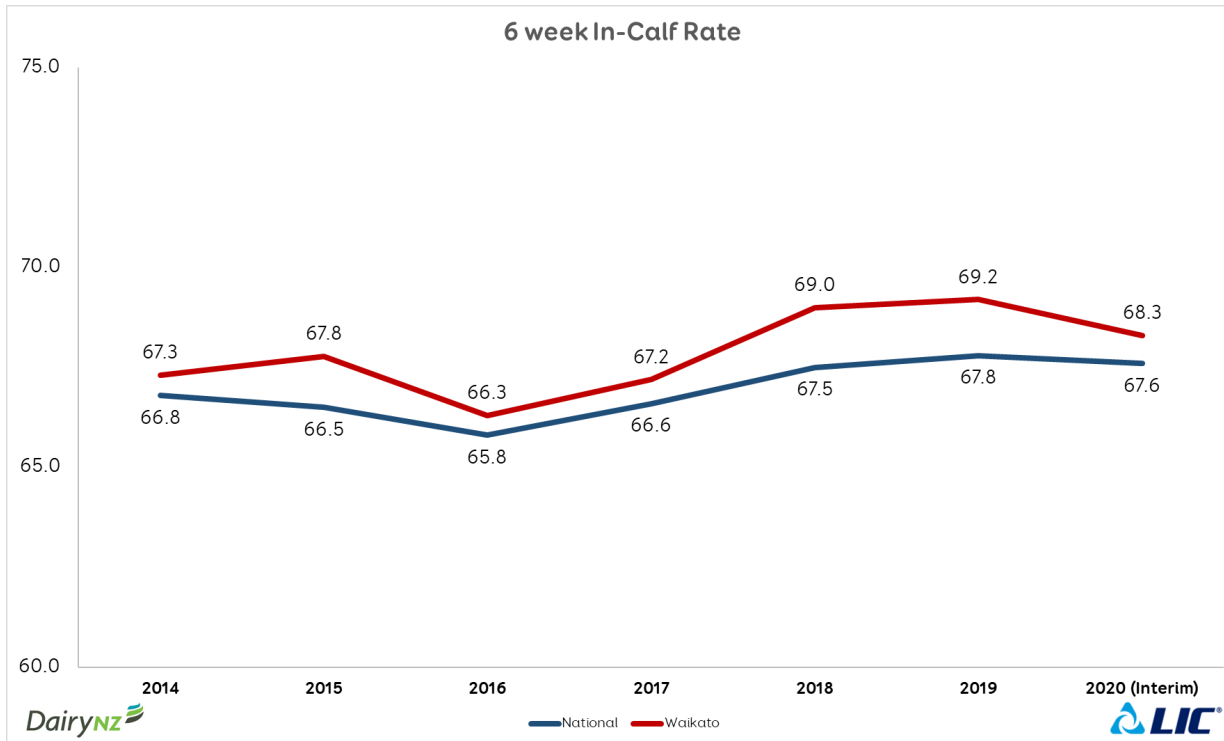
Milk solid spread (4-8 years old)



This data is obtained from cumulative results of 4 herd test(s) for season year 2019/20.

400Kgs MS diff top to bottom. (Adjustment for milking days/short season in Q1 = +83KgsMS, taking us up to 385 resulting in **317 Kgs MS/cow** difference between Q1 & Q4.

Regional fertility trends over time – Waikato



Bigger range than one might expect in the key KPIs

Waikato - Performance 2019	6 Week In-Calf Rate	3 Week Submission Rate	Conception Rate	Not In-Calf Rate	Mating Length (weeks)
Top Quartile Average	75.3	84.1	60.3	12.1	10.0
2nd Quartile Average	69.8	81.1	55.2	14.5	10.5
Average	67.8	78.5	54.2	17.4	10.6
3rd Quartile Average	65.4	77.9	52.3	17.1	10.8
Bottom Quartile Average	56.7	67.4	46.3	22.8	11.3
Targets	78.0	90.0	60.0		



There's always room for improvement

Dispelling the myth that good cows are harder to get in-calf

Breeding Worth

Waikato - 2019 Within herd ranking - BW	Number of cows	6 Week In- Calf Rate	3 Week Submission Rate	Conception Rate	Not In-Calf Rate
Top Quartile	105,447	70.5	80.6	55.5	12.6
2nd Quartile	106,050	69.2	79.1	55.3	13.8
3rd Quartile	105,739	67.3	78.1	54.0	15.6
Bottom Quartile	105,181	64.3	76.2	52.1	18.7



There's always room for improvement

Focussed on the future



- 'If we are not milking more cows in this region we are going to have to be milking better cows'
- Profitability, fertility, efficiency and smart cow selection will define success

There's always room for improvement

Focussed on the future - Genetics 2025

