

TACE 

TransTasman Angus Cattle Evaluation

ANGUS ImmuneDEX

RESEARCH BREEDING VALUES

DECEMBER 2023

BACKGROUND

Angus Australia has partnered with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to undertake research into the genetics of traits related to immune competence and resilience. An animal's resilience is defined as their capacity to cope with environmental challenges, especially those leading to disease, and to subsequently return to being productive.

This has involved collecting and analysing immune competence phenotypes on ~4000 Angus steers and heifers at weaning, primarily from the Angus Sire Benchmarking Program (ASBP). This information, combined with genotypes (i.e. DNA profiles), was analysed to determine genetic parameter estimates (heritabilities and correlations) and to produce Research Breeding Values for immune competence.

More specifically, immune competence was assessed by combining measures of antibody-mediated immune responses (Ab_IR), through a blood test, and cell-mediated immune responses (Cell_IR), through a skin reaction test. Pathogens, like the bacteria and viruses associated with Bovine Respiratory Disease (BRD), differ in the way they infect the host animal. For instance, many bacteria live outside host cells while viruses replicate within host cells. The immune system tailors how it responds to different pathogens with extra-cellular pathogens most effectively controlled by Ab_IR and intracellular pathogens most effectively controlled by Cell_IR.

Individuals identified as having a balanced ability to mount both a Cell_IR and Ab_IR response are expected to exhibit broad-based disease resistance against a wide range of pathogens. For this reason, an index value (ImmuneDEX) has been developed which combines research breeding values for the Cell_IR and Ab_IR traits into a single value. The process by which the ImmuneDEX value is generated ensures appropriate weightings are given to component traits so that high ImmuneDEX animals have a balanced response, and genetic gains in both traits are driven at similar rates.

The ImmuneDEX value is moderately heritable and negatively correlated with some of the production traits (e.g. carcass weight and eye muscle area), while being favourably correlated with the stress and temperament related traits.

Additionally, on a subset 1149 steers from this study, disease incidence during the feedlot feeding period was examined. Prior vaccination and minimal mixing with unfamiliar animals at feedlot entry provided a low disease risk environment in the study. Nonetheless, animals with superior immune competence phenotypes had significantly fewer health-related mortalities, and incurred substantially lower health related costs during feedlot finishing.

UNDERSTANDING THE ImmuneDEX RBV

ImmuneDEX Research Breeding Values (RBVs) are provided in this publication for sires with (i) at least 50% accuracy for their ImmuneDEX RBV, and (ii) one or more progeny born in the last two years.

The ImmuneDEX RBV provides an estimate of genetic differences between animals for overall immune competence, a key component of resilience.

Higher ImmuneDEX RBVs indicate an animal is expected to produce progeny with an enhanced ability to resist disease challenges and therefore have lower disease incidence. Lower ImmuneDEX RBVs indicate an animal is expected to produce progeny with a higher incidence of disease and associated production losses.

USING THE RESEARCH BREEDING VALUES IN SELECTION

The ImmuneDEX RBVs in this publication will enable Angus breeders to place selection emphasis on immune competence and resilience traits, while continuing selection for other traits of importance within their breeding objective.

It is important to note that the RBVs for AB_IR and Cell_IR that underpin the ImmuneDex values are subject to greater potential change than EBVs routinely reported as part of the TransTasman Angus Cattle Evaluation (TACE), and ImmuneDEX RBVs should be used with caution in animal selection decisions.

ImmuneDEX RBVs, and the component Research Breeding Values for AB_IR and Cell_IR, may change as improvements are made to the analytical models that are used, and as additional performance information is collected and methodologies for assessing resilience traits continue to evolve.

ACKNOWLEDGEMENTS

Angus Australia gratefully acknowledges the ASBP co-operator herd owners for allowing access to animals for testing. Contributions of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) are also acknowledged, and in particular, Dr Brad Hine, Dr Aaron Ingham, Dominic Niemeyer, Amy Bell, Dr Sonja Dominik, Dr Toni Reverter-Gomez, Dr Laercio Porto Neto and Dr Ian Colditz. Assistance provided by Bob Dent in the initial methodology development work is also gratefully acknowledged.

Meat and Livestock Australia (MLA) and the Australian Lot Feeders Association (ALFA) are acknowledged for co-funding projects related to the development and validation of the immune competence phenotyping methodology. MLA is further acknowledged for co-funding the Angus Sire Benchmarking Program (ASBP)

DISCLAIMER

The ImmuneDEX RBVs contained within this publication were calculated from data supplied to Angus Australia by members and/or third parties. Whilst every effort is made to ensure the accuracy of the data, Angus Australia, its officers and employees, assume no responsibility for the accuracy of the RBVs, nor the outcome (including consequential loss) of an action taken based on the information presented in this publication.

Angus Australia - ImmuneDEX Research Breeding Values

Ident		Name																											
Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal			Fert		Carcase					Feed	Temp	Structural		Selection Index					
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L			
NXOL172 NXOF43 NXOJ432	AJC L172^{SV} APR	+46 69% 51	+6.1 75% 17	+8.3 60% 5	-6.8 94% 19	+3.3 96% 33	+61 94% 10	+102 94% 17	+142 94% 9	+134 87% 9	+12 87% 86	+2.4 83% 37	-5.0 54% 40	+73 91% 29	+6.7 88% 43	-0.3 83% 55	+0.4 89% 36	+0.2 81% 67	+1.1 91% 76	-1.01 83% 1	+21 85% 44	+1.42 85% 99	+1.28 85% 96	+1.26 81% 97	\$221 85% 26	\$409 81% 8			
DGJG10 VTMB1 DGJZ15	ALLOURA GET CRACKING G10^{SV} HBR	+53 69% 39	+8.2 93% 6	+7.6 82% 9	-3.3 99% 72	+2.5 98% 19	+43 98% 80	+74 98% 89	+87 98% 95	+80 97% 79	+13 97% 80	-0.4 75% 99	-8.5 95% 2	+48 95% 92	+14.6 94% 2	+1.8 94% 14	+0.6 94% 33	+1.0 90% 21	+5.2 93% 3	+0.44 88% 76	+6 97% 94	+0.52 96% 4	+1.02 96% 61	+0.94 93% 21	\$277 96% 1	\$434 93% 3			
DGJL94 USA15832750 DGJH24	ALLOURA LOCK STOCK & HBR	+44 64% 55	+5.4 77% 22	+4.3 64% 36	-4.3 93% 56	+2.8 95% 24	+55 93% 26	+93 93% 40	+124 94% 34	+123 89% 18	+13 84% 76	+1.1 87% 83	-4.6 52% 50	+65 88% 55	+0.9 84% 95	+1.7 80% 15	-1.5 85% 70	+0.2 76% 67	+2.1 87% 49	-0.38 77% 6	+25 92% 28	+0.92 84% 65	+0.88 82% 27	+0.94 76% 21	\$191 85% 59	\$357 76% 38			
DGJQ30 WWEL3 DGJK117	ALLOURA QUINELLA Q30^{SV} HBR	+13 51% 97	+2.3 71% 49	+2.5 64% 54	-0.1 93% 97	+3.1 92% 29	+53 90% 33	+99 86% 25	+119 86% 45	+123 83% 17	+16 77% 54	+3.2 81% 15	-8.1 52% 3	+73 78% 30	+13.8 74% 2	+0.7 74% 32	+0.8 75% 30	+1.1 68% 17	+4.1 78% 10	+0.49 69% 80	+14 88% 74	+1.02 70% 82	+1.12 70% 81	+1.14 69% 81	\$270 88% 2	\$453 74% 1			
WJMF96 WJMB59 WJMD25	ARDCAIRNIE F96^{SV} HBR	+21 55% 90	+4.7 89% 28	+0.1 77% 75	-4.8 98% 48	+3.2 98% 31	+49 97% 54	+88 97% 55	+122 97% 38	+91 95% 64	+14 95% 69	+1.8 96% 96	-3.4 64% 77	+67 92% 48	+6.8 91% 42	-1.6 91% 82	-1.8 91% 75	+1.2 86% 13	+1.0 92% 79	-0.12 81% 18	+24 89% 32	+0.50 87% 3	+0.84 87% 20	+0.92 82% 16	\$194 87% 55	\$328 82% 61			
WJMJ27 USA15354674 WJMG96	ARDCAIRNIE J27^{SV} HBR	+16 74% 95	+6.9 82% 12	+8.9 72% 3	-7.9 96% 10	+3.0 97% 27	+56 96% 23	+96 96% 31	+132 96% 20	+130 92% 12	+9 91% 95	+0.4 93% 95	-4.2 65% 60	+95 93% 2	+2.3 91% 89	+2.4 91% 8	+1.1 92% 25	-0.1 88% 82	+0.9 93% 81	+0.20 86% 50	+1 86% 98	+0.90 87% 61	+1.10 87% 78	+1.16 82% 85	\$191 86% 59	\$372 82% 27			
NAQA241 USA2928 NAQW38	ARDROSSAN EQUATOR A241^{PV} HBR	+49 80% 46	-2.1 99% 80	+2.6 98% 53	-4.8 99% 48	+4.1 99% 51	+49 99% 52	+91 99% 46	+122 99% 38	+107 99% 37	+21 99% 23	+3.2 99% 15	-8.0 95% 3	+87 98% 6	+8.9 98% 21	-1.9 98% 86	-0.4 98% 51	+1.4 98% 8	+1.3 98% 72	+0.62 96% 88	+25 99% 29	+0.46 99% 2	+0.84 99% 20	+0.98 99% 32	\$223 99% 24	\$376 99% 24			
NAQN329 NAQH318 NAQK30	ARDROSSAN HOLBROOK N329 HBR	+22 54% 89	-2.8 75% 83	-1.3 64% 84	-3.4 96% 71	+2.9 94% 25	+48 95% 58	+89 94% 53	+113 88% 57	+83 83% 76	+22 85% 14	+2.8 85% 24	-6.7 54% 11	+71 90% 36	+5.7 88% 56	+2.4 88% 8	+2.4 89% 11	-0.9 80% 98	+4.2 90% 9	+1.05 82% 99	+15 88% 70	+0.80 81% 40	+1.00 87% 56	+0.98 83% 32	\$210 87% 37	\$338 83% 53			
NAQH255 NORE11 NAQD17	ARDROSSAN HONOUR H255^{PV} HBR	+27 81% 82	-1.6 96% 77	-1.5 88% 85	-3.1 99% 75	+4.6 99% 63	+43 98% 79	+75 98% 88	+98 98% 85	+96 98% 56	+13 98% 81	+2.2 98% 44	-6.0 84% 20	+61 96% 66	+5.9 96% 53	+0.9 96% 28	-0.9 96% 60	+0.6 95% 43	+2.3 96% 44	+1.03 92% 99	+8 97% 91	+0.44 97% 2	+1.02 97% 61	+1.24 95% 95	\$168 97% 80	\$294 95% 82			
QQFH147 VTME343 NMMF123	ASCOT HALLMARK H147^{PV} HBR	+47 72% 50	-3.6 95% 86	+2.8 86% 51	-5.4 98% 38	+7.2 99% 96	+59 98% 13	+109 98% 8	+151 97% 4	+132 97% 10	+16 97% 59	+3.6 98% 9	-5.5 78% 29	+81 96% 13	-2.0 95% 99	+0.8 95% 30	+0.0 95% 44	-0.8 93% 97	+2.9 95% 29	+0.30 89% 62	+17 97% 61	+0.44 95% 2	+0.82 95% 16	+1.04 93% 52	\$190 95% 59	\$353 93% 41			
HIOE7 VTMB219 BVB32	AYRVALE BARTEL E7^{PV} HBR	+41 85% 60	+8.8 99% 4	+9.8 97% 2	-4.9 99% 46	+1.8 99% 11	+49 99% 54	+86 99% 62	+112 99% 60	+73 99% 87	+26 99% 4	+2.5 99% 33	-7.9 93% 3	+67 98% 47	+7.4 98% 35	-0.5 98% 60	+0.7 98% 31	+1.3 98% 11	+3.2 98% 23	+0.32 96% 64	+4 99% 96	+1.02 99% 82	+1.00 99% 56	+1.12 99% 77	\$284 99% 1	\$440 99% 2			
HIOG11 SEWD138 HIOE2	AYRVALE GENETIC G11^{PV} HBR	+24 67% 86	-5.5 87% 92	-12.8 78% 99	-5.4 98% 38	+5.2 98% 75	+65 97% 4	+117 97% 3	+161 97% 2	+139 96% 7	+19 95% 34	+1.6 94% 68	-5.7 61% 25	+84 93% 9	+0.5 90% 96	-3.8 90% 99	-2.9 91% 88	-0.1 86% 82	+2.1 92% 49	-0.23 82% 11	+43 89% 2	+1.10 88% 91	+1.08 88% 74	+1.10 82% 71	\$194 89% 56	\$344 82% 49			
NBBN47 HIOG18 NBBL83	BALD BLAIR NELSON N47^{PV} HBR	+25 50% 85	+3.0 78% 43	-2.3 66% 88	-5.2 95% 41	+4.3 95% 56	+54 93% 28	+102 93% 18	+150 89% 4	+152 84% 3	+15 84% 62	+1.0 90% 85	-4.7 59% 48	+83 88% 11	+3.9 87% 76	-1.2 87% 75	-0.6 88% 55	+0.9 79% 25	+0.8 89% 83	-0.22 81% 12	+29 89% 16	+1.02 85% 82	+1.14 85% 84	+1.16 81% 85	\$183 89% 67	\$361 81% 34			
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337			

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Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal			Fert		Carcase					Feed	Temp	Structural		Selection Index			
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
ECMK63 NZE14647008839 ECMH45	BANNABY REALITY K63 ^{PV} HBR	+74 68% 11	+3.6 80% 38	+0.6 69% 72	-3.2 96% 73	+3.7 96% 42	+44 94% 75	+78 94% 83	+101 94% 80	+104 89% 43	+13 83% 79	+2.4 62% 37	-0.6 91% 98	+51 89% 87	+5.3 88% 60	-1.1 90% 73	-1.4 84% 69	+0.5 91% 49	+1.3 84% 72	-0.18 84% 14	+28 91% 20	+0.58 85% 7	+1.04 85% 66	+1.18 81% 89	\$119 98	\$244 95	
VONG272 VOND412 VONC368	BANQUET GARRETT G272 ^{SV} HBR	+57 64% 33	+1.9 79% 53	+4.1 65% 38	-1.7 94% 89	+6.1 96% 88	+54 94% 32	+96 94% 31	+140 95% 10	+147 89% 4	+20 87% 28	+4.1 91% 4	-2.0 58% 93	+54 90% 83	+1.1 88% 94	-2.4 88% 92	-3.8 89% 94	+0.2 80% 67	+2.9 87% 29	-0.82 81% 1	+24 86% 30	+0.54 87% 5	+1.04 87% 66	+1.10 81% 71	\$143 92	\$309 74	
NUIF32 NGMC196 NUID96	BONNY BROOKE FALCO F32 ^{SV} HBR	+49 53% 46	-4.8 67% 90	-10.6 53% 99	-0.3 91% 96	+6.5 89% 92	+49 90% 52	+76 89% 85	+100 90% 82	+95 84% 58	+17 76% 45	-1.0 76% 99	-2.4 51% 90	+61 84% 66	-2.3 82% 99	+2.6 82% 7	+2.4 83% 11	-0.9 73% 98	+1.5 82% 66	-0.34 73% 7	+20 81% 46	+1.06 79% 87	+0.96 79% 46	+1.12 74% 77	\$109 99	\$199 99	
HCAG013 VTMA217 VTMZ618	BOONAROO GRAVITY G013 ^{PV} HBR	+87 70% 2	+4.2 90% 32	+2.9 82% 50	-5.8 98% 32	+3.7 98% 42	+51 97% 44	+87 97% 59	+114 97% 57	+104 94% 43	+23 95% 12	+3.8 97% 6	-6.2 71% 17	+57 93% 76	+4.2 92% 73	-2.9 92% 95	-3.3 92% 91	+1.3 87% 11	+3.2 91% 23	-0.71 85% 1	+23 94% 36	+0.48 93% 2	+0.92 94% 36	+1.08 91% 65	\$220 27	\$373 25	
NGMN418 WWEL3 NGML471	BOOROOMOOKA JACKPOT N418 HBR	+24 50% 86	+2.0 70% 52	+7.3 64% 10	-9.0 95% 5	+5.4 96% 78	+62 95% 8	+108 95% 8	+135 95% 15	+128 92% 13	+8 84% 97	+3.4 93% 11	-6.9 59% 9	+80 88% 14	+9.9 86% 86	-0.6 86% 62	+0.4 86% 36	+1.0 79% 21	+2.4 88% 41	+0.31 79% 63	+29 95% 18	+1.32 92% 99	+1.06 92% 70	+0.98 85% 32	\$269 2	\$457 1	
NGMP96 WWEL3 NGMM566	BOOROOMOOKA PARAGON P96 HBR	+15 52% 96	-3.9 81% 87	+3.0 71% 49	-7.8 98% 10	+3.8 98% 44	+62 97% 8	+119 97% 2	+162 97% 1	+123 90% 17	+28 81% 2	+3.5 96% 10	-8.8 57% 1	+113 84% 1	+11.5 84% 7	-2.2 84% 90	-0.7 84% 56	+1.2 79% 13	+2.9 84% 29	+0.97 85% 98	+34 97% 8	+0.84 95% 49	+1.00 95% 56	+1.14 92% 81	\$297 1	\$474 1	
BOWK2 VTME343 NAQZ31	BOWMAN AUSTRALIA K2 ^{PV} HBR	+43 74% 56	+7.1 79% 11	+3.4 75% 45	-6.9 94% 18	+3.3 91% 33	+48 90% 60	+96 90% 33	+119 90% 44	+93 87% 62	+22 84% 15	+4.9 83% 1	-8.2 68% 2	+68 88% 46	+7.2 88% 37	+0.2 87% 43	-1.4 88% 69	+0.9 82% 25	+1.1 90% 76	-0.63 82% 2	+13 86% 78	+0.84 84% 49	+1.02 84% 61	+0.90 81% 13	\$229 18	\$397 12	
SRKK306 NJWG279 TFAD58	BOWMONT KING K306 ^{PV} HBR	+31 69% 76	-1.9 87% 79	-9.6 78% 99	-5.3 97% 40	+4.5 98% 60	+49 97% 52	+79 97% 81	+104 97% 76	+85 94% 73	+2 93% 99	-0.3 96% 99	-5.2 68% 36	+67 93% 48	+15.6 92% 1	-0.4 92% 57	-1.9 93% 76	+1.7 90% 4	+4.9 93% 4	+0.40 86% 72	+24 96% 32	+0.50 91% 3	+0.90 91% 32	+0.74 88% 1	\$244 9	\$357 38	
AMQH64 VTME343 AMQF27	BROOKLANA HI TOWER H64 ^{PV} HBR	+87 71% 2	-5.7 79% 92	-3.0 70% 91	-0.5 94% 96	+5.1 92% 73	+53 91% 35	+102 91% 18	+143 91% 8	+128 86% 13	+16 81% 60	+2.0 83% 52	-2.6 63% 88	+85 88% 9	+4.8 88% 66	+2.2 87% 10	+1.6 88% 19	+0.4 81% 55	+1.2 90% 74	+0.53 83% 83	+28 85% 20	+0.62 84% 11	+0.94 84% 41	+1.04 79% 52	\$163 83	\$301 78	
GTNP9 HKFJ5 GTNK26	CHILTERN PARK PICASSO P9 ^{PV} HBR	+37 53% 67	+7.9 77% 7	+8.1 67% 6	-3.4 98% 71	+1.2 97% 6	+56 94% 21	+105 95% 12	+136 94% 15	+94 88% 59	+24 81% 8	+3.6 91% 9	-7.6 60% 5	+95 87% 2	+7.0 85% 40	-0.6 86% 62	+1.1 86% 25	-0.4 79% 91	+4.2 88% 9	+0.63 76% 89	+29 86% 17	+0.74 88% 28	+0.66 89% 3	+0.88 81% 9	\$279 1	\$458 1	
QMUM13 USA16295688 QMUG1	CLUNES CROSSING DUSTY M13 HBR	+35 50% 70	-0.3 85% 70	+3.9 80% 40	-7.4 99% 13	+5.4 99% 78	+65 98% 4	+101 98% 20	+119 98% 44	+62 97% 94	+15 96% 67	+0.9 98% 87	-6.7 73% 11	+72 95% 32	+13.2 94% 3	-2.4 94% 92	-3.5 94% 92	+1.2 90% 13	+2.0 94% 52	+0.08 87% 36	+10 98% 87	+0.92 97% 65	+0.86 97% 23	+1.00 95% 39	\$293 1	\$419 5	
NBHL348 NZE14647008839 AHWJ81	CLUNIE RANGE LEGEND L348 ^{PV} HBR	+18 68% 93	-6.4 94% 93	+4.9 86% 29	-8.1 99% 8	+5.8 99% 84	+58 98% 17	+102 98% 17	+125 98% 31	+154 97% 3	+1 97% 99	+3.0 98% 19	-6.8 76% 10	+62 95% 62	+0.5 93% 96	+3.7 94% 3	+0.8 94% 30	-0.7 92% 96	+2.4 94% 41	+0.05 86% 33	+27 97% 22	+0.48 97% 2	+0.80 97% 14	+1.26 96% 97	\$166 81	\$343 49	
WDCH249 USA14885809 WDCE9	COONAMBLE HECTOR H249 ^{SV} HBR	+33 70% 73	+0.7 95% 63	+0.3 86% 74	-8.7 99% 6	+4.4 99% 58	+44 98% 77	+78 98% 82	+99 98% 84	+92 97% 63	+6 98% 99	+1.2 98% 80	-4.6 76% 50	+45 96% 94	+9.5 94% 17	+3.6 95% 3	+4.0 95% 4	+0.7 93% 36	+0.1 95% 93	-0.51 88% 3	+39 98% 4	+0.42 96% 1	+0.50 96% 1	+0.82 93% 4	\$178 71	\$309 74	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal		Fert		Carcase				Feed	Temp	Structural		Selection Index					
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
WDCJ266 BNAD145 WHHA61	COONAMBLE JUNIOR J266 ^{PV} HBR	+70 76% 15	-7.0	-4.4	-0.3	+5.6	+57	+100	+138	+134	+15	+1.8	-4.9	+96	+9.9	-5.2	-5.1	+1.6	+2.8	-0.27	+20	+0.94	+0.78	+1.08	\$197	\$339	
WDCK314 NAQA241 WDCD94	COONAMBLE KEVIN K314 ^{PV} HBR	+99 65% 1	-1.3	+3.5	-2.7	+4.6	+50	+100	+131	+110	+24	+4.3	-7.0	+83	+7.5	+0.4	+1.1	+0.1	+1.5	+0.60	+42	+0.48	+1.10	+1.22	\$207	\$366	
BHRH744 BNAD145 BHRD202	DUNOON HIGHPOINT H744 ^{SV} HBR	+38 74% 65	-11.3	-14.1	-4.2	+6.9	+56	+97	+128	+134	+17	+2.7	-4.9	+87	+5.3	-1.6	-1.2	+1.4	+1.0	-0.52	+21	+0.68	+0.82	+1.10	\$151	\$273	
USA16198796 USA14686137 USA15452880	EF COMPLEMENT 8088 ^{PV} HBR	+15 85% 96	+4.8	+7.5	-5.1	+2.9	+52	+97	+130	+97	+22	+1.4	-7.7	+79	+8.1	+1.4	+1.4	+0.7	+1.8	+0.58	+20	+0.94	+1.28	+1.14	\$263	\$431	
WWEQ15 VTMG67 WWEN17	ESSLEMONT GARTH Q15 ^{PV} HBR	+36 52% 68	-3.5	+2.2	-8.8	+5.7	+63	+111	+151	+139	+29	+2.4	-6.5	+72	+6.5	-3.7	-3.5	+0.5	+3.6	-0.46	+45	+0.92	+1.14	+1.06	\$234	\$404	
WWEL3 HIOG18 WWEJ8	ESSLEMONT LOTTO L3 ^{PV} HBR	+8 77% 99	-6.2	-1.0	-5.8	+4.5	+60	+110	+140	+132	+18	+3.5	-9.2	+91	+14.3	+0.0	+1.1	+1.4	+3.5	+0.38	+16	+1.12	+1.02	+1.14	\$284	\$459	
WWEQ24 WWEN12 WWEN7	ESSLEMONT QUOKKA Q24 ^{PV} HBR	+53 52% 39	+4.9	-0.3	-4.2	+1.8	+41	+81	+98	+48	+22	+4.2	-6.4	+61	+17.6	+1.8	+1.0	+2.1	+2.9	+1.23	+28	+0.76	+0.88	+0.92	\$275	\$396	
WWE21S6 NGMN418 WWEN7	ESSLEMONT SEAN S6 ^{PV} HBR	+27 54% 82	+5.8	+7.9	-5.9	+2.9	+56	+98	+115	+88	+16	+4.4	-5.7	+81	+17.4	+2.8	+1.0	+1.4	+3.7	+1.16	+23	+1.04	+1.16	+1.02	\$294	\$458	
USA16295688 USA13009379 USA15129456	G A R PROPHET ^{SV} HBR	+43 88% 56	+2.9	+5.1	-1.0	+3.7	+67	+107	+133	+84	+23	+0.7	-4.5	+72	+3.3	-0.6	-1.5	-0.7	+4.7	+0.68	+26	+1.04	+0.82	+0.90	\$264	\$406	
USA17328461 USA16205036 USA16431932	G A R SURE FIRE ^{SV} HBR	+96 79% 1	+6.2	+2.9	-3.4	+2.2	+50	+91	+112	+81	+19	+4.1	-7.5	+65	+8.2	-0.5	-0.8	+0.9	+3.5	-0.09	+26	+1.16	+0.92	+0.60	\$261	\$415	
QBGH221 BNAD145 QBGD80	GLENOCH HINMAN H221 ^{SV} HBR	+69 70% 16	+5.3	-1.6	-3.5	+3.0	+53	+92	+123	+114	+20	+0.9	-4.1	+84	+7.2	-1.6	-4.8	+0.7	+5.2	-0.41	+10	+0.88	+0.78	+1.04	\$216	\$367	
DKKM41 NORH708 DKKJ51	HARDHAT H708 MAIMURU J51 APR	+86 50% 2	+0.3	+4.5	-2.2	+2.2	+44	+91	+119	+96	+13	+1.4	-4.3	+64	+2.6	+1.0	-2.0	-0.4	+6.4	+0.08	+21	+1.02	+0.98	+1.08	\$204	\$345	
NHZF1023 VTMB1 NHZB723	HAZELDEAN F1023 ^{SV} APR	+41 68% 60	+4.4	+1.4	-2.9	+3.2	+39	+75	+88	+70	+14	+3.6	-5.3	+49	+8.0	+2.6	-0.1	+0.1	+6.0	+1.25	+12	+0.48	+1.00	+1.04	\$213	\$341	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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Ident	Name																										
Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal			Fert		Carcase					Feed	Temp	Structural		Selection Index			
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
NHZM586 NHZJ140 NHZH356	HAZELDEAN M586 ^{SV} APR	+71 51% 14	+6.6 86% 14	+9.5 69% 2	-8.7 98% 6	+2.4 98% 17	+49 97% 53	+86 97% 97	+115 96% 54	+103 95% 44	+18 92% 37	+4.1 96% 4	-11.5 68% 1	+72 93% 32	+5.6 91% 57	+0.2 91% 43	-0.3 92% 49	+0.0 86% 78	+5.4 92% 95	+0.81 87% 95	+34 94% 8	+0.50 94% 3	+0.92 94% 36	+1.14 90% 81	\$279 1	\$469 1	
NHZQ319 NHZM586 NHZL1175	HAZELDEAN Q319 ^{PV} APR	+70 51% 15	+4.6 75% 29	+9.7 59% 2	-9.4 97% 3	+2.6 96% 20	+55 95% 26	+105 94% 12	+138 89% 12	+134 85% 9	+18 78% 43	+3.2 94% 15	-11.5 51% 1	+83 81% 11	+5.6 75% 57	+2.0 75% 12	+0.3 76% 38	-0.6 67% 95	+4.9 79% 4	+0.12 70% 41	+22 86% 38	+0.90 69% 61	+1.12 65% 81	+1.08 60% 65	\$279 1	\$494 1	
KILK18 USA16417285 USA15107929	KILLAIN ALASKA K18 ^{PV} HBR	+26 53% 84	-6.4 74% 93	-4.0 62% 94	-0.6 90% 95	+6.8 89% 94	+66 89% 4	+120 88% 2	+165 89% 1	+173 85% 1	+14 82% 71	+4.0 82% 5	-1.9 51% 94	+86 85% 7	+6.5 85% 45	-2.7 85% 94	-4.6 85% 97	+1.0 82% 21	-1.3 87% 99	-0.59 77% 2	+39 79% 3	+1.14 77% 94	+0.86 77% 23	+0.98 66% 32	\$129 96	\$296 81	
BLAP130 SRKK306 BLAK113	KNOWLA PACKER P130 ^{PV} HBR	+16 51% 95	+2.4 73% 49	+0.5 62% 72	-3.3 93% 72	+4.5 91% 60	+54 89% 30	+100 88% 21	+131 89% 21	+111 84% 31	+11 77% 88	+1.0 85% 85	-6.6 51% 12	+82 79% 12	+9.4 78% 18	+0.1 78% 46	-0.2 79% 47	+0.9 73% 25	+2.9 80% 29	+0.12 77% 41	+26 84% 26	+0.84 78% 49	+1.24 78% 94	+0.96 73% 26	\$253 6	\$416 6	
BLAP91 HIOG18 BLAL06	KNOWLA PEPPER P91 ^{PV} HBR	+22 53% 89	+4.8 78% 27	+2.4 68% 55	-6.2 95% 26	+3.7 95% 42	+60 93% 11	+116 92% 3	+143 93% 8	+159 87% 2	+9 80% 95	+1.6 89% 68	-8.5 59% 2	+71 81% 35	+7.9 81% 18	+1.5 81% 33	+0.6 82% 33	+0.9 76% 25	+2.8 82% 32	+0.36 82% 68	+0 90% 99	+0.96 89% 73	+1.06 90% 70	+0.98 86% 32	\$270 2	\$488 1	
VLYN131 USA16295688 VLYL710	LAWSONS CHARLIE N131 ^{SV} HBR	+56 56% 35	-4.0 77% 87	-2.9 70% 91	-4.4 95% 55	+5.3 96% 77	+71 95% 1	+126 94% 1	+158 92% 2	+126 87% 15	+21 84% 18	+2.8 87% 24	-4.4 62% 55	+78 87% 18	+5.8 85% 54	-1.7 85% 83	-2.0 86% 78	+0.0 78% 78	+1.3 88% 72	+0.35 79% 67	+32 94% 11	+0.86 91% 53	+0.76 90% 9	+0.88 86% 9	\$226 21	\$383 20	
VLYL483 HKFJ5 VLYH221	LAWSONS LINKEDIN L483 ^{SV} HBR	+55 67% 36	+4.5 86% 30	-7.2 77% 98	-1.6 98% 90	+4.0 98% 49	+56 97% 21	+107 97% 10	+151 97% 4	+137 95% 8	+26 94% 4	+3.9 94% 5	-3.9 67% 67	+104 92% 1	+9.2 89% 19	-0.6 87% 62	+2.3 91% 12	+0.3 84% 62	+1.6 91% 63	-0.18 82% 14	+20 88% 46	+0.94 84% 69	+0.76 85% 9	+0.88 80% 9	\$200 48	\$370 28	
VLYP316 USA16295688 VLYM527	LAWSONS PROPHET P316 ^{PV} HBR	+16 58% 95	+6.0 77% 18	+5.6 67% 23	-2.6 93% 81	+3.1 95% 29	+56 94% 24	+86 93% 62	+102 89% 80	+57 85% 96	+16 78% 56	+0.3 81% 96	-3.8 56% 69	+65 80% 53	+10.7 77% 10	-3.9 78% 99	-4.2 78% 96	+1.7 73% 4	+3.7 80% 15	+0.13 70% 42	+29 93% 16	+0.66 80% 15	+0.66 80% 3	+0.84 75% 5	\$270 2	\$390 16	
NMMK35 NZE469 NMMG41	MILLAH MURRAH KINGDOM K35 HBR	+37 73% 67	-12.1 96% 99	-7.8 88% 99	-2.4 99% 99	+8.8 99% 30	+54 98% 25	+99 98% 13	+137 98% 4	+149 98% 87	+11 98% 88	+0.8 80% 38	-5.1 80% 98	+62 96% 61	+8.0 95% 29	+0.1 95% 46	+0.2 95% 40	+1.2 93% 13	-1.1 95% 99	-0.75 89% 1	+26 98% 26	+0.82 96% 44	+1.28 96% 96	+1.18 94% 89	\$132 95	\$267 91	
NMMK42 NGMT30 NMMH4	MILLAH MURRAH KLOONEY K42 HBR	+4 75% 99	+4.6 96% 29	+3.4 89% 45	-6.6 99% 21	+5.6 99% 81	+47 98% 63	+86 99% 62	+108 98% 70	+92 98% 63	+23 98% 10	+2.2 98% 44	-6.3 81% 16	+65 96% 54	+6.4 95% 47	-1.3 95% 77	-3.1 96% 89	+1.3 93% 11	+2.1 95% 49	+0.01 89% 29	+18 98% 59	+0.84 97% 49	+0.92 97% 36	+1.00 94% 39	\$213 34	\$358 37	
NMML133 USA17091363 NMMH49	MILLAH MURRAH LOCH UP L133 HBR	+9 73% 99	+4.8 80% 27	+3.9 80% 40	-5.9 99% 30	+4.8 99% 67	+58 98% 16	+99 98% 24	+131 98% 21	+103 98% 45	+26 98% 4	+2.1 98% 48	-1.6 80% 95	+80 96% 15	+1.7 95% 92	-2.0 95% 87	-4.0 95% 95	-0.6 93% 95	+1.9 95% 55	-0.13 88% 17	+33 98% 10	+0.70 97% 21	+1.06 97% 70	+1.14 95% 81	\$162 83	\$301 78	
NJWH194 WDCE11 VTMX64	MILWILLAH ELEVATOR H194 ^{SV} HBR	+49 61% 46	-7.6 78% 95	-7.6 69% 99	-1.4 93% 91	+8.3 93% 99	+50 91% 47	+101 92% 19	+136 92% 14	+161 88% 2	+18 84% 43	+1.9 86% 56	+0.6 63% 99	+56 88% 78	+4.5 87% 70	-2.4 87% 92	+0.8 88% 30	+0.9 82% 25	-1.1 89% 99	-0.29 81% 8	+43 85% 2	+0.20 87% 1	+0.42 87% 1	+0.86 80% 7	\$72 99	\$208 99	
NJWH283 NJWF189 NJWE51	MILWILLAH ELSOM H283 ^{PV} HBR	+32 67% 75	+1.1 82% 60	-4.4 70% 94	-2.6 97% 81	+3.9 97% 46	+47 96% 62	+83 96% 70	+121 95% 39	+108 91% 36	+21 93% 20	+1.7 94% 64	-1.7 63% 95	+77 92% 21	+9.8 91% 15	-2.4 90% 92	-2.7 91% 86	+1.6 86% 5	+1.4 92% 69	+0.37 84% 69	+22 87% 41	+0.78 89% 36	+0.84 90% 20	+1.02 85% 46	\$159 85	\$282 86	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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Ident	Name		Calv-Ease		Birth		Growth			Maternal			Fert		Carcase				Feed	Temp	Structural		Selection Index			
Sire Dam	Reg.	ImmuneDEX IMD	Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L
CSWH211 VTME343 CSWE175	MURDEDUKE HUSSAR H211 ^{PV} HBR	+7 65% 99	+1.6 82% 56	+4.4 74% 34	-9.3 97% 4	+6.0 96% 87	+59 95% 13	+117 95% 3	+153 95% 3	+166 92% 1	+14 91% 75	+3.9 93% 5	-5.3 66% 34	+82 91% 12	+2.0 90% 91	-2.0 90% 87	-5.3 90% 99	+0.8 85% 31	-0.6 91% 98	-0.72 84% 1	+32 94% 11	+0.54 95% 5	+0.84 95% 20	+1.04 93% 52	\$159 85	\$358 37
CSWK428 VTME343 CSWE175	MURDEDUKE KICKING K428 ^{PV} HBR	+31 74% 76	+7.7 85% 8	+8.5 75% 5	-8.1 97% 8	+1.9 96% 12	+48 97% 61	+94 97% 39	+117 97% 49	+90 94% 65	+24 93% 9	+3.5 97% 10	-5.3 68% 34	+68 92% 44	+2.3 92% 89	-0.2 89% 52	-2.5 92% 84	+0.4 86% 55	+0.7 92% 85	-0.02 86% 26	+42 97% 2	+0.90 97% 61	+1.02 97% 61	+1.20 95% 91	\$188 62	\$345 48
NURM208 SMPG357 NURK45	MURRAY GENESIS M208 ^{PV} HBR	+39 73% 63	+1.2 79% 59	+5.6 69% 23	-6.3 93% 25	+4.7 94% 65	+50 93% 51	+95 92% 34	+128 93% 26	+107 88% 38	+21 86% 19	+3.8 85% 6	-6.4 63% 15	+83 89% 11	+16.7 88% 1	-0.3 85% 55	-2.8 88% 87	+2.2 83% 1	+0.8 89% 83	+1.38 82% 99	+5 88% 95	+0.96 90% 73	+1.06 90% 70	+0.66 87% 1	\$237 13	\$397 12
NURN70 NORK522 NURJ53	MURRAY KODAK N70 ^{PV} HBR	+57 53% 33	+1.8 79% 54	+5.3 66% 26	-7.1 98% 16	+4.0 97% 49	+56 96% 21	+102 96% 18	+133 94% 18	+136 89% 8	+14 81% 72	+5.2 96% 1	-5.9 61% 22	+80 90% 15	+9.2 89% 19	-1.3 88% 77	-1.4 89% 69	+0.9 81% 25	+3.8 90% 13	-0.31 83% 8	+16 93% 67	+0.94 91% 69	+0.90 91% 32	+0.92 87% 16	\$234 15	\$419 5
NURM204 USA16956101 NURJ43	MURRAY PROCEED M204 ^{PV} HBR	+46 77% 51	-7.3 80% 95	+6.9 69% 13	-4.4 96% 55	+4.4 96% 58	+61 94% 10	+107 94% 10	+140 94% 11	+129 89% 13	+19 84% 33	+2.3 90% 40	-3.7 62% 71	+90 91% 5	+13.6 90% 3	-5.0 87% 99	-5.9 90% 99	+0.9 85% 25	+6.6 91% 1	+0.09 84% 37	+24 93% 33	+0.96 89% 73	+0.78 90% 11	+0.90 86% 13	\$235 14	\$385 18
NURP54 USA16350631 NURM13	MURRAY TWINHEARTS P54 ^{PV} HBR	+16 51% 95	-0.1 74% 69	+3.8 63% 41	-6.5 93% 22	+6.4 91% 91	+69 90% 2	+125 89% 1	+165 88% 1	+159 86% 2	+25 79% 5	+2.0 82% 52	-5.2 57% 36	+104 85% 1	+8.8 85% 22	-2.2 85% 90	-4.4 86% 96	+1.1 77% 17	+3.2 87% 23	+0.22 78% 53	+17 86% 61	+0.88 87% 57	+1.24 87% 94	+0.90 82% 13	\$257 5	\$452 1
SFNL21 NZE10322010609 SFNH65	NAMPARA LIBERTY L21 ^{SV} HBR	+58 70% 31	-6.4 85% 93	-2.7 71% 90	-6.8 98% 19	+8.5 98% 99	+66 97% 3	+110 97% 7	+148 97% 5	+158 94% 2	+16 93% 53	+2.9 96% 21	-0.9 61% 98	+80 93% 15	+8.2 91% 27	-2.1 88% 89	-0.5 92% 53	+1.9 86% 2	-2.6 93% 99	-0.65 86% 2	+23 94% 36	+0.86 92% 53	+0.84 92% 20	+0.98 87% 32	\$142 92	\$292 82
SKOJ6 VTME343 NZCE115	NEWLYN PARK EMPEROR J6 ^{PV} HBR	+12 64% 98	-8.8 78% 97	-5.1 69% 96	-7.8 93% 10	+7.5 92% 97	+66 90% 3	+112 90% 5	+146 91% 6	+155 87% 2	+10 82% 94	+1.5 84% 71	-4.5 63% 52	+82 87% 12	+8.0 86% 29	-1.3 85% 77	-1.2 86% 65	+1.3 80% 11	+0.2 88% 92	-0.68 79% 1	+19 84% 51	+1.08 85% 89	+0.78 85% 11	+0.78 80% 2	\$187 63	\$342 50
NZE21095018 HIOE7 NZE21095112H49	NGAPUTAH I P206 ^{SV} HBR	+81 55% 5	+9.5 79% 3	+5.2 69% 26	-1.8 93% 88	+0.3 96% 3	+42 93% 84	+83 93% 70	+95 87% 88	+66 80% 91	+28 80% 2	+2.8 92% 24	-7.1 62% 8	+60 82% 68	+6.9 83% 41	+0.6 83% 34	-0.9 83% 60	+1.3 78% 11	+3.3 83% 21	+0.23 82% 54	+18 87% 59	+0.96 81% 73	+1.06 81% 70	+1.12 78% 77	\$246 8	\$388 17
USA16981588 USA16381311 USA16408070	PA FULL POWER 1208 ^{PV} HBR	+63 76% 24	-5.4 94% 91	-4.8 85% 95	-5.4 99% 38	+3.8 98% 44	+52 98% 38	+99 98% 25	+120 98% 43	+75 97% 85	+14 97% 75	+2.0 98% 52	-2.1 72% 93	+70 95% 38	+12.5 94% 4	-1.7 94% 83	+0.2 94% 40	+1.1 92% 17	+3.2 94% 23	+0.91 87% 97	+20 98% 47	+1.24 98% 98	+0.96 98% 46	+0.70 91% 1	\$222 25	\$325 63
HKFE27 VTMA149 FAFC1	PARINGA IRON ORE E27 ^{PV} HBR	+88 66% 2	+7.5 71% 9	+1.2 65% 67	-7.3 97% 14	+2.1 96% 14	+36 95% 95	+67 95% 96	+90 94% 93	+95 91% 58	+12 92% 84	+1.8 92% 60	-7.1 65% 8	+67 91% 48	+6.7 90% 43	+1.6 90% 17	+2.4 91% 11	+1.2 83% 13	+1.6 91% 63	+0.32 84% 64	+32 89% 11	+0.86 84% 53	+0.94 84% 41	+0.94 79% 21	\$188 62	\$337 54
SMPG357 VTMB1 SMPD245	PATHFINDER GENESIS G357 ^{PV} HBR	+41 65% 60	+0.5 96% 64	+4.0 88% 39	-7.6 99% 12	+6.6 99% 93	+61 99% 9	+108 99% 9	+146 99% 6	+137 98% 7	+26 98% 4	+4.4 98% 3	-6.3 84% 16	+94 97% 3	+13.8 95% 2	+0.7 96% 32	-1.0 96% 62	+1.5 95% 6	-0.1 95% 95	+0.66 90% 90	+28 98% 18	+0.84 97% 49	+1.04 98% 66	+0.78 96% 2	\$232 17	\$412 7
SMPK22 SMPG357 SMPH756	PATHFINDER COMPLETE K22 ^{SV} HBR	+73 73% 12	+10.6 92% 1	+9.1 78% 3	-9.5 99% 3	+0.8 98% 4	+40 98% 89	+73 98% 90	+94 98% 89	+41 97% 99	+28 97% 2	+3.0 97% 19	-5.7 73% 25	+52 95% 86	+6.4 93% 47	+3.7 94% 3	+5.4 94% 1	+0.2 92% 67	+2.2 94% 46	+0.49 87% 80	+26 97% 25	+0.48 96% 2	+0.84 96% 20	+0.68 94% 1	\$235 14	\$357 38
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337

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Ident	Name																										
Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal			Fert		Carcase					Feed	Temp	Structural		Selection Index			
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
SMPM651 VTMG67 SMPH66	PATHFINDER MASTERPIECE HBR	+31 60% 76	+1.8	+3.6	-6.6	+5.4	+59	+106	+134	+139	+20	+3.8	-7.8	+59	+9.8	-2.1	-3.5	+1.7	+1.6	-0.24	+33	+0.96	+1.22	+1.14	\$243	\$432	
SMPM558 VTMG67 SMPH458	PATHFINDER MAXIMUS M558^{PV} HBR	+25 75% 85	-2.2	+3.0	-6.8	+6.1	+61	+100	+131	+138	+21	+4.6	-8.2	+56	+10.9	-2.8	-1.6	+0.9	+2.9	-0.36	+50	+0.94	+1.08	+0.86	\$240	\$419	
SMPN56 HIOG18 SMPL179	PATHFINDER NUCLEUS N56^{SV} HBR	+34 50% 72	+3.4	+2.3	-3.6	+5.3	+60	+107	+139	+133	+15	+4.6	-6.5	+77	+13.5	+0.7	+0.9	+1.1	+1.7	+0.34	+9	+0.72	+0.80	+0.80	\$255	\$443	
NORE11 NGMY145 VLYY5	RENNYLEA EDMUND E11^{PV} HBR	+24 79% 86	+8.8	+1.4	-7.2	+1.2	+34	+64	+85	+53	+17	+1.9	-6.9	+52	+4.5	+3.3	+1.6	-0.1	+3.9	+0.76	+23	+0.56	+1.02	+1.12	\$200	\$319	
NORG255 BNAD145 NORC490	RENNYLEA G255^{PV} APR	+63 81% 24	-12.0	-4.8	-3.3	+4.6	+50	+94	+127	+124	+21	+0.7	-3.3	+87	+7.3	-0.4	-3.3	+0.8	+4.8	-0.03	+9	+1.16	+0.90	+0.84	\$161	\$276	
NORH708 NORC511 NORE176	RENNYLEA H708^{PV} APR	+96 86% 1	-6.6	+2.6	+0.8	+4.7	+48	+102	+130	+129	+12	+2.5	-3.8	+73	+12.6	-3.8	-6.1	+2.1	+7.1	+0.68	+21	+0.70	+0.64	+0.90	\$231	\$380	
NORK163 NORH106 NORE176	RENNYLEA K163^{PV} APR	+29 80% 79	+4.1	-8.2	-4.1	+2.5	+40	+74	+95	+62	+10	+0.8	-4.5	+62	+18.5	-0.2	-0.9	+2.5	+2.8	+0.17	+18	+0.68	+0.68	+1.02	\$238	\$344	
NORK835 NORG420 NORH514	RENNYLEA K835^{PV} APR	+18 67% 93	-3.9	-4.3	-2.4	+6.3	+48	+87	+112	+92	+12	+3.1	-4.9	+56	+10.0	+0.9	-1.0	+0.4	+4.2	-0.21	+11	+0.60	+1.10	+1.12	\$200	\$321	
NORK522 NORE11 NORF810	RENNYLEA KODAK K522^{SV} HBR	+47 71% 50	+9.0	+9.9	-5.3	+1.4	+45	+83	+110	+111	+10	+4.6	-6.1	+53	+3.8	+2.9	+1.6	-0.2	+3.9	+0.33	+8	+0.62	+0.82	+1.00	\$204	\$382	
NORL508 USA17366506 NORH414	RENNYLEA L508^{PV} HBR	+75 55% 10	+0.3	+8.4	-6.4	+2.6	+46	+86	+117	+93	+26	+1.4	-6.3	+56	+5.4	+1.2	-0.1	-0.1	+5.1	+0.78	+17	+0.68	+0.86	+0.86	\$225	\$370	
NORM1078 NORH708 NORF563	RENNYLEA M1078^{SV} APR	+75 55% 10	-4.9	-1.0	-2.2	+3.3	+42	+83	+102	+103	+11	+1.8	-5.3	+61	+10.2	-1.7	-4.9	+0.9	+7.8	+0.72	+11	+0.94	+1.00	+1.16	\$208	\$338	
NORP987 NORM763 NORM1184	RENNYLEA P987^{PV} APR	+60 52% 28	+9.8	+9.6	-8.5	+1.2	+49	+98	+124	+126	+14	+0.5	-2.6	+76	+5.6	+4.8	+3.4	-1.2	+7.1	+0.93	+8	+0.88	+0.92	+1.04	\$217	\$400	
NORQ1081 NORH708 NORL841	RENNYLEA Q1081^{PV} APR	+82 57% 4	-1.4	+5.1	-4.3	+3.6	+50	+88	+112	+99	+11	+3.4	-5.8	+46	+10.6	+0.2	-0.7	+0.8	+6.4	+0.78	+13	+0.84	+0.92	+0.84	\$252	\$400	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal		Fert		Carcase					Feed	Temp	Structural		Selection Index				
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
NORQ213 NORK907 NORL110	RENNYLEA Q213 ^{PV} APR	+28 53% 81	+9.1 78% 4	+7.1 66% 11	-7.6 97% 12	+1.2 97% 6	+68 95% 2	+122 95% 2	+154 95% 3	+109 89% 35	+25 80% 7	+0.8 94% 89	-10.7 54% 1	+101 82% 1	+9.4 82% 18	+0.3 82% 41	-0.1 82% 45	+0.1 77% 73	+3.8 83% 13	+0.71 79% 92	+24 93% 32	+0.56 92% 6	+0.72 92% 6	+0.80 88% 3	\$348 1	\$552 1	
NORR992 NORN542 NORM1034	RENNYLEA R992 ^{PV} APR	+32 50% 75	+4.3 66% 31	+6.4 58% 16	+1.8 95% 99	+1.2 94% 6	+45 92% 74	+84 91% 67	+116 88% 53	+84 85% 74	+26 77% 4	+1.8 90% 60	-5.3 49% 34	+71 78% 36	+11.6 79% 7	+1.5 79% 18	+1.9 80% 16	+0.0 73% 78	+5.9 80% 1	+1.14 66% 99	+25 89% 29	+0.56 70% 6	+0.78 70% 11	+0.84 71% 5	\$250 7	\$397 12	
USA16396573 USA0035 USA15688516	S A V CAMARO 9272 ^{SV} HBR	+35 66% 70	+4.2 86% 32	+1.1 72% 68	-7.1 97% 16	+3.6 97% 39	+48 96% 57	+78 95% 82	+98 96% 85	+94 92% 59	+9 94% 95	+1.4 91% 74	-6.3 62% 16	+43 93% 96	+0.8 91% 95	-0.4 91% 57	-2.4 91% 83	+0.9 84% 25	+1.6 93% 63	+1.07 84% 99	+19 86% 53	+1.14 86% 94	+0.84 86% 20	+0.82 78% 4	\$186 63	\$326 63	
APBK11 VTMB1 APBF2	SHACORRAHDALU KINETIC K11 HBR	+20 51% 91	+10.2 77% 2	+10.6 69% 1	-9.5 92% 3	+0.4 92% 3	+48 90% 60	+86 90% 62	+100 90% 82	+92 87% 62	+10 82% 93	+4.5 84% 2	-7.6 61% 5	+60 81% 69	+9.9 79% 14	+3.5 80% 3	+2.2 80% 13	+0.7 75% 36	+1.7 81% 61	+0.83 77% 96	+1 85% 99	+0.94 82% 69	+1.16 81% 87	+1.08 78% 65	\$241 11	\$417 6	
NZE19507013 VTME343 NZE1950711G183	STORTH OAKS JACK J7 ^{SV} HBR	+14 69% 97	+5.8 88% 19	+8.2 78% 6	-5.0 98% 45	+4.5 98% 60	+61 97% 9	+112 97% 5	+152 97% 4	+145 95% 4	+18 94% 44	+3.4 96% 11	-1.3 69% 97	+82 93% 12	+8.3 92% 26	-0.1 92% 50	-2.7 93% 86	-0.3 89% 89	+2.3 94% 43	+0.03 86% 31	+18 96% 55	+1.00 92% 79	+1.00 93% 56	+0.92 89% 16	\$182 68	\$367 30	
VSNG34 VTMB1 VSNE22	STRATHEWEN BERKLEY G34 ^{PV} HBR	+40 70% 62	+6.1 82% 17	+7.6 74% 9	-6.8 95% 19	+3.8 94% 44	+56 92% 23	+106 92% 11	+141 92% 9	+145 90% 5	+17 88% 46	+2.3 87% 40	-7.5 67% 5	+84 90% 10	+5.7 90% 56	+0.8 89% 30	+0.1 90% 42	+0.3 86% 62	+1.5 91% 66	-0.12 85% 18	+30 89% 14	+1.12 88% 92	+1.26 88% 95	+1.10 84% 71	\$227 20	\$433 3	
USA17236055 USA15354674 USA16214508	SYDGEN BLACK PEARL 2006 ^{PV} HBR	+8 76% 99	+2.8 98% 45	+8.4 92% 5	-7.4 99% 13	+3.2 99% 31	+51 99% 44	+85 99% 66	+123 99% 37	+84 98% 75	+21 99% 18	+1.6 99% 68	-3.0 88% 83	+74 98% 26	+8.6 97% 24	+0.4 97% 39	-0.3 97% 49	+0.4 96% 55	+2.4 97% 41	+0.19 92% 49	+15 99% 69	+1.04 99% 85	+1.18 99% 89	+1.14 97% 81	\$209 38	\$341 51	
VTMA149 VTMX60 VTMU338	TE MANIA ADA A149 ^{PV} HBR	+39 64% 63	-6.5 97% 94	-2.1 91% 88	-3.6 99% 68	+6.5 99% 92	+53 99% 35	+97 99% 30	+129 99% 24	+170 98% 1	+10 98% 92	+2.0 98% 52	-2.0 86% 93	+83 97% 11	+3.1 96% 84	-3.2 97% 97	-1.8 97% 75	+1.5 96% 6	-0.7 96% 99	-0.67 91% 1	+26 97% 26	+0.88 97% 57	+0.76 97% 9	+0.78 96% 2	\$98 99	\$254 93	
VTMK52 USA16295688 VTMH423	TE MANIA KALIBROOK K52 ^{PV} HBR	+45 71% 53	+7.8 77% 8	+4.8 69% 30	-3.3 94% 72	+1.4 94% 7	+52 91% 40	+103 92% 16	+127 91% 28	+101 87% 48	+30 81% 1	+1.6 68% 87	-5.7 64% 25	+73 87% 31	+2.4 86% 89	+0.7 84% 32	+1.8 87% 17	-0.6 82% 95	+5.4 88% 2	+1.42 79% 99	+8 86% 91	+1.12 88% 92	+1.08 88% 74	+1.06 84% 59	\$248 7	\$418 6	
VTMK138 USA16295688 VTMH17	TE MANIA KIRBY K138 ^{PV} HBR	+18 68% 93	+0.4 88% 65	+6.7 79% 14	-1.6 99% 90	+4.6 99% 63	+51 98% 42	+89 98% 53	+118 98% 47	+93 97% 60	+18 97% 38	+2.3 98% 40	-9.2 80% 1	+66 95% 49	+4.7 95% 68	+1.5 96% 18	+3.3 96% 6	-1.6 93% 99	+8.0 95% 1	+1.06 87% 99	+12 99% 80	+0.84 98% 49	+0.78 98% 11	+0.96 97% 26	\$270 2	\$430 3	
VTMN424 VTMJ89 VTMJ214	TE MANIA NEBO N424 ^{PV} HBR	+51 51% 43	+9.7 86% 2	-0.5 81% 79	-7.0 98% 17	+4.0 98% 49	+52 98% 40	+99 98% 24	+126 98% 29	+105 96% 40	+32 93% 1	+4.5 97% 2	-4.6 64% 50	+54 94% 81	+7.2 94% 37	-0.8 91% 67	-3.7 94% 93	+0.4 87% 55	+4.2 93% 9	-0.11 83% 18	+47 98% 1	+0.72 92% 24	+0.76 92% 9	+1.04 88% 52	\$210 37	\$365 31	
VTMN1387 VTMK138 VTML452	TE MANIA NEON N1387 ^{SV} HBR	+19 50% 92	+0.2 80% 66	+2.9 67% 50	-6.4 98% 24	+3.6 98% 39	+48 97% 57	+87 97% 59	+108 95% 69	+88 88% 69	+20 79% 26	+1.5 95% 71	-7.9 57% 3	+48 86% 92	+0.8 87% 95	-0.2 85% 52	-1.3 87% 67	-1.9 80% 99	+9.2 86% 1	+0.04 71% 32	+27 97% 23	+0.80 77% 40	+0.78 77% 11	+1.04 74% 52	\$231 17	\$375 24	
VTMP888 VTMK226 VTMH423	TE MANIA PESO P888 ^{PV} HBR	+53 56% 39	+8.4 83% 6	+6.2 73% 18	-5.5 98% 36	+1.9 97% 12	+55 97% 25	+113 97% 5	+142 97% 8	+117 93% 23	+26 86% 4	+1.9 92% 56	-6.5 59% 13	+93 87% 3	+3.0 88% 85	-0.4 87% 57	+1.2 88% 24	+0.4 82% 55	+1.8 87% 58	+0.04 82% 32	+26 94% 25	+0.84 83% 49	+1.08 83% 74	+0.90 80% 13	\$250 7	\$438 2	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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Sire Dam	Reg.	ImmuneDEX IMD	Calv-Ease		Birth		Growth			Maternal			Fert		Carcase					Feed		Temp		Structural		Selection Index	
			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L	
DBLL292 USA16295688 VSNF04	TOPBOS LEADING EDGE L292^{PV} HBR	+26 74% 84	+0.9	+7.7	-6.2	+6.7	+73	+125	+163	+149	+21	+1.4	-4.3	+83	+4.3	-2.4	-5.2	+0.3	+1.3	+0.00	+22	+0.94	+0.78	\$226	\$413		
			87%	73%	98%	98%	97%	97%	97%	95%	95%	96%	68%	93%	91%	90%	92%	87%	92%	86%	97%	92%	91%	87%			
			61	8	26	93	1	1	1	4	19	74	57	10	72	92	98	62	72	28	40	69	9	2	21	7	
NZE17691009 NZE17691003Y167 NZE17691195Q263	TURIHAUA CRUMP E5^{SV} HBR	+77 63% 8	-0.8	-0.9	-6.3	+3.2	+28	+58	+82	+91	+15	+1.2	-9.9	+16	-0.5	+5.0	+3.4	-0.3	+1.4	+0.43	+33	+0.68	+1.22	+1.20	\$133	\$265	
			93%	85%	97%	98%	98%	98%	98%	97%	97%	97%	89%	95%	95%	95%	95%	93%	95%	88%	90%	84%	84%	78%			
			73	82	25	31	99	99	97	64	67	80	1	99	98	1	6	89	69	75	10	18	93	91	95	91	
BSCF73 USA15688392 BSCZ66	WAITARA PIO FEDERAL F73^{SV} HBR	+50 76% 44	+4.8	+4.9	-4.7	+1.6	+56	+102	+133	+87	+25	+2.5	-2.9	+87	+5.4	-0.2	-0.2	+0.2	+1.5	+0.30	+12	+1.40	+1.26	+0.94	\$216	\$358	
			90%	76%	98%	98%	97%	98%	97%	96%	96%	97%	70%	95%	94%	93%	94%	89%	94%	88%	96%	95%	95%	92%			
			27	29	50	9	24	17	18	70	6	33	85	7	59	52	47	67	66	62	81	99	95	21	30	37	
QKBP29 SMPG357 QKBM01	WARRAWEE PATROL P29^{PV} HBR	+58 64% 31	+7.6	+11.5	-12.4	+2.6	+55	+104	+137	+125	+19	+2.3	-9.3	+102	+9.4	+3.6	+2.2	+0.3	+1.7	+0.71	+26	+0.80	+1.22	+1.02	\$270	\$478	
			78%	69%	94%	92%	91%	90%	89%	87%	81%	87%	63%	85%	84%	84%	85%	78%	86%	77%	87%	77%	78%	73%			
			9	1	1	20	27	14	13	16	33	40	1	1	18	3	13	62	61	92	26	40	93	46	1		
NWPG188 USA15462648 NWPE295	WATTLETOP FRANKLIN G188^{SV} HBR	+49 65% 46	+4.8	+6.3	-4.7	+2.3	+63	+108	+140	+119	+25	+3.8	-3.4	+81	+1.4	-1.4	-1.9	-0.2	+0.5	-1.16	+32	+1.08	+0.96	+0.94	\$187	\$354	
			95%	86%	99%	99%	98%	98%	98%	97%	97%	98%	75%	96%	94%	95%	95%	92%	94%	88%	97%	96%	96%	94%			
			27	17	50	16	6	9	11	21	6	6	77	13	93	79	76	85	88	1	11	89	46	21	62	40	
CWDJ17 BNAD145 CWDJ14	WEATHERLY JAMES J17^{SV} HBR	+36 74% 68	-2.8	-3.8	-3.8	+6.0	+49	+83	+110	+115	+2	+1.5	-4.0	+66	+8.7	+1.5	+2.7	+1.0	+3.2	-0.04	+5	+0.84	+1.18	+1.00	\$198	\$333	
			79%	71%	93%	93%	92%	91%	92%	89%	86%	86%	66%	90%	89%	89%	90%	85%	91%	84%	87%	87%	86%	80%			
			83	93	65	87	54	70	65	26	99	71	65	50	23	18	9	21	23	24	95	49	89	39	51	57	
CWDM5 SMPG357 CWDJ15	WEATHERLY MOXY M5^{SV} HBR	+44 52% 55	+4.2	+7.4	-5.5	+3.9	+54	+96	+128	+105	+28	+2.4	-5.6	+88	+7.9	+2.7	-0.2	+0.7	+1.8	+0.14	+28	+0.96	+1.06	+1.00	\$231	\$393	
			77%	67%	91%	95%	93%	93%	93%	91%	86%	87%	59%	83%	81%	82%	82%	77%	82%	71%	88%	88%	88%	74%			
			32	10	36	46	29	32	26	40	2	37	27	6	30	6	47	36	58	43	20	73	70	39	17	14	
Breed Average EBVs		+47	+1.6	+2.5	-4.7	+4.0	+50	+90	+116	+100	+17	+2.1	-4.6	+66	+6.3	+0.0	-0.3	+0.5	+2.2	+0.20	+20	+0.84	+0.97	+1.03	+196	+337	

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