

Genetic BVs in Practice on Commercial farms

Nov 2020

Two sires of different merit for liveweight at 12 months were used across a number of hinds on three commercial farms in Autumn 2019. The progeny were dna sampled at weaning to identify the sire then run together through to processing and liveweights tracked. Note: this is unadjusted raw data, so no corrections for any differences in birth date, age of dam, variation in hinds – it is just what the farmers experienced under typical commercial conditions.

As some sires had more or less male progeny which generally show a larger difference in weight the average of the females and average of the males was combined to give an even proportion of both sexes for each sire.

Terminal

John and Tasha Hamilton (Winton) – two Tikana Wapiti/Elk sires

Two Tikana Wapiti sires were used over hybrid hinds, they varied in merit for W12 BV by about 12kg, the heavier weight also meant he was predicted to have a heavier carcass weight and from eye muscle scanning was also slightly better for eye muscle area.

Table 1. Merit of sires

Sire ID	Breeding Value Merit			
	WWT	W12	CW	EMA
8314.404/14	12.4	20.8	9.5	0.405
8314.944/09	6.7	8.2	4.9	0.238

At weaning the average weight of progeny For both sires was almost identical, but the progeny of the higher merit then gained more weight in each period.

Table1: Summary of liveweights and gain by Sire and sex

Sire ID	No.		3/03/2020	29/05/2020	18/08/2020	5/11/2020	Gain1	Gain1	Gain 3	Total Gain
8314.404/14	11	Males	69.14	96.68	112.55	141.18	27.55	15.86	28.64	72.04
8314.944/09	14	Males	68.93	91.82	107.54	129.71	22.89	15.714	22.18	60.78
8314.404/14	16	Females	66.59	91.06	104.28	123.41	24.47	13.22	19.13	56.82
8314.944/09	15	Females	66.90	88.97	100.07	118.03	22.07	11.10	17.97	51.13
8314.404/14	27	50:50	67.87	93.87	108.42	132.30	26.01	14.54	23.88	64.43
8314.944/09	29	50:50	67.92	90.40	103.81	123.87	22.48	13.41	20.07	55.96

Summary

The progeny of the higher merit sire grew faster in all periods. Male progeny of 404/14 were 11.5kg heavier, females 5.4 kg heavier and on a sex balanced basis were 8.5 kg heavier than the lower merit sire on the 5/11/2020 when animals were weighed and drafted.

An 8.5kg liveweight advantage would correspond to a 4.6kg carcass weight advantage at 55% dressing out. Schedule prices vary but assuming all go to the works and schedule is \$6 this equates to about \$27 per head gain.

The minimum weight on 18th of August was 95 kg (female) so all progeny of both sires could have been drafted at that point if desired.

Table- Average, Minimum and Maximum weights on 5 November at the first draft.

Sire ID	N	5/11/2020	Minimum	Maximum
8314.404/14	27	130.65	102	156.5
8314.944/09	29	123.67	100	151.5

Figure 1. Graph of weighted liveweight for sires – balanced for sex

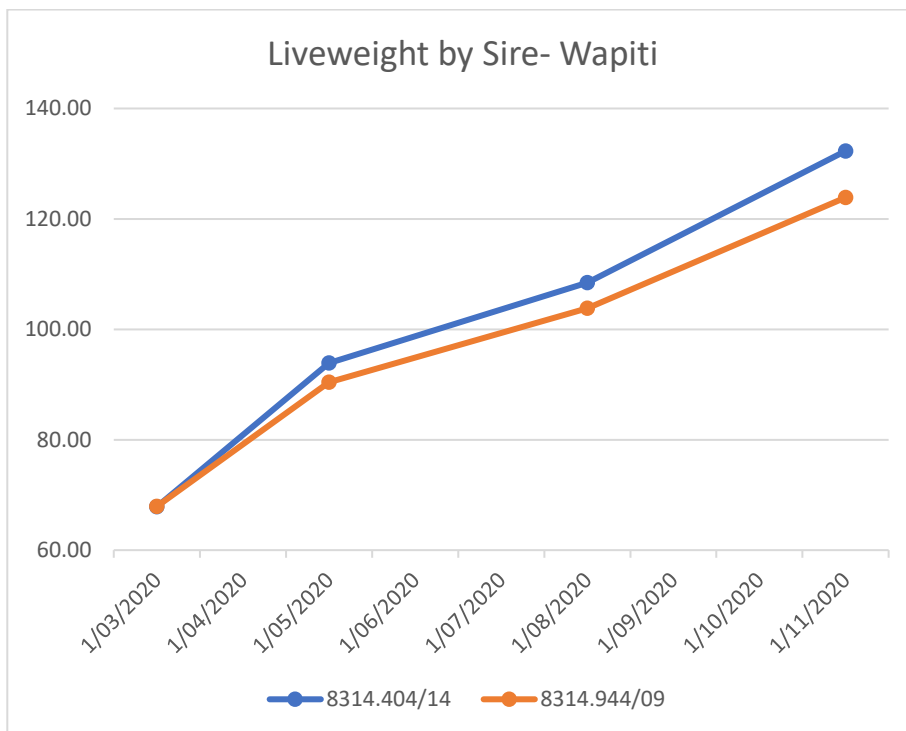
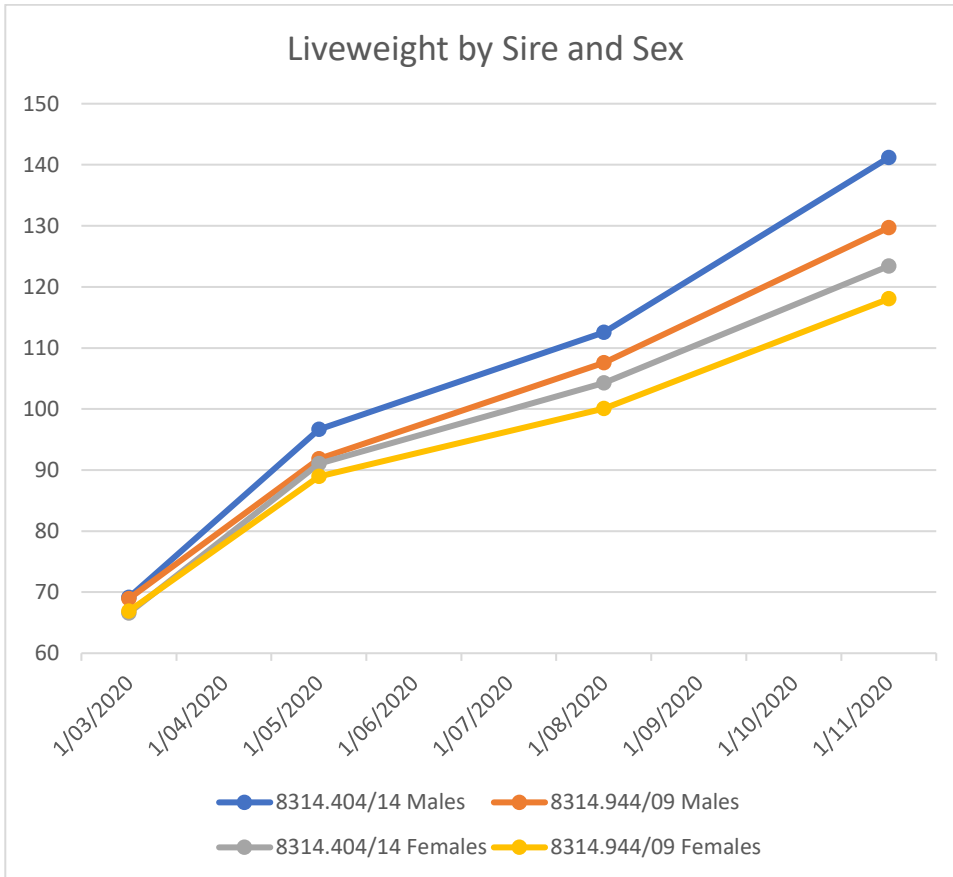


Figure 2. Liveweight by Sire and Sex



The W12 BV differed by about 12kg, in theory the progeny receive $\frac{1}{2}$ the difference so a 6kg difference would be expected. On a sex balance basis they differed by about 8kg.

Red- venison focus

Lorna and Duncan Humm (Mt Somers) – two Melior sires.

Two sires that differed by about 10kg for W12 were mated over mixed age hinds Autumn 2019. The hinds were calved predominantly in their mating groups, the weaning weights were almost identical and the farm is very uniform. At weaning the progeny were dna sampled to identify sire. Progeny were run together and liveweight and processing data tracked.

Table 1. Merit of two sires for liveweight at 12 months (W12 BV) and mature weight. (MWT BV) expressed in kilograms

	Breeding Value Merit				
	WWT	W12	CW	MWT	EMA
MFCF-16-265	18.48	30.78	15.00	25.80	0.22
MFCF-16-247	12.88	19.50	9.82	17.69	0.49

The sires differed by about 10kg for liveweight at 12 months.

Liveweight was recorded at 4 time points prior to the first draft in early October. There was some variation in the ratio of hind and stag progeny between the two sires, as the males grow faster the data is presented for both sexes and as a 50:50 ratio for a fair comparison.

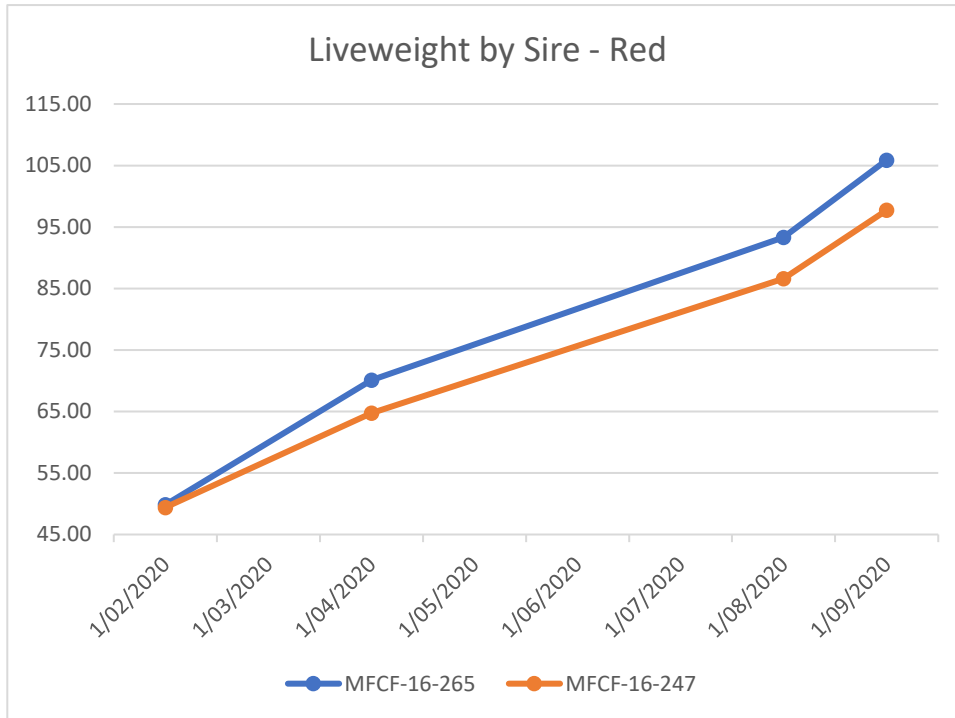
Table. Summary of liveweights and gain by Sire and sex

Sire Tag	No.	8/02/2020	3/04/2020	2/08/2020	26/09/2020	Gain 1	Gain 2	Gain 3	Total Gain	
MFCF-16-265	Males	29	51.55	72.84	101.52	117.71	21.29	28.67	16.19	66.16
MFCF-16-247	Males	28	51.29	67.50	92.95	106.16	16.21	25.45	13.21	54.87
MFCF-16-265	Females	27	48.11	67.37	85.13	94.07	19.26	17.76	8.94	45.96
MFCF-16-247	Females	22	47.52	61.98	80.25	89.31	14.46	18.27	5.00	41.79
MFCF-16-265	50:50		49.83	70.11	93.33	105.89	20.28	23.21	12.57	56.06
MFCF-16-247	50:50		49.41	64.74	86.60	97.74	15.33	21.86	9.11	48.33

Males showed much larger difference in weight gain 12.4kg than females 4.4kg by late September as you would expect. Overall, the high merit sire progeny on a 50:50 hind to stag ratio are averaging 8.4 kg heavier in weight by the 26th September. Very large liveweight gains were achieved from early March to the start of August with several individuals averaging more than 300g/day on a mixed herb/pasture species diet.

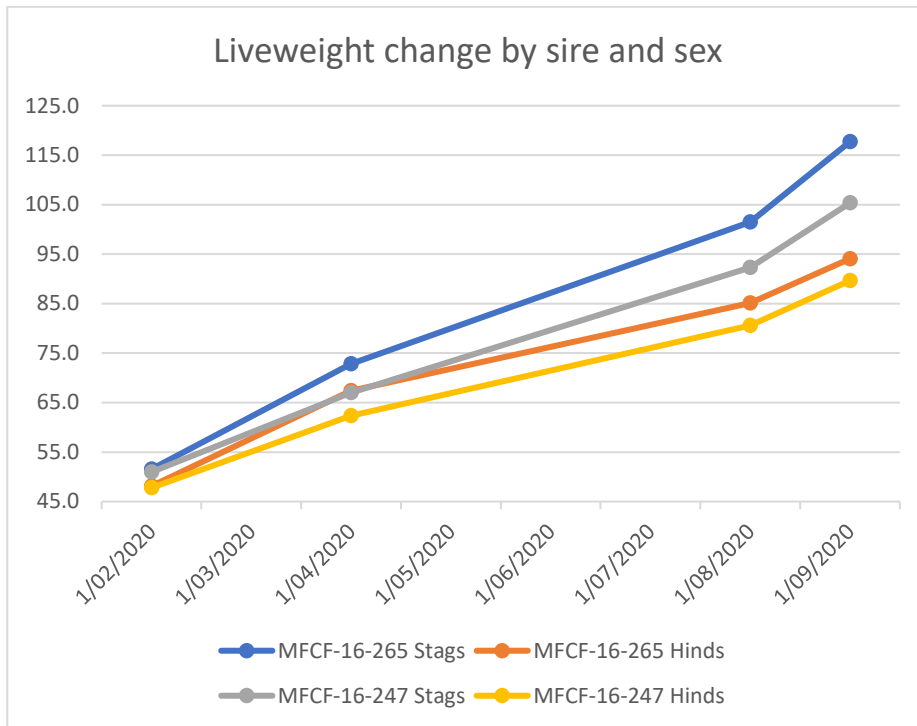
An 8.4kg liveweight advantage would correspond to a 4.6kg carcass weight advantage at 55% dressing out. Schedule prices vary but assuming all go to the works and schedule is \$6 this equates to about \$27 per head gain. If the schedule is higher earlier the difference can be greater.

Figure 1. Graph of weighted liveweight for sires – balanced for sex.



In theory there the difference between the sires should be about 5kg at live at 12 months, whereas they were about 8 kg different at end of September. Interestingly there was a greater difference (23kg) between the males and females for the high merit sires (265) than for the lower merit sire (17kg) by September 26. These weights are only at 10 months of age -so still some time to maturity and may change.

Fig 2. Liveweight by Sex and Sire



Overall an 8.5kg liveweight advantage would correspond to a 4.6kg carcass weight advantage at 55% dressing out. Schedule prices vary but assuming all go to the works and schedule is \$6 this equates to about \$27 per head gain. More likely to result in a 2 week later processing.

Table- Average, Minimum and Maximum weights on 26 September prior to the first draft.

		Number	26/09/2020	Minimum	Maximum
MFCF-16-265	Stags	29	117.7	78.0	136.5
	Hinds	27	94.1	82.0	107.0
MFCF-16-247	Stags	29	105.3	82.5	118.5
	Hinds	20	89.7	79.0	98.5

Processing

First draft of stags was on 2/10/2020. Twenty progeny of sire MFCF-16-265 and eight progeny of sire MFCF-16-247 were in the line. Second draft on the 20/11/2020 had 6 and 15 respectively

Table- Carcass weights and GR details for male progeny of both sires.

Sire Tag	2/10/2020					20/10/2020				
	N	GR	CWT	CWT Min	CWT Max	No.	GR	CWT	CWT Min	CWT Max
MFCF-16-265	20	7.6	69.3	63.0	76.4	6	5.0	64.3	59.0	67.2
MFCF-16-247	8	6.3	65.5	61.2	71.4	15	4.7	63.8	59.2	67.8

Red Venison

David and Ali Seifert (Raetihi) – Ruapehu Sires

Slightly more complicated- due to mating and fawning mobs there were more sires and fawns to determine parentage on. There are 4 Ruapehu sires which had good numbers of progeny, so we are tracking progeny of these sires. The high merit sire was mated to younger hinds 2nd and 3rd calvers and other sires to more 4,5 & 6 year old hinds. At weaning the progeny of the high merit sire were a bit lighter than the others. It was a dry challenging season in late summer Autumn 2020. Again, this is under farmer conditions with no ability to correct for things such as birth date/weight or age of dams if they differ between sires. The progeny of the higher W12 merit sire have grown rapidly and have now passed the others on a 50:50 female male balance

Table1 : Breeding value merit of the 4 sires

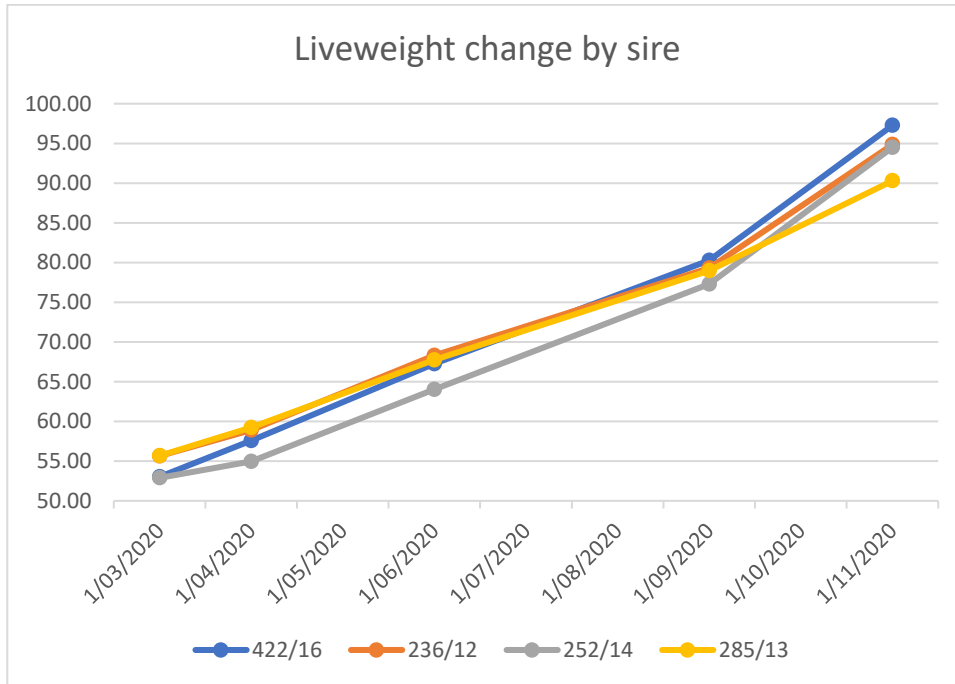
Sire ID	Breeding Value Merit			
	WWT	W12	CW	MWT
422/16	14.03	28.22	12.76	23.02
236/12	12.12	19.54	10.01	16.04
252/14	11.10	20.05	10.00	18.06
285/13	15.97	22.90	11.38	17.50

To account for differences in the balance of progeny sex, the average female weight + average male weight divided by 2, so balances out any sex imbalance in the progeny, which is most likely due to chance effects.

Table: Summary of liveweights and gain by Sire and sex

Sire ID	N	6/03/2020	8/04/2020	8/06/2020	5/09/2020	4/11/2020	Gain 1	Gain 2	Gain 3	Gain 4	Total Gain
422/16 Males	11	55.23	60.00	70.36	85.95	107.09	4.77	10.36	15.59	21.14	51.86
236/12 Males	11	58.00	61.77	72.32	85.68	103.86	3.77	10.55	13.36	18.18	45.86
252/14 Males	13	54.38	55.96	65.71	81.50	100.92	2.46	9.75	15.79	19.42	46.54
285/13 Males	8	57.13	60.37	69.28	82.67	91.70	4.86	8.81	13.39	9.10	34.57
422/16 Female	16	50.81	55.19	64.13	74.59	87.44	4.38	9.20	10.47	12.84	36.63
236/12 Female	14	53.30	56.07	64.30	72.97	85.83	2.75	8.57	8.67	12.87	32.53
252/14 Female	16	51.41	53.97	62.38	73.09	88.10	2.56	8.41	10.72	13.43	36.69
285/13 Female	9	54.22	58.11	66.22	75.33	88.89	3.89	8.11	9.11	13.56	34.67
422/16 50:50		53.02	57.60	67.25	80.27	97.27	4.57	9.78	13.03	16.99	44.24
236/12 50:50		55.65	58.92	68.31	79.33	94.85	3.26	9.56	11.01	15.53	39.20
252/14 50:50		52.90	54.97	64.05	77.30	94.51	2.51	9.08	13.26	16.42	41.62
285/13 50:50		55.68	59.24	67.75	79.00	90.30	4.37	8.46	11.25	11.33	34.62

Figure 1. Graph of weighted liveweight (balanced sex) for sires.



The progeny of the High merit sire 422 (blue line) grew faster in most periods and were heaviest on 5/11/20 at drafting

Progeny of sire 252 (grey line) – showed strong growth in the spring

Interestingly the two sires 236/12 (orange line) and 252.14 (grey line) have almost identical W12 breeding values – they have different growth profiles to get there but the progeny ended up with almost the exact same liveweight on the 5th of November. The third sire 285/13 progeny performed slightly lower than expected from the BV