TACE

TransTasman Angus Cattle Evaluation

ANGUS ImmuneDEX

RESEARCH BREEDING VALUES

AUGUST 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. carcase 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

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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

Date: July 31, 2023

Ident / Sire / Dam	Name / 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	**AJC L172** SV	+46	+6.4	+7.6	-7.9	+3.1	+61	+107	+150	+137	+14	+2.0	-4.3	+78	+5.9	-0.5	-0.3	+0.2	+1.3	-0.98	+27	+1.40	+1.28	+1.26	$218	$406
NXOF43	APR	69%	73%	55%	93%	95%	94%	93%	93%	85%	84%	79%	52%	90%	87%	82%	88%	80%	89%	81%	82%	85%	85%	81%		
NXOJ432		51	20	8	10	29	9	10	4	7	78	52	61	18	53	60	50	66	72	1	20	99	96	97	31	10
DGJG10	**ALLOURA GET CRACKING G10** SV	+53	+10.1	+9.0	-3.4	+2.5	+43	+74	+86	+79	+13	-0.3	-8.5	+47	+16.0	+1.6	-0.2	+1.1	+5.5	+0.54	-3	+0.52	+1.02	+0.94	$281	$439
VTMB1	HBR	69%	93%	81%	99%	98%	98%	98%	98%	97%	97%	97%	74%	95%	93%	94%	94%	89%	92%	87%	96%	96%	96%	93%		
DGJZ15		39	3	3	71	19	80	89	95	82	83	99	1	93	1	16	48	14	2	88	99	4	62	20	1	2
DGJL94	**ALLOURA LOCK STOCK &**	+44	+6.7	+4.3	-4.8	+2.8	+53	+87	+113	+109	+12	+0.8	-4.9	+60	+0.5	+1.3	-1.6	+0.3	+2.3	-0.37	+20	+0.94	+0.88	+0.96	$194	$351
USA15832750	HBR	64%	74%	60%	93%	95%	93%	93%	93%	88%	80%	86%	50%	86%	81%	77%	82%	74%	84%	73%	86%	84%	82%	76%		
DGJH24		55	18	36	49	23	34	61	58	35	85	90	43	68	97	21	73	59	43	4	48	69	28	26	57	46
DGJQ30	**ALLOURA QUINELLA Q30** SV	+13	+4.2	+3.8	-0.6	+2.5	+54	+97	+115	+114	+15	+3.6	-8.0	+69	+13.3	+0.6	+0.5	+0.9	+4.5	+0.25	+14	+1.04	+1.10	+1.14	$275	$455
WWEL3	HBR	51%	72%	60%	94%	91%	88%	81%	82%	78%	71%	77%	50%	74%	67%	69%	70%	64%	71%	63%	83%	70%	70%	69%		
DGJK117		97	38	41	96	19	33	31	55	27	65	8	1	42	3	34	35	23	6	59	77	85	78	81	1	1
WJMF96	**ARDCAIRNIE F96** SV	+21	+5.7	+3.7	-5.0	+2.9	+49	+89	+121	+91	+15	+1.8	-4.2	+68	+7.4	-1.4	-0.9	+1.2	+0.6	-0.31	+9	+0.48	+0.82	+0.92	$205	$347
WJMB59	HBR	55%	88%	76%	98%	98%	97%	97%	97%	95%	95%	96%	63%	92%	90%	91%	91%	86%	91%	79%	88%	87%	87%	82%		
WJMD25		90	25	43	46	25	55	54	40	65	68	60	64	44	35	79	61	11	88	6	93	2	17	16	45	48
WJMJ27	**ARDCAIRNIE J27** SV	+16	+8.1	+9.8	-8.7	+2.7	+57	+100	+138	+129	+9	+0.4	-4.7	+97	+2.2	+2.2	+1.2	-0.1	+1.0	+0.29	+2	+0.90	+1.06	+1.18	$206	$391
USA15354674	HBR	74%	80%	68%	96%	96%	95%	96%	96%	92%	90%	92%	63%	92%	91%	90%	91%	87%	92%	85%	83%	87%	87%	82%		
WJMG96		95	10	2	6	22	21	24	13	11	96	95	49	2	91	10	23	81	80	64	99	61	71	88	44	16
NAQA241	**ARDROSSAN EQUATOR A241** PV	+49	-0.9	+2.3	-4.9	+4.1	+50	+91	+121	+108	+20	+3.1	-8.1	+85	+8.7	-1.6	-0.5	+1.3	+1.4	+0.51	+25	+0.46	+0.84	+1.00	$226	$381
USA2928	HBR	80%	99%	97%	99%	99%	99%	99%	99%	99%	99%	99%	95%	98%	98%	98%	98%	98%	98%	96%	99%	99%	99%	99%		
NAQW38		46	77	57	47	51	52	48	40	36	24	16	1	8	22	83	53	9	70	86	26	2	20	38	23	22
NAQN329	**ARDROSSAN HOLBROOK N329**	+22	-1.3	-2.5	-3.3	+3.2	+51	+95	+120	+89	+22	+3.0	-6.5	+74	+6.3	+1.9	+2.1	-1.0	+4.6	+1.03	+9	+0.78	+1.00	+1.00	$220	$357
NAQH318	HBR	54%	70%	57%	96%	94%	94%	94%	92%	86%	79%	79%	50%	88%	87%	86%	87%	78%	89%	79%	86%	81%	87%	83%		
NAQK30		89	79	90	73	31	46	36	44	68	15	18	10	26	48	13	13	99	5	99	94	36	57	38	28	41
NAQH255	**ARDROSSAN HONOUR H255** PV	+27	-0.5	-0.9	-3.1	+4.6	+43	+73	+97	+93	+13	+2.1	-7.0	+60	+5.9	+1.2	-0.9	+0.5	+2.4	+0.94	+6	+0.44	+1.02	+1.24	$177	$307
NORE11	HBR	81%	95%	86%	99%	99%	98%	98%	98%	98%	98%	98%	83%	96%	95%	96%	96%	94%	96%	91%	97%	97%	97%	95%		
NAQD17		82	75	83	76	62	79	90	86	63	80	48	6	68	53	22	61	47	41	99	97	2	62	95	74	76
QQFH147	**ASCOT HALLMARK H147** PV	+47	-5.6	+3.5	-5.2	+7.4	+59	+108	+152	+131	+15	+3.6	-5.7	+84	-2.4	+0.8	+0.7	-0.8	+2.6	+0.52	+13	+0.44	+0.82	+1.02	$187	$344
VTME343	HBR	72%	94%	84%	98%	99%	98%	98%	98%	97%	97%	98%	77%	96%	95%	95%	95%	93%	95%	88%	97%	95%	95%	93%		
NMMF123		49	93	45	42	97	13	9	4	10	70	8	23	9	99	30	31	97	36	87	84	2	17	45	65	51
HIOE7	**AYRVALE BARTEL E7** PV	+41	+10.1	+10.7	-5.1	+1.7	+49	+86	+111	+70	+26	+2.4	-8.1	+67	+8.1	-0.4	+1.0	+1.1	+3.6	+0.43	+2	+1.02	+1.00	+1.12	$290	$447
VTMB219	HBR	85%	99%	96%	99%	99%	99%	99%	99%	99%	99%	99%	93%	98%	98%	98%	98%	98%	98%	95%	99%	99%	99%	98%		
BVVB32		60	3	1	44	10	55	64	63	90	4	36	1	47	28	58	26	14	15	79	99	82	57	76	1	2
HIOG11	**AYRVALE GENETIC G11** PV	+24	-4.5	-16.0	-5.7	+5.1	+66	+118	+163	+144	+19	+1.8	-5.5	+83	-0.3	-3.3	-2.2	-0.4	+2.3	-0.24	+36	+1.08	+1.08	+1.12	$189	$341
SEWD138	HBR	67%	86%	75%	98%	98%	97%	97%	97%	96%	95%	94%	59%	92%	89%	90%	91%	85%	91%	80%	87%	88%	88%	82%		
HIOE2		86	91	99	34	72	4	3	1	4	34	60	28	10	98	98	81	91	43	8	5	89	75	76	63	54
NBBN47	**BALD BLAIR NELSON N47** PV	+25	+5.1	-0.5	-5.6	+4.5	+57	+107	+158	+155	+20	+1.2	-4.0	+89	+4.9	-1.1	-1.4	+0.8	+0.6	-0.29	+29	+1.04	+1.12	+1.14	$186	$370
HIOG18	HBR	50%	74%	60%	95%	94%	92%	92%	91%	88%	79%	89%	53%	87%	85%	85%	86%	78%	87%	78%	85%	85%	85%	81%		
NBBL83		85	30	81	36	60	19	10	2	2	29	81	69	5	66	73	69	28	88	6	16	85	82	81	66	30
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Date: July 31, 2023

Ident / Sire / Dam	Name / 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
ECMM114	**BANNABY BERKLEY M114** SV	+14	+4.2	+5.4	-10.7	+4.3	+61	+100	+146	+170	+5	+4.6	-8.9	+72	+3.0	-0.5	-3.5	+0.3	+2.0	-0.16	+22	+0.82	+0.74	+1.14	$205	$422
VTMB1	HBR	52%	74%	65%	95%	93%	90%	91%	92%	85%	76%	86%	63%	84%	84%	84%	84%	78%	85%	75%	79%	87%	87%	83%		
BBAZ107		97	38	25	1	55	9	22	7	1	99	2	1	32	86	60	93	59	52	13	36	44	7	81	45	5
ECMK63	**BANNABY REALITY K63** PV	+74	+5.2	+2.3	-3.3	+3.8	+46	+79	+103	+109	+12	+2.0	-2.0	+52	+5.9	-0.5	-1.3	+0.6	+1.1	-0.15	+39	+0.60	+1.04	+1.18	$138	$277
NZE14647008839	HBR	68%	77%	65%	96%	96%	92%	91%	92%	87%	79%	81%	60%	89%	88%	87%	88%	83%	90%	82%	83%	85%	85%	81%		
ECMH45		11	29	57	73	44	69	80	78	34	85	52	96	86	53	60	68	40	77	13	3	9	66	88	93	88
ECMN187	**BANNABY REALITY N187** SV	+59	+8.7	+6.5	-7.2	+3.7	+48	+76	+91	+82	+11	+4.0	-7.4	+55	+8.1	+2.4	+3.1	+0.1	+3.4	+0.43	+6	+0.84	+1.16	+1.42	$237	$392
NZE14647008839	HBR	50%	73%	64%	94%	93%	90%	91%	91%	85%	75%	87%	60%	86%	86%	85%	86%	79%	88%	78%	82%	87%	87%	84%		
ECMF113		30	7	15	15	41	62	86	92	78	93	4	3	81	28	8	6	71	19	79	96	49	87	99	14	16
VONG272	**BANQUET GARRETT G272** SV	+57	-0.7	+5.5	-1.8	+6.4	+53	+98	+144	+147	+19	+4.7	-0.9	+56	+1.8	-2.6	-3.9	+0.3	+2.2	-0.79	+31	+0.54	+1.04	+1.10	$123	$282
VOND412	HBR	64%	76%	60%	94%	96%	93%	94%	94%	88%	85%	90%	55%	88%	87%	87%	87%	79%	85%	78%	83%	87%	87%	81%		
VONC368		33	76	24	89	91	34	28	8	4	30	2	99	79	93	94	95	59	46	1	12	5	66	71	97	87
NUIF32	**BONNY BROOKE FALCO F32** SV	+49	-6.7	-5.0	+0.1	+6.4	+51	+80	+111	+100	+19	-0.1	-3.5	+65	-1.8	+4.1	+4.1	-1.3	+2.1	-0.44	+6	+1.04	+0.92	+1.10	$130	$233
NGMC196	HBR	53%	63%	48%	90%	88%	89%	88%	89%	81%	71%	67%	50%	83%	80%	81%	82%	72%	79%	70%	77%	79%	79%	74%		
NUID96		46	95	96	98	91	44	79	64	50	35	99	80	54	99	2	3	99	49	2	96	85	37	71	95	96
HCAG013	**BOONAROO GRAVITY G013** PV	+87	+5.9	+1.8	-5.8	+3.4	+50	+88	+115	+106	+25	+3.8	-6.7	+56	+4.7	-2.9	-2.9	+1.2	+2.8	-0.50	+11	+0.46	+0.92	+1.10	$218	$377
VTMA217	HBR	70%	88%	79%	98%	98%	97%	97%	97%	94%	94%	96%	70%	92%	91%	91%	91%	87%	90%	83%	93%	93%	94%	91%		
VTMZ618		2	24	62	33	35	51	57	54	40	5	6	8	78	69	96	89	11	31	2	89	2	37	71	30	25
NGME124	**BOOROOMOOKA INSPIRED E124**	+16	-5.8	+1.1	-6.6	+3.7	+46	+82	+107	+98	+14	+0.9	-8.0	+78	+3.5	-0.3	+3.3	-0.4	+2.4	+0.71	+24	+0.80	+0.84	+0.78	$189	$320
NAQA241	HBR	73%	96%	90%	99%	99%	98%	98%	98%	98%	98%	98%	82%	96%	95%	96%	96%	94%	95%	89%	98%	97%	97%	96%		
NGMB325		95	94	68	22	41	70	74	71	53	73	88	1	18	82	55	6	91	41	95	30	40	20	2	63	69
NGMN418	**BOOROOMOOKA JACKPOT N418**	+24	+2.8	+4.7	-8.9	+5.8	+62	+111	+141	+128	+11	+3.3	-7.2	+86	+11.0	+0.7	+2.0	+0.8	+1.9	+0.17	+25	+1.30	+1.08	+1.00	$274	$462
WWEL3	HBR	50%	75%	61%	94%	96%	95%	95%	94%	91%	81%	92%	53%	86%	84%	84%	85%	78%	86%	76%	95%	91%	91%	85%		
NGML471		86	51	32	5	84	8	7	10	12	90	12	4	7	8	32	14	28	55	48	28	99	75	38	1	1
NGMK9	**BOOROOMOOKA KINGY K9** PV	+25	-5.8	-8.7	-2.2	+6.5	+49	+85	+120	+110	+19	+3.1	-7.2	+67	+8.7	+0.9	-0.4	+0.4	+4.5	+0.51	+12	+0.70	+0.92	+0.86	$204	$334
BNAD145	HBR	68%	88%	79%	97%	98%	97%	97%	97%	96%	95%	95%	69%	92%	90%	91%	91%	88%	91%	82%	97%	95%	95%	90%		
NGMA281		85	94	99	86	92	53	65	43	33	33	16	4	48	22	28	51	53	6	86	86	21	37	7	47	59
NGMP96	**BOOROOMOOKA PARAGON P96**	+15	+0.6	+3.3	-7.7	+3.8	+64	+129	+167	+129	+30	+3.7	-8.3	+114	+12.0	-1.6	-0.2	+1.0	+2.9	+0.48	+39	+0.94	+1.06	+1.12	$310	$505
WWEL3	HBR	52%	80%	64%	97%	98%	97%	97%	96%	88%	75%	95%	55%	81%	81%	81%	81%	76%	80%	66%	97%	93%	92%	90%		
NGMM566		96	68	47	11	44	5	1	1	12	1	7	1	1	5	83	48	18	28	83	3	69	71	76	1	1
BOWK2	**BOWMAN AUSTRALIA K2** PV	+43	+5.5	+2.8	-6.9	+3.8	+47	+94	+121	+98	+20	+4.5	-7.7	+68	+7.3	+0.4	-1.3	+0.9	+1.2	-0.49	+29	+0.84	+1.00	+0.90	$219	$382
VTME343	HBR	74%	76%	71%	92%	89%	88%	88%	88%	83%	79%	76%	65%	86%	86%	86%	86%	81%	88%	80%	81%	84%	84%	81%		
NAQZ31		56	27	52	18	44	63	39	41	53	22	2	2	45	36	38	68	23	75	2	15	49	57	12	29	22
SRKK306	**BOWMONT KING K306** PV	+31	-1.3	-10.0	-5.6	+4.7	+51	+82	+107	+89	-1	-0.2	-5.3	+69	+15.2	-0.5	-1.8	+1.7	+5.0	+0.57	+29	+0.54	+0.92	+0.74	$252	$370
NJWG279	HBR	69%	85%	73%	97%	97%	97%	97%	97%	94%	92%	95%	66%	93%	92%	91%	92%	89%	93%	84%	94%	91%	91%	87%		
TFAD58		76	79	99	36	64	43	74	72	68	99	99	33	41	1	60	76	3	3	90	15	5	37	1	6	30
AMQH64	**BROOKLANA HI TOWER H64** PV	+87	-7.1	-2.6	+0.8	+5.7	+51	+100	+141	+131	+17	+1.6	-3.1	+81	+5.1	+1.7	+1.0	+0.5	+1.4	+0.64	+29	+0.64	+0.96	+1.06	$156	$292
VTME343	HBR	71%	76%	67%	93%	91%	89%	89%	90%	84%	76%	77%	62%	87%	86%	86%	87%	80%	88%	80%	80%	84%	84%	78%		
AMQF27		2	96	91	99	82	46	23	10	10	47	68	87	13	64	15	26	47	70	93	16	13	47	58	87	83
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / 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
GTNM3	**CHILTERN PARK MARBLES M3**	+18	+3.5	-4.4	-6.1	+2.6	+42	+76	+93	+56	+27	+3.2	-6.8	+55	+4.1	-0.1	-3.0	+0.2	+3.6	-0.12	+12	+0.50	+1.08	+1.16	$197	$306
NORE11	HBR	81%	81%	71%	96%	96%	96%	96%	96%	90%	87%	90%	66%	91%	89%	85%	90%	83%	91%	83%	88%	93%	93%	90%		
GTNJ4		93	44	95	28	20	84	86	90	97	3	14	7	80	76	50	89	66	15	16	85	3	75	85	54	77
GTNP9	**CHILTERN PARK PICASSO P9 PV**	+37	+9.5	+6.1	-3.4	+1.6	+57	+103	+134	+94	+22	+4.0	-7.5	+97	+8.4	-0.8	+1.0	-0.2	+4.5	+0.55	+32	+0.74	+0.66	+0.88	$283	$458
HKFJ5	HBR	53%	78%	64%	97%	97%	93%	94%	93%	86%	74%	90%	55%	85%	83%	83%	84%	77%	85%	72%	80%	85%	85%	81%		
GTNK26		67	4	19	71	9	20	16	17	59	12	4	3	2	25	67	26	85	6	88	10	27	3	9	1	1
THCL61	**CLUDEN NEWRY ELEVATOR L61**	+18	-2.8	-0.7	-3.9	+6.4	+64	+126	+160	+169	+20	+1.5	-3.8	+104	+9.9	-3.6	-2.0	+1.4	-1.0	+0.15	+41	+0.64	+0.92	+0.94	$190	$377
WDCE11	HBR	71%	77%	66%	93%	95%	94%	94%	94%	91%	85%	89%	60%	89%	88%	84%	89%	82%	90%	80%	91%	92%	92%	89%		
THCF92		93	86	82	64	91	5	1	2	1	27	71	74	1	14	98	78	7	99	46	2	13	37	20	62	26
QMUM13	**CLUNES CROSSING DUSTY M13**	+35	+1.0	+4.0	-7.8	+5.3	+66	+102	+121	+66	+13	+1.0	-7.5	+72	+13.0	-2.4	-3.9	+1.4	+1.9	+0.10	+10	+0.92	+0.86	+1.00	$304	$438
USA16295688	HBR	50%	93%	81%	99%	99%	98%	98%	98%	97%	95%	98%	68%	94%	93%	93%	93%	89%	93%	84%	97%	97%	97%	95%		
QMUG1		70	65	39	11	76	3	18	41	92	80	86	3	32	3	92	95	7	55	39	92	65	24	38	1	2
NBHL348	**CLUNIE RANGE LEGEND L348 PV**	+18	-5.7	+4.7	-8.2	+6.1	+58	+103	+126	+155	+1	+2.9	-7.0	+63	+0.6	+3.7	+1.2	-0.8	+2.5	+0.10	+26	+0.50	+0.80	+1.28	$171	$350
NZE14647008839	HBR	68%	93%	83%	99%	99%	98%	98%	98%	97%	97%	98%	74%	94%	93%	93%	93%	91%	93%	84%	97%	97%	97%	96%		
AHWJ81		93	93	32	8	88	16	17	31	2	99	21	6	60	97	2	23	97	38	39	24	3	14	98	79	46
WDCH249	**COONAMBLE HECTOR H249 SV**	+33	+0.1	-2.2	-8.8	+4.4	+44	+79	+99	+85	+5	+1.2	-4.6	+46	+10.7	+3.4	+4.2	+0.9	+0.1	-0.51	+42	+0.42	+0.48	+0.80	$187	$310
USA14885809	HBR	70%	94%	84%	99%	99%	98%	98%	98%	97%	97%	98%	74%	95%	94%	94%	94%	92%	94%	86%	98%	96%	96%	93%		
WDCE9		73	71	89	5	58	75	80	84	74	99	81	52	94	10	3	3	23	94	2	2	1	1	3	65	75
WDCJ266	**COONAMBLE JUNIOR J266 PV**	+70	-8.7	-6.7	-0.5	+5.6	+59	+104	+143	+130	+18	+2.2	-5.3	+102	+10.7	-4.8	-4.9	+1.6	+2.4	-0.35	+8	+0.92	+0.78	+1.08	$203	$340
BNAD145	HBR	76%	89%	77%	98%	98%	97%	97%	97%	95%	95%	96%	70%	93%	91%	91%	91%	88%	91%	83%	94%	94%	94%	91%		
WHHA61		15	97	98	96	81	15	14	9	11	44	44	33	1	10	99	98	4	41	4	94	65	11	65	48	55
WDCK314	**COONAMBLE KEVIN K314 PV**	+99	-1.6	+3.0	-2.4	+5.0	+54	+103	+134	+110	+24	+4.3	-6.2	+89	+6.6	+0.3	+1.0	+0.1	+1.5	+0.32	+25	+0.48	+1.10	+1.20	$210	$365
NAQA241	HBR	65%	83%	71%	95%	97%	96%	95%	96%	91%	91%	92%	65%	90%	89%	89%	89%	85%	90%	80%	81%	85%	85%	82%		
WDCD94		1	80	50	84	71	30	16	17	33	8	3	14	5	44	41	26	71	67	68	26	2	78	91	40	34
BHRE614	**DUNOON EVIDENT E614 PV**	+19	-11.3	-17.5	+0.0	+5.9	+52	+90	+111	+108	+14	+3.6	-5.9	+58	+11.2	-2.7	-1.4	+1.7	+1.7	+0.41	+43	+0.90	+1.04	+0.88	$173	$279
VTMB219	HBR	70%	97%	90%	99%	99%	99%	99%	99%	98%	98%	98%	83%	97%	96%	97%	97%	95%	96%	90%	98%	96%	96%	94%		
BHRB681		92	99	99	97	85	41	50	63	35	75	8	19	74	8	95	69	3	61	78	1	61	66	9	77	88
BHRH744	**DUNOON HIGHPOINT H744 SV**	+38	-7.3	-9.5	-4.3	+6.9	+56	+97	+128	+126	+17	+2.9	-5.1	+85	+5.7	-1.8	-1.3	+1.4	+1.0	-0.65	+28	+0.68	+0.82	+1.10	$175	$307
BNAD145	HBR	74%	84%	73%	97%	97%	96%	96%	96%	93%	93%	95%	69%	92%	91%	91%	91%	87%	92%	84%	92%	89%	89%	86%		
BHRD202		65	96	99	57	94	24	32	28	14	51	21	38	8	56	86	68	7	80	1	17	18	17	71	75	76
USA16198796	**EF COMPLEMENT 8088 PV**	+15	+5.9	+9.4	-5.2	+2.9	+53	+98	+130	+96	+21	+1.3	-8.3	+77	+7.7	+1.3	+2.0	+0.4	+1.8	+0.56	+21	+0.94	+1.30	+1.14	$270	$443
USA14686137	HBR	85%	98%	93%	99%	99%	99%	99%	99%	99%	99%	99%	90%	98%	97%	98%	98%	97%	97%	93%	99%	99%	99%	98%		
USA15452880		96	24	2	42	25	37	28	24	57	17	78	1	21	31	21	14	53	58	89	41	69	97	81	2	2
WWEQ15	**ESSLEMONT GARTH Q15 PV**	+36	-5.2	+2.1	-9.8	+6.2	+63	+108	+148	+137	+28	+2.5	-6.9	+70	+8.3	-3.7	-3.8	+0.9	+3.1	-0.40	+40	+0.92	+1.16	+1.04	$232	$396
VTMG67	HBR	52%	71%	61%	92%	89%	86%	80%	80%	77%	69%	74%	52%	73%	67%	69%	69%	64%	70%	62%	82%	69%	69%	68%		
WWEN17		68	92	59	3	89	6	9	5	7	2	33	6	39	26	99	95	23	24	3	3	65	87	52	17	14
WWEL3	**ESSLEMONT LOTTO L3 PV**	+8	-4.3	-2.4	-5.8	+4.4	+60	+110	+140	+134	+18	+3.7	-9.1	+90	+14.3	+0.5	+1.3	+1.3	+3.8	+0.29	+15	+1.12	+1.02	+1.14	$287	$466
HIOG18	HBR	77%	96%	88%	99%	99%	99%	99%	99%	98%	98%	98%	78%	97%	95%	96%	96%	94%	96%	90%	98%	98%	98%	97%		
WWEJ8		99	90	90	33	58	12	8	11	9	39	7	1	4	2	36	22	9	13	64	72	92	62	81	1	1
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / 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
WWEQ24	**ESSLEMONT QUOKKA Q24 PV**	+53	+5.3	+0.4	-2.9	+2.5	+45	+85	+112	+71	+23	+4.4	-6.5	+66	+20.5	+1.1	+0.4	+2.2	+3.0	+1.01	+35	+0.78	+0.94	+0.96	$281	$420
WWEN12	HBR	52%	68%	53%	93%	93%	90%	86%	85%	80%	66%	81%	46%	74%	72%	74%	74%	68%	74%	59%	84%	60%	60%	60%		
WWEN7		39	29	74	78	19	72	67	61	89	10	2	10	52	1	24	36	1	26	99	6	36	42	26	1	5
WWE21S6	**ESSLEMONT SEAN S6 PV**	+27	+6.2	+5.4	-6.3	+3.6	+58	+100	+121	+91	+18	+4.4	-6.0	+83	+18.1	+2.3	+1.6	+1.2	+3.5	+0.79	+33	+1.04	+1.18	+1.04	$297	$462
NGMN418	HBR	54%	60%	51%	79%	75%	76%	74%	74%	73%	65%	71%	44%	67%	67%	68%	68%	62%	70%	60%	63%	64%	64%	63%		
WWEN7		82	21	25	26	39	18	23	40	65	41	2	18	11	1	9	18	11	17	97	8	85	89	52	1	1
USA16295688	**G A R PROPHET SV**	+43	+3.5	+4.6	-1.0	+3.6	+66	+107	+132	+81	+24	+0.7	-5.9	+71	+3.4	-0.5	-1.1	-0.8	+4.7	+0.63	+27	+1.02	+0.82	+0.90	$274	$419
USA13009379	HBR	88%	98%	92%	99%	99%	99%	99%	99%	99%	99%	99%	89%	98%	97%	97%	97%	97%	97%	93%	99%	99%	99%	98%		
USA15129456		56	44	33	94	39	3	11	20	79	8	92	19	35	82	60	64	97	5	92	21	82	17	12	1	5
USA17328461	**G A R SURE FIRE SV**	+96	+7.1	+3.6	-3.3	+2.3	+50	+90	+110	+75	+18	+4.1	-6.9	+64	+7.6	-0.2	-0.2	+0.8	+3.2	-0.21	+29	+1.16	+0.94	+0.62	$257	$407
USA16205036	HBR	79%	94%	82%	99%	99%	98%	98%	98%	97%	98%	98%	77%	96%	95%	95%	95%	94%	95%	87%	95%	99%	99%	92%		
USA16431932		1	15	44	73	16	50	50	66	86	43	4	6	57	33	53	48	28	22	10	16	95	42	1	4	9
ASRM9	**GATES MENTOR M9 SV**	+40	+2.4	+4.3	-3.2	+6.2	+62	+110	+146	+129	+19	+4.1	-6.6	+87	+11.4	-5.0	-5.9	+2.0	+3.0	+0.41	+8	+1.00	+1.18	+1.18	$268	$449
HIOE7	HBR	54%	75%	64%	95%	93%	91%	90%	91%	84%	80%	81%	58%	85%	82%	83%	83%	75%	85%	76%	79%	81%	82%	78%		
ASRK93		62	54	36	74	89	7	7	6	12	33	4	9	6	7	99	99	1	26	78	94	79	89	88	2	2
QBGH221	**GLENOCH HINMAN H221 SV**	+69	+5.6	-2.6	-3.4	+3.0	+52	+91	+123	+113	+22	+1.0	-3.6	+84	+6.0	-2.6	-5.3	+0.6	+5.2	-0.41	+16	+0.88	+0.80	+1.04	$203	$350
BNAD145	HBR	70%	82%	72%	97%	97%	96%	96%	96%	91%	92%	95%	67%	91%	90%	90%	90%	86%	91%	82%	83%	88%	89%	85%		
QBGD80		16	26	91	71	27	38	49	37	28	15	86	78	9	52	94	99	40	3	3	68	57	14	52	47	47
DKKM41	**HARDHAT H708 MAIMURU J51**	+86	+3.7	+3.5	-2.4	+2.3	+45	+89	+117	+97	+10	+1.2	-4.1	+62	+2.8	+1.0	-2.5	-0.4	+6.7	+0.14	+23	+1.02	+1.04	+1.12	$208	$353
NORH708	APR	50%	70%	56%	95%	92%	89%	89%	90%	83%	72%	77%	56%	87%	87%	86%	88%	78%	89%	81%	85%	88%	88%	85%		
DKKJ51		2	43	45	84	16	71	54	51	55	93	81	67	62	87	26	85	91	1	44	33	82	66	76	42	44
NHZF1023	**HAZELDEAN F1023 SV**	+41	+6.0	+2.4	-3.6	+2.8	+40	+76	+88	+66	+14	+3.8	-6.6	+51	+9.2	+3.1	+0.0	+0.1	+6.1	+1.31	+5	+0.48	+0.98	+1.04	$234	$369
VTMB1	APR	68%	90%	77%	98%	98%	98%	98%	98%	96%	94%	97%	74%	94%	93%	93%	93%	89%	93%	86%	97%	97%	96%	94%		
NHZB723		60	23	56	69	23	88	86	94	93	72	6	9	88	18	4	44	71	1	99	97	2	52	52	15	31
NHZJ140	**HAZELDEAN JAIPUR J140 SV**	+86	+8.9	+8.1	-5.0	+1.8	+39	+74	+101	+75	+29	+3.3	-7.5	+69	+4.9	-1.0	-1.2	+1.1	+2.7	+1.10	+53	+0.26	+0.78	+1.02	$218	$364
NAQA241	HBR	73%	92%	78%	98%	98%	98%	98%	98%	97%	97%	98%	82%	95%	94%	94%	94%	92%	94%	87%	98%	98%	98%	95%		
NHZC33		2	6	6	46	11	91	90	81	86	1	12	3	41	66	71	66	14	33	99	1	1	11	45	31	35
NHZK416	**HAZELDEAN KATZEN K416 SV**	+19	+9.8	+5.0	-11.6	+2.1	+55	+93	+121	+101	+17	+3.5	-8.4	+73	+1.0	+4.2	+2.7	-0.6	+0.8	+0.29	+56	+1.02	+1.02	+1.04	$220	$393
NORE11	APR	73%	88%	76%	98%	98%	97%	97%	97%	95%	94%	97%	72%	93%	92%	90%	92%	87%	93%	86%	97%	95%	95%	92%		
NHZH342		92	3	29	1	14	28	41	41	47	49	9	1	29	96	1	9	95	84	64	1	82	62	52	28	15
NHZM586	**HAZELDEAN M586 SV**	+71	+8.9	+9.6	-9.1	+2.3	+50	+91	+121	+100	+18	+4.3	-9.8	+73	+7.6	+0.9	+0.7	-0.1	+5.5	+0.98	+44	+0.50	+0.94	+1.10	$282	$469
NHZJ140	APR	51%	84%	65%	98%	98%	96%	96%	96%	94%	88%	95%	62%	92%	90%	90%	90%	84%	91%	82%	93%	92%	92%	88%		
NHZH356		14	6	2	4	16	49	48	42	49	43	3	1	28	33	28	31	81	2	99	1	3	42	71	1	1
NHZQ319	**HAZELDEAN Q319 PV**	+70	+6.4	+9.3	-10.3	+2.5	+58	+110	+148	+136	+18	+3.3	-9.8	+89	+5.2	+2.0	+0.7	-0.8	+5.0	+0.28	+23	+0.90	+1.12	+1.06	$278	$492
NHZM586	APR	51%	69%	49%	97%	96%	88%	83%	82%	79%	67%	78%	43%	73%	66%	69%	69%	62%	70%	60%	81%	69%	64%	60%		
NHZL1175		15	20	3	2	19	18	8	5	8	40	12	1	5	62	12	31	97	3	63	35	61	82	58	1	1
KILK18	**KILLAIN ALASKA K18 PV**	+26	-9.4	-5.6	+0.0	+7.2	+65	+121	+164	+177	+14	+3.7	-2.4	+88	+5.2	-2.5	-4.3	+0.9	-1.3	-0.73	+24	+1.16	+0.88	+1.00	$116	$279
USA16417285	HBR	53%	70%	57%	88%	86%	86%	85%	86%	82%	78%	76%	48%	83%	83%	82%	83%	80%	85%	72%	68%	77%	77%	66%		
USA15107929		84	98	97	97	96	4	2	1	1	76	7	93	6	62	93	97	23	99	1	29	95	28	38	98	88
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / 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
BLAP130	**KNOWLA PACKER P130** PV	+16	+1.3	-1.2	-3.3	+5.2	+59	+105	+144	+127	+9	+1.2	-5.7	+88	+7.8	+0.0	-0.3	+0.7	+3.0	+0.26	+24	+0.86	+1.24	+0.98	$246	$414
SRKK306	HBR	51%	68%	55%	91%	89%	85%	83%	84%	79%	69%	82%	48%	73%	70%	72%	72%	67%	72%	61%	76%	75%	75%	71%		
BLAK113		95	63	84	73	74	15	13	8	13	95	81	23	6	30	48	50	33	26	60	30	53	94	32	8	7
BLAP91	**KNOWLA PEPPER P91** PV	+22	+6.4	+4.1	-6.4	+3.8	+62	+121	+156	+163	+12	+1.8	-8.9	+84	+9.0	+2.5	+2.1	+0.5	+2.7	+0.53	-8	+0.98	+1.08	+0.94	$285	$515
HIOG18	HBR	53%	73%	61%	95%	94%	92%	88%	90%	83%	72%	88%	56%	78%	76%	77%	77%	73%	77%	64%	88%	86%	87%	83%		
BLAL06		89	20	38	24	44	7	2	2	1	84	60	1	9	20	7	13	47	33	87	99	76	75	20	1	1
VLYN131	**LAWSONS CHARLIE N131** SV	+56	-3.9	-2.0	-4.7	+5.6	+74	+133	+167	+131	+24	+3.5	-5.0	+81	+6.1	-1.8	-2.1	+0.1	+1.2	+0.34	+30	+0.86	+0.72	+0.88	$242	$409
USA16295688	HBR	56%	76%	66%	95%	96%	93%	92%	89%	84%	72%	86%	56%	85%	84%	84%	85%	77%	86%	76%	90%	91%	90%	86%		
VLYL710		35	89	88	51	81	1	1	1	10	6	9	41	13	51	86	80	71	75	70	14	53	6	9	10	9
VLYL483	**LAWSONS LINKEDIN L483** SV	+55	+5.5	-9.7	-1.3	+3.8	+58	+108	+153	+138	+28	+4.2	-5.0	+105	+9.8	-0.5	+2.3	+0.3	+1.5	-0.30	+21	+0.98	+0.76	+0.86	$212	$385
HKFJ5	HBR	67%	84%	73%	98%	98%	97%	97%	96%	94%	94%	94%	65%	92%	88%	86%	90%	83%	90%	79%	87%	84%	85%	80%		
VLYH221		36	27	99	92	44	17	9	4	6	1	3	41	1	14	60	11	59	67	6	41	76	9	7	37	20
VLYE398	**LAWSONS NADAL E398** SV	+71	-7.9	-4.4	-1.7	+5.9	+56	+93	+109	+132	-8	+1.2	-5.9	+66	+12.5	-0.3	-1.4	+1.7	+0.6	+0.35	+0	+0.78	+0.78	+0.92	$186	$330
USA15464043	HBR	64%	88%	76%	98%	98%	97%	97%	97%	95%	96%	95%	65%	93%	91%	91%	92%	87%	92%	82%	84%	83%	83%	77%		
VLYB887		14	97	95	90	85	22	42	68	10	99	81	19	49	4	55	69	3	88	71	99	36	11	16	66	62
VLYP316	**LAWSONS PROPHET P316** PV	+16	+5.0	+4.1	-2.0	+3.6	+59	+93	+113	+70	+18	+0.9	-5.3	+70	+10.3	-3.6	-3.9	+1.3	+3.5	+0.26	+29	+0.66	+0.68	+0.82	$275	$407
USA16295688	HBR	58%	72%	60%	92%	95%	90%	86%	83%	79%	70%	74%	54%	75%	72%	74%	74%	70%	74%	63%	81%	80%	80%	75%		
VLYM527		95	31	38	87	39	15	40	60	90	42	88	33	38	12	98	95	9	17	60	16	15	3	4	1	9
NZE14647010	**MATAURI OUTLIER F031** SV	+70	-3.3	+2.1	-4.6	+6.7	+54	+102	+137	+146	+16	+2.2	-2.8	+70	+0.2	+3.1	+1.8	-0.7	+0.9	+0.07	+14	+0.78	+1.16	+1.28	$128	$285
NZE14647008839	HBR	65%	95%	87%	98%	99%	98%	98%	98%	98%	98%	98%	84%	96%	95%	96%	96%	94%	95%	88%	93%	92%	93%	89%		
NZE14647108860		15	87	59	52	93	32	19	14	4	55	44	90	37	98	4	16	96	82	35	78	36	87	98	96	85
NMMF159	**MILLAH MURRAH DOC F159** PV	+55	-7.1	+4.3	-6.1	+6.9	+58	+108	+148	+130	+28	+2.5	-5.5	+96	+4.9	+1.2	+2.0	+0.3	+0.3	-0.16	+18	+0.94	+1.10	+1.06	$190	$341
NMMD78	HBR	64%	89%	77%	98%	98%	97%	97%	97%	95%	95%	96%	69%	93%	91%	92%	92%	88%	92%	82%	95%	88%	88%	84%		
NHZY275		36	96	36	28	94	16	9	5	11	1	33	28	2	66	22	14	59	92	13	56	69	78	58	62	53
NMMG18	**MILLAH MURRAH HIGHLANDER**	+16	+0.3	-4.4	-3.7	+4.5	+49	+88	+110	+83	+22	+4.5	-3.5	+76	+10.5	-3.3	-1.8	+2.0	-0.1	+0.05	+11	+0.76	+0.90	+1.00	$186	$302
NZE12170004408	HBR	62%	82%	70%	97%	95%	93%	93%	93%	90%	84%	89%	63%	90%	89%	89%	90%	83%	91%	82%	90%	84%	84%	80%		
NMMD85		95	70	95	67	60	53	57	66	76	14	2	80	21	11	98	76	1	96	33	89	31	32	38	66	79
NMMK35	**MILLAH MURRAH KINGDOM K35**	+37	-13.4	-8.3	-2.6	+9.0	+55	+99	+139	+150	+11	+0.8	-5.6	+63	+7.6	+0.2	+0.4	+1.0	-0.6	-0.69	+26	+0.82	+1.26	+1.18	$136	$270
NZE469	HBR	73%	95%	87%	99%	99%	98%	98%	98%	97%	98%	98%	79%	96%	94%	95%	95%	93%	94%	88%	97%	96%	96%	94%		
NMMG41		67%	99	99	82	99	27	25	12	3	92	90	25	61	33	43	36	18	99	1	23	44	95	88	94	90
NMMK42	**MILLAH MURRAH KLOONEY K42**	+4	+6.0	+2.9	-6.7	+5.7	+47	+86	+107	+92	+24	+2.1	-6.9	+64	+5.8	-1.3	-3.5	+1.1	+2.5	+0.16	+17	+0.82	+0.90	+1.02	$217	$365
NGMT30	HBR	75%	96%	87%	99%	99%	98%	99%	98%	98%	98%	98%	79%	96%	95%	95%	95%	93%	95%	88%	98%	96%	97%	94%		
NMMH4		99	23	51	21	82	63	62	70	63	7	48	6	57	55	77	93	14	38	47	64	44	32	45	32	35
NMML133	**MILLAH MURRAH LOCH UP L133**	+9	+4.6	+3.1	-6.0	+4.9	+58	+99	+132	+106	+26	+1.9	-1.7	+78	+1.9	-2.3	-4.1	-0.5	+1.7	-0.26	+35	+0.70	+1.06	+1.14	$159	$298
USA17091363	HBR	73%	94%	84%	99%	99%	98%	98%	98%	98%	98%	98%	76%	96%	94%	95%	95%	93%	95%	87%	98%	97%	97%	95%		
NMMH49		99	35	49	30	69	16	26	21	40	3	56	97	18	92	91	96	93	61	7	6	21	71	81	85	80
NJWH194	**MILWILLAH ELEVATOR H194** SV	+49	-9.5	-9.3	-0.6	+8.1	+47	+96	+124	+152	+19	+1.3	-1.5	+50	+3.8	-2.3	+0.9	+0.9	-1.4	-0.37	+43	+0.20	+0.44	+0.86	$70	$198
WDCE11	HBR	61%	74%	65%	92%	92%	90%	90%	90%	85%	81%	84%	61%	86%	85%	85%	86%	80%	87%	77%	79%	87%	87%	80%		
VTMX64		46	98	99	96	99	66	34	35	2	37	78	97	90	79	91	28	23	99	4	2	1	1	7	99	99
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

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
NJWH283	**MILWILLAH ELSOM H283** PV	+32	+1.4	-3.6	-2.5	+3.6	+44	+79	+115	+97	+20	+1.9	-1.8	+71	+10.7	-2.0	-2.6	+1.7	+1.2	+0.41	+30	+0.76	+0.82	+1.06	$158	$274
NJWF189	HBR	67%	79%	65%	97%	97%	96%	96%	95%	91%	92%	93%	60%	91%	89%	90%	90%	85%	91%	82%	84%	89%	90%	85%		
NJWE51		75	62	94	83	39	78	80	54	56	22	56	96	34	10	88	86	3	75	78	14	31	17	58	86	89
NJWE158	**MILWILLAH LAD E158** SV	+41	-2.4	-7.3	-7.7	+8.1	+43	+82	+109	+110	+6	+1.9	-5.5	+45	+9.2	-1.0	-4.4	+1.3	+2.6	+0.19	+12	+0.74	+0.82	+0.72	$164	$292
NZEE230	HBR	57%	82%	73%	95%	97%	96%	96%	96%	92%	95%	92%	62%	91%	90%	90%	90%	85%	91%	80%	86%	79%	79%	72%		
VTMX114		60	84	99	11	99	80	73	67	32	99	56	28	95	18	71	97	9	36	51	85	27	17	1	83	83
CSWP036	**MURDEDUKE BLACK PEARL**	+19	+2.3	+1.5	-8.7	+5.4	+47	+89	+126	+111	+19	+3.2	-4.6	+55	+3.0	-0.2	-1.5	-0.8	+5.9	+0.60	+12	+0.82	+1.16	+1.18	$188	$337
USA17236055	HBR	53%	73%	62%	95%	95%	93%	93%	89%	84%	74%	87%	57%	87%	87%	86%	87%	79%	89%	79%	93%	92%	92%	88%		
CSWL123		92	55	65	6	78	63	53	30	32	34	14	52	82	86	53	71	97	1	91	86	44	87	88	64	56
CSWH211	**MURDEDUKE HUSSAR H211** PV	+7	+1.7	+2.6	-9.3	+6.5	+63	+124	+163	+171	+13	+3.9	-4.2	+88	+1.3	-1.8	-4.9	+0.4	-0.1	-0.79	+31	+0.54	+0.84	+1.02	$162	$362
VTME343	HBR	65%	81%	72%	97%	96%	95%	95%	95%	91%	90%	93%	65%	90%	89%	89%	90%	84%	91%	82%	95%	95%	95%	93%		
CSWE175		99	60	54	4	92	7	1	1	1	82	5	64	6	95	86	98	53	96	1	12	5	20	45	84	37
CSWK428	**MURDEDUKE KICKING K428** PV	+31	+9.2	+9.3	-8.3	+1.8	+49	+95	+119	+91	+25	+3.6	-5.1	+67	+1.4	-0.1	-2.3	+0.3	+0.5	-0.10	+44	+0.90	+1.02	+1.20	$185	$343
VTME343	HBR	74%	85%	73%	98%	98%	97%	97%	96%	94%	92%	97%	66%	92%	91%	88%	91%	85%	92%	84%	97%	97%	97%	95%		
CSWE175		76	5	3	8	11	56	36	44	65	4	8	38	47	95	50	82	59	89	17	1	61	62	91	67	52
NURG20	**MURRAY EL GRANDO G20** SV	+25	-13.0	+2.4	-6.9	+7.8	+67	+113	+157	+142	+13	+3.4	-5.4	+92	+16.0	-5.8	-7.1	+2.1	+2.4	-0.43	+20	+0.90	+0.76	+0.86	$223	$368
USA13058662	HBR	70%	87%	77%	97%	97%	96%	96%	96%	94%	93%	92%	72%	92%	91%	90%	91%	86%	91%	83%	94%	94%	94%	91%		
VTMD113		85	99	56	18	98	3	5	2	5	83	11	30	3	1	99	99	1	41	3	48	61	9	7	25	32
NURM208	**MURRAY GENESIS M208** PV	+39	+3.1	+6.1	-6.6	+5.3	+53	+100	+129	+108	+18	+3.6	-6.4	+86	+15.4	-0.1	-2.7	+1.7	+1.0	+1.19	+4	+0.96	+1.06	+0.68	$242	$408
SMPG357	HBR	73%	75%	63%	93%	94%	91%	91%	91%	86%	83%	81%	60%	87%	86%	83%	87%	81%	87%	78%	86%	90%	90%	87%		
NURK45		63	48	19	22	76	34	22	25	37	39	8	12	7	1	50	87	3	80	99	98	73	71	1	10	9
NURN70	**MURRAY KODAK N70** PV	+57	+3.4	+6.2	-7.3	+4.5	+59	+103	+136	+138	+13	+5.1	-6.4	+80	+9.9	-1.5	-2.0	+0.8	+3.9	-0.37	+22	+0.94	+0.92	+0.92	$245	$437
NORK522	HBR	53%	74%	58%	97%	97%	94%	94%	93%	86%	75%	91%	54%	88%	87%	86%	87%	79%	89%	80%	91%	91%	91%	87%		
NURJ53		33	45	18	15	60	14	18	14	6	79	1	12	15	14	81	78	28	12	4	39	69	37	16	8	3
NURM204	**MURRAY PROCEED M204** PV	+46	-8.9	+7.1	-4.6	+4.6	+63	+112	+141	+126	+19	+3.2	-3.7	+90	+14.2	-4.8	-5.0	+0.6	+6.9	+0.11	+18	+0.98	+0.78	+0.92	$238	$385
USA16956101	HBR	77%	77%	63%	95%	95%	94%	94%	93%	87%	79%	87%	59%	90%	88%	85%	89%	84%	90%	81%	92%	89%	90%	86%		
NURJ43		51	97	11	52	62	7	5	10	14	35	14	76	4	2	99	99	40	1	40	60	76	11	16	13	20
NURP54	**MURRAY TWINHEARTS P54** PV	+16	-0.1	+3.3	-6.6	+7.4	+74	+127	+168	+160	+22	+2.3	-4.2	+106	+8.1	-1.7	-3.6	+0.6	+3.0	+0.27	+18	+0.88	+1.24	+0.94	$250	$442
USA16350631	HBR	51%	70%	57%	92%	90%	87%	87%	85%	82%	72%	77%	50%	83%	83%	83%	83%	75%	85%	74%	81%	87%	87%	82%		
NURM13		95	72	47	22	97	1	1	1	1	16	40	64	1	28	84	94	40	26	62	59	57	94	20	7	2
SFNL21	**NAMPARA LIBERTY L21** SV	+58	-5.5	-1.5	-6.5	+8.9	+67	+112	+151	+165	+17	+3.0	-1.8	+84	+7.2	-2.1	-0.9	+1.7	-2.7	-0.59	+19	+0.84	+0.84	+1.00	$144	$304
NZE10322010609	HBR	70%	84%	67%	98%	98%	96%	97%	97%	94%	92%	96%	58%	92%	90%	87%	91%	84%	92%	84%	94%	92%	92%	87%		
SFNH65		31	93	86	23	99	3	6	4	1	48	18	96	9	37	89	61	3	99	1	52	49	20	38	92	78
SKOJ6	**NEWLYN PARK EMPEROR J6** PV	+12	-11.1	-6.2	-8.0	+8.4	+69	+114	+152	+160	+8	+1.9	-5.1	+86	+7.6	-1.0	-1.5	+1.2	+0.1	-0.57	+26	+1.10	+0.76	+0.78	$186	$340
VTME343	HBR	64%	75%	66%	92%	90%	89%	88%	89%	85%	78%	78%	61%	85%	84%	84%	85%	78%	86%	76%	78%	85%	85%	80%		
NZCE115		98	99	98	9	99	2	4	4	2	97	56	38	7	33	71	71	11	94	1	22	91	9	2	66	54
NZE21095018	**NGAPUTAHI P206** SV	+81	+10.7	+7.1	-1.5	-0.1	+41	+85	+98	+67	+28	+2.7	-6.3	+62	+6.7	+0.4	-0.4	+1.0	+3.5	+0.56	+21	+0.96	+1.10	+1.12	$239	$383
HIOE7	HBR	55%	74%	64%	92%	95%	92%	92%	88%	83%	73%	91%	60%	79%	79%	80%	80%	75%	78%	67%	83%	73%	73%	71%		
NZE21095112H49		5	2	11	91	2	86	67	85	92	1	26	13	62	43	38	51	18	17	89	41	73	78	76	12	21
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / Reg.	ImmuneDEX IMD	Calv-Ease Dir	Calv-Ease Dtrs	Birth GL	Birth BW	Growth 200	Growth 400	Growth 600	Maternal MCW	Maternal Milk	Fert SS	Fert DC	Carcase CW	Carcase EMA	Carcase Rib	Carcase P8	Carcase RBY	Carcase IMF	Feed NFI-F	Temp Doc	Structural Claw	Structural Angle	Structural Leg	Selection Index $A	Selection Index $A-L
USA16981588	**PA FULL POWER 1208 PV**	+63	-5.5	-4.4	-5.6	+3.7	+52	+98	+119	+77	+14	+1.9	-3.0	+68	+12.4	-1.4	+0.6	+0.8	+3.4	+0.78	+25	+1.24	+0.96	+0.70	$223	$330
USA16381311	HBR	76%	93%	82%	99%	98%	98%	98%	98%	97%	97%	98%	71%	95%	94%	94%	94%	91%	94%	85%	98%	98%	98%	90%		
USA16408070		24	93	95	36	41	41	27	44	84	77	56	88	44	4	79	33	28	19	97	27	98	47	1	25	62
USA17585042	**PA RANCH HOUSE 349 PV**	+11	+6.6	+3.2	-5.8	+4.0	+51	+89	+113	+89	+26	+0.1	-2.6	+61	+6.0	-0.2	+2.1	+0.4	+1.8	+0.70	-4	+1.52	+1.42	+0.90	$204	$339
USA16651533	HBR	76%	86%	68%	98%	98%	97%	97%	97%	95%	95%	96%	62%	93%	93%	92%	92%	89%	93%	83%	86%	94%	94%	90%		
USA17193464		98	18	48	33	48	47	54	58	68	4	98	92	65	52	53	13	53	58	95	99	99	99	12	46	55
HKFE27	**PARINGA IRON ORE E27 PV**	+88	+8.1	+2.0	-8.0	+2.1	+37	+70	+94	+92	+15	+2.2	-7.0	+66	+8.4	+1.0	+1.5	+1.5	+1.7	+0.41	+41	+0.84	+0.92	+0.96	$201	$350
VTMA149	HBR	66%	81%	69%	97%	96%	94%	94%	94%	90%	91%	91%	63%	90%	89%	89%	90%	83%	90%	82%	86%	84%	84%	79%		
FAFC1		2	10	60	9	14	94	93	89	64	66	44	6	49	25	26	19	5	61	78	2	49	37	26	50	46
SMPG357	**PATHFINDER GENESIS G357 PV**	+41	+2.5	+5.6	-7.8	+6.7	+62	+109	+147	+140	+26	+4.3	-5.7	+96	+14.1	+0.9	-1.4	+1.4	+0.2	+0.63	+30	+0.84	+1.04	+0.76	$232	$418
VTMB1	HBR	65%	96%	87%	99%	99%	99%	99%	99%	98%	98%	98%	82%	97%	95%	96%	96%	94%	95%	89%	98%	97%	98%	96%		
SMPD245		60	53	23	11	93	8	8	6	5	3	3	23	2	2	28	69	7	93	92	14	49	66	2	17	6
SMPK22	**PATHFINDER KOMPLETE K22 SV**	+73	+11.4	+10.2	-9.7	+0.7	+39	+73	+92	+41	+28	+3.0	-5.9	+49	+6.7	+4.1	+5.4	+0.1	+2.2	+0.45	+28	+0.48	+0.86	+0.66	$233	$358
SMPG357	HBR	73%	91%	75%	99%	98%	98%	98%	98%	96%	97%	97%	70%	94%	93%	93%	94%	92%	93%	86%	96%	96%	96%	94%		
SMPH756		12	1	1	3	4	90	90	91	99	2	18	19	90	43	2	1	71	46	81	18	2	24	1	16	40
SMPM651	**PATHFINDER MASTERPIECE**	+31	+1.4	+4.1	-5.6	+5.4	+59	+106	+137	+142	+20	+3.3	-8.2	+62	+9.6	-2.1	-3.4	+1.4	+2.0	-0.23	+48	+0.96	+1.18	+1.12	$244	$435
VTMG67	HBR	60%	75%	65%	90%	94%	91%	91%	91%	85%	81%	85%	60%	86%	84%	84%	85%	78%	86%	76%	70%	77%	77%	74%		
SMPH66		76	62	38	36	78	14	11	14	5	24	12	1	61	16	89	92	7	52	9	1	73	89	76	9	3
SMPM558	**PATHFINDER MAXIMUS M558 PV**	+25	-1.6	+2.6	-7.0	+5.8	+59	+98	+128	+129	+24	+4.6	-8.4	+54	+9.6	-2.1	-0.5	+0.6	+2.9	-0.25	+48	+0.92	+1.04	+0.88	$238	$411
VTMG67	HBR	75%	80%	68%	96%	97%	95%	95%	95%	90%	90%	92%	62%	90%	88%	87%	89%	85%	89%	80%	77%	78%	78%	74%		
SMPH458		85	80	54	17	84	14	28	26	11	6	2	1	82	16	89	53	40	28	8	1	65	66	9	13	8
SMPN56	**PATHFINDER NUCLEUS N56 SV**	+34	+4.0	+4.0	-3.9	+5.4	+62	+108	+140	+126	+16	+4.2	-6.6	+81	+13.6	+0.7	+0.9	+1.0	+1.7	+0.33	+19	+0.72	+0.80	+0.80	$267	$453
HIOG18	HBR	50%	75%	61%	96%	96%	94%	94%	94%	88%	82%	92%	55%	90%	89%	88%	89%	80%	90%	83%	84%	85%	85%	81%		
SMPL179		71	40	39	64	78	8	9	11	14	60	3	9	13	2	32	28	18	61	69	53	24	14	3	2	1
SMPP41	**PATHFINDER PREMIUM P41 SV**	+45	+1.5	+7.1	-5.1	+4.8	+59	+106	+143	+129	+22	+4.1	-8.3	+57	+4.1	-0.5	-0.2	-0.1	+3.7	+0.14	+25	+0.84	+1.18	+1.18	$250	$438
VTMG67	APR	52%	73%	62%	94%	94%	91%	91%	90%	84%	73%	87%	56%	78%	76%	77%	77%	73%	77%	65%	81%	69%	69%	69%		
SMPM53		53	61	11	44	66	13	12	8	12	12	4	1	75	76	60	48	81	14	44	28	49	89	88	6	2
NZE41-97	**PINEBANK WAIGROUP 41/97 #**	+61	+4.2	-5.3	-4.0	+3.5	+37	+62	+73	+48	+19	+0.8	-3.2	+17	+5.0	+1.3	+0.5	+0.8	+1.2	-0.13	+25	+0.34	+0.94	+1.02	$151	$234
NZE53195	HBR	69%	95%	89%	98%	98%	98%	98%	98%	98%	98%	97%	87%	96%	95%	96%	96%	94%	95%	89%	90%	87%	87%	81%		
NZE63988		27	38	97	62	37	94	98	99	99	35	90	85	99	65	21	35	28	75	15	26	1	42	45	89	96
NORE11	**RENNYLEA EDMUND E11 PV**	+24	+10.0	+0.8	-7.3	+1.1	+34	+64	+84	+54	+16	+1.8	-7.3	+51	+4.9	+3.4	+1.4	-0.3	+4.3	+0.78	+25	+0.56	+1.00	+1.12	$201	$322
NGMY145	HBR	79%	99%	96%	99%	99%	99%	99%	99%	99%	99%	99%	94%	98%	98%	98%	98%	98%	98%	95%	99%	99%	99%	99%		
VLYY5		86	3	71	15	6	97	97	96	97	56	60	4	88	66	3	21	88	8	97	26	6	57	76	49	68
NORG255	**RENNYLEA G255 PV**	+63	-12.0	-8.1	-3.6	+4.6	+51	+95	+129	+127	+21	+0.7	-3.8	+90	+7.8	-0.3	-3.2	+0.7	+4.8	-0.11	+13	+1.22	+0.92	+0.84	$164	$280
BNAD145	APR	81%	94%	86%	98%	98%	98%	98%	98%	98%	98%	97%	81%	96%	95%	95%	96%	93%	94%	90%	97%	94%	94%	92%		
NORC490		24	99	99	69	62	45	37	25	13	19	92	74	4	30	55	91	33	4	16	83	97	37	5	83	87
NORH708	**RENNYLEA H708 PV**	+96	-4.4	+0.0	+1.1	+4.9	+50	+102	+132	+131	+9	+2.6	-3.8	+72	+13.0	-3.5	-6.4	+1.9	+7.1	+0.70	+26	+0.74	+0.76	+1.02	$233	$387
NORC511	APR	86%	91%	80%	98%	98%	98%	98%	98%	97%	95%	97%	75%	95%	94%	94%	94%	91%	94%	91%	98%	95%	95%	93%		
NORE176		1	91	77	99	69	49	18	20	10	96	29	74	33	3	98	99	2	1	95	22	27	9	45	16	19
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / 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
NORK835	**RENNYLEA K835** PV	+18	-3.8	-5.1	-2.0	+6.6	+51	+91	+117	+98	+13	+3.2	-5.7	+56	+8.7	+0.7	-1.0	+0.2	+4.1	-0.13	+15	+0.64	+1.12	+1.10	$206	$335
NORG420	APR	67%	81%	66%	98%	95%	95%	95%	95%	90%	87%	89%	60%	89%	88%	87%	88%	84%	89%	78%	90%	88%	88%	85%		
NORH514		93	89	96	87	92	46	48	50	53	83	14	23	79	22	32	62	66	9	15	75	13	82	71	44	59
NORK522	**RENNYLEA KODAK K522** SV	+47	+10.7	+10.9	-5.5	+1.2	+46	+85	+111	+109	+10	+4.6	-6.3	+56	+4.3	+3.5	+1.9	-0.4	+4.1	+0.37	+6	+0.64	+0.82	+0.98	$211	$392
NORE11	HBR	71%	93%	80%	99%	99%	98%	98%	98%	97%	97%	98%	71%	95%	93%	93%	93%	91%	93%	86%	95%	96%	96%	95%		
NORF810		49	2	1	37	6	70	66	63	35	94	2	13	78	73	3	15	91	9	74	97	13	17	32	38	16
NORL508	**RENNYLEA L508** PV	+75	+2.4	+8.8	-6.5	+2.5	+46	+86	+117	+91	+26	+1.3	-5.9	+57	+6.2	+1.6	-0.7	-0.3	+5.5	+0.56	+20	+0.74	+0.92	+0.90	$225	$371
USA17366506	HBR	55%	94%	81%	99%	99%	98%	98%	98%	98%	97%	98%	74%	95%	94%	94%	95%	92%	94%	86%	98%	97%	97%	95%		
NORH414		10	54	4	23	19	68	63	50	64	3	78	19	76	49	16	57	88	2	89	50	27	37	12	23	29
NORL683	**RENNYLEA L683** PV	+73	+2.0	+0.6	-5.2	+5.3	+55	+93	+119	+104	+5	+1.9	-5.9	+80	+5.9	+0.5	-1.6	+0.9	+2.0	+0.71	+20	+0.74	+0.86	+0.98	$222	$372
NORE11	APR	71%	83%	71%	98%	97%	96%	96%	96%	93%	90%	94%	65%	90%	89%	87%	89%	84%	90%	83%	95%	88%	88%	85%		
NORJ631		12	57	73	42	76	28	41	46	43	99	56	19	14	53	36	73	23	52	95	45	27	24	32	26	29
NORM1078	**RENNYLEA M1078** SV	+75	-2.2	-3.0	-2.4	+3.1	+40	+81	+101	+91	+11	+1.9	-5.1	+60	+10.8	-1.3	-4.6	+0.8	+8.0	+0.89	+11	+0.98	+1.04	+1.20	$216	$340
NORH708	APR	55%	74%	62%	97%	96%	95%	95%	94%	92%	85%	92%	55%	90%	89%	89%	90%	81%	91%	82%	94%	87%	87%	84%		
NORF563		10	83	92	84	29	89	75	81	66	89	56	38	69	9	77	98	28	1	99	90	76	66	91	33	54
NORP987	**RENNYLEA P987** PV	+60	+9.6	+8.5	-8.7	+1.9	+52	+100	+131	+122	+14	+1.2	-4.7	+78	+4.9	+4.4	+3.2	-1.9	+8.2	+0.98	+8	+0.92	+0.92	+1.08	$239	$426
NORM763	APR	52%	72%	56%	95%	95%	93%	92%	92%	85%	72%	90%	49%	78%	77%	78%	78%	73%	77%	61%	93%	63%	63%	60%		
NORM1184		28	4	5	6	12	41	22	22	18	77	81	49	18	66	1	6	99	1	99	94	65	37	65	12	4
NORQ1081	**RENNYLEA Q1081** PV	+82	+1.9	+4.0	-4.9	+3.3	+51	+91	+113	+94	+11	+3.1	-6.0	+51	+11.8	+0.6	-0.8	+0.7	+6.4	+0.61	+16	+0.86	+0.98	+0.96	$267	$419
NORH708	APR	57%	70%	57%	92%	91%	89%	85%	84%	81%	70%	82%	52%	76%	72%	74%	74%	69%	74%	64%	87%	69%	73%	69%		
NORL841		4	58	39	47	33	46	48	58	60	91	16	18	88	6	34	59	33	1	92	71	53	52	26	2	6
NORQ213	**RENNYLEA Q213** PV	+28	+10.5	+7.9	-7.8	+1.0	+66	+124	+154	+109	+28	+0.6	-8.6	+102	+10.5	-0.6	-1.0	+0.4	+3.6	+0.60	+27	+0.58	+0.74	+0.80	$332	$529
NORK907	APR	53%	73%	58%	96%	96%	94%	94%	93%	85%	72%	93%	51%	78%	78%	79%	78%	73%	78%	62%	92%	82%	83%	78%		
NORL110		81	2	7	11	5	4	1	3	35	2	93	1	1	11	62	62	53	15	91	21	7	7	3	1	1
NORR992	**RENNYLEA R992** PV	+32	+5.7	+3.2	+2.1	+0.6	+43	+80	+102	+66	+25	+1.8	-6.2	+61	+12.0	+3.1	+4.2	-0.3	+6.0	+0.94	+34	+0.64	+0.84	+0.86	$259	$395
NORN542	APR	50%	68%	53%	93%	93%	90%	83%	82%	79%	67%	79%	43%	72%	66%	68%	68%	62%	69%	55%	87%	65%	65%	64%		
NORM1034		75	25	48	99	4	80	79	79	93	5	60	14	65	5	4	3	88	1	99	8	13	20	7	4	15
USA16396573	**S A V CAMARO 9272** SV	+35	+7.2	+3.0	-7.8	+3.6	+45	+72	+91	+83	+10	+1.7	-6.7	+38	-0.8	-0.4	-2.3	+0.5	+1.7	+1.16	+12	+1.14	+0.80	+0.80	$178	$315
USA0035	HBR	66%	84%	69%	97%	97%	96%	95%	96%	92%	94%	90%	60%	92%	91%	90%	90%	83%	92%	82%	83%	86%	85%	78%		
USA15688516		70	15	50	11	39	71	91	92	77	94	64	8	99	99	58	82	47	61	99	86	94	14	3	73	72
APBK11	**SHACORRAHDALU KINETIC K11**	+20	+11.3	+11.4	-9.4	+0.8	+50	+92	+108	+98	+10	+5.2	-8.0	+61	+9.5	+2.4	+0.8	+0.9	+1.6	+0.68	+7	+0.94	+1.08	+0.98	$249	$433
VTMB1	HBR	51%	73%	64%	91%	90%	87%	84%	83%	81%	77%	80%	58%	76%	68%	71%	71%	66%	71%	65%	79%	74%	72%	70%		
APBF2		91	1	1	4	4	51	46	69	53	95	1	1	65	16	8	30	23	64	94	96	69	75	32	7	3
NZE19507013	**STORTH OAKS JACK J7** SV	+14	+7.1	+10.3	-5.3	+4.7	+60	+113	+153	+144	+20	+3.3	-2.1	+84	+8.3	-0.2	-2.8	-0.3	+2.3	+0.21	+23	+1.00	+1.00	+0.92	$190	$381
VTME343	HBR	69%	86%	74%	98%	98%	97%	97%	97%	94%	93%	96%	68%	93%	92%	91%	92%	89%	93%	84%	96%	93%	93%	89%		
NZE19507111G183		97	15	1	41	64	11	5	3	4	28	12	95	9	26	53	88	88	43	54	33	79	57	16	62	23
VSNG34	**STRATHEWEN BERKLEY G34** PV	+40	+8.1	+8.3	-7.6	+3.9	+57	+104	+140	+143	+17	+2.1	-7.0	+83	+6.2	+1.1	+0.3	+0.5	+1.3	-0.16	+17	+1.10	+1.24	+1.10	$229	$433
VTMB1	HBR	70%	80%	70%	95%	93%	91%	91%	91%	89%	86%	83%	65%	89%	88%	88%	89%	84%	90%	82%	86%	88%	88%	84%		
VSNE22		62	10	5	12	46	19	15	11	4	51	48	6	10	49	24	38	47	72	13	64	91	94	71	20	3
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

Angus Australia - ImmuneDEX Research Breeding Values

Ident / Sire / Dam	Name / 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
USA17236055	**SYDGEN BLACK PEARL 2006** PV	+8	+4.3	+8.3	-7.5	+3.2	+51	+85	+122	+85	+22	+1.6	-3.2	+74	+8.7	+0.3	-0.5	+0.5	+2.3	+0.06	+14	+1.04	+1.20	+1.14	$211	$346
USA15354674	HBR	76%	97%	91%	99%	99%	99%	99%	99%	98%	99%	99%	88%	98%	97%	97%	97%	96%	97%	91%	98%	99%	99%	97%		
USA16214508		99	37	5	13	31	45	67	39	74	16	68	85	26	22	41	53	47	43	34	80	85	91	81	38	50
VTMA149	**TE MANIA ADA A149** PV	+39	-6.6	-4.0	-3.6	+6.5	+51	+95	+127	+167	+10	+1.8	-2.3	+81	+3.8	-3.4	-2.1	+1.5	-0.6	-0.69	+25	+0.88	+0.76	+0.78	$95	$247
VTMX60	HBR	64%	97%	91%	99%	99%	99%	99%	99%	98%	98%	98%	86%	97%	96%	97%	97%	96%	96%	91%	96%	97%	97%	96%		
VTMU338		63	95	94	69	92	43	37	29	1	94	60	94	13	79	98	80	5	99	1	27	57	9	2	99	94
VTMK52	**TE MANIA KALIBROOK K52** PV	+45	+8.9	+4.6	-2.9	+1.3	+52	+106	+128	+93	+29	+1.8	-6.6	+69	+1.8	+1.1	+2.2	-1.1	+5.8	+1.47	+14	+1.10	+1.06	+1.08	$259	$428
USA16295688	HBR	71%	74%	64%	94%	94%	90%	90%	89%	84%	75%	85%	62%	85%	84%	82%	85%	80%	86%	75%	83%	88%	88%	84%		
VTMH423		53	6	33	78	7	42	12	27	61	1	60	9	41	93	24	12	99	2	99	78	91	71	65	4	4
VTMK138	**TE MANIA KIRBY K138** PV	+18	+0.5	+6.7	-1.7	+4.3	+50	+89	+120	+91	+19	+2.5	-9.0	+66	+5.2	+1.8	+3.1	-1.9	+8.6	+1.20	+8	+0.82	+0.76	+0.98	$265	$424
USA16295688	HBR	68%	93%	81%	99%	99%	98%	98%	98%	97%	97%	97%	77%	97%	95%	94%	96%	93%	95%	85%	98%	98%	98%	97%		
VTMH17		93	68	14	90	55	50	52	44	65	30	33	1	49	62	14	6	99	1	99	94	44	9	32	2	5
VTMM13	**TE MANIA MAGNATE M13** PV	+32	-2.1	+7.8	-12.2	+4.3	+51	+91	+113	+79	+29	+2.3	-8.3	+59	+5.3	-1.9	-1.4	+0.6	+1.7	+0.28	+29	+1.02	+1.26	+1.20	$229	$363
HIOH9	HBR	57%	85%	71%	98%	98%	97%	97%	97%	95%	93%	96%	62%	95%	92%	90%	95%	85%	92%	79%	97%	91%	92%	87%		
VTMK200		75	83	7	1	55	44	46	60	82	1	40	1	71	61	87	69	40	61	63	15	82	95	91	20	36
VTMN424	**TE MANIA NEBO N424** PV	+51	+11.1	-1.9	-7.1	+3.9	+52	+102	+127	+104	+32	+4.5	-4.0	+56	+7.6	-1.1	-3.6	+0.4	+4.5	-0.01	+50	+0.74	+0.76	+1.02	$211	$363
VTMJ89	HBR	51%	87%	77%	98%	98%	98%	98%	98%	96%	93%	96%	56%	93%	93%	89%	93%	84%	92%	80%	97%	92%	92%	88%		
VTMJ214		43	1	88	16	46	42	19	30	44	1	2	69	78	33	73	94	53	6	26	1	27	9	45	38	36
VTMN1387	**TE MANIA NEON N1387** SV	+19	-0.3	+3.8	-6.3	+3.6	+48	+89	+111	+89	+21	+1.8	-7.5	+50	+2.9	-0.5	-1.2	-2.0	+9.7	+0.46	+32	+0.78	+0.78	+1.06	$232	$376
VTMK138	HBR	50%	78%	60%	98%	98%	97%	96%	93%	86%	72%	93%	54%	82%	84%	82%	84%	77%	83%	65%	96%	77%	77%	74%		
VTML452		92	74	41	26	39	59	54	63	68	20	60	3	89	87	60	66	99	1	82	9	36	11	58	17	26
VTMN181	**TE MANIA NERO N181** PV	+74	-13.5	-4.7	-3.1	+5.4	+61	+107	+142	+114	+29	+5.2	-6.0	+74	+6.3	-4.5	-5.0	+0.3	+6.2	+0.18	+30	+0.84	+0.98	+1.22	$211	$332
VTML135	HBR	52%	82%	70%	98%	97%	97%	97%	97%	94%	88%	92%	52%	92%	91%	88%	91%	81%	90%	75%	93%	84%	84%	80%		
VTML1251		11	99	96	76	78	9	10	9	27	1	1	18	28	48	99	99	59	1	50	14	49	52	93	39	60
VTMP888	**TE MANIA PESO P888** PV	+53	+9.4	+5.2	-5.9	+1.4	+56	+117	+143	+109	+28	+2.3	-6.3	+92	+2.8	-0.5	+0.7	+0.1	+1.8	+0.53	+35	+0.84	+1.04	+0.94	$250	$433
VTMK226	HBR	56%	81%	67%	98%	97%	97%	97%	96%	92%	82%	90%	54%	85%	87%	84%	86%	79%	84%	63%	94%	73%	73%	72%		
VTMH423		39	5	27	31	7	24	3	8	35	1	40	13	3	87	60	31	71	58	87	6	49	66	20	7	3
DBLL292	**TOPBOS LEADING EDGE L292** PV	+26	+1.4	+6.3	-6.1	+7.0	+73	+131	+169	+158	+22	+1.5	-5.2	+88	+3.7	-2.4	-4.9	+0.3	+1.1	-0.01	+26	+0.98	+0.76	+0.78	$232	$430
USA16295688	HBR	74%	87%	70%	97%	98%	97%	97%	97%	94%	95%	96%	66%	92%	90%	89%	91%	86%	91%	84%	96%	91%	91%	87%		
VSNF04		84	62	17	28	95	1	1	1	2	13	71	35	5	80	92	98	59	77	26	25	76	9	2	17	3
NZE17691009	**TURIHAUA CRUMP E5** SV	+77	-2.9	-1.7	-5.8	+3.6	+29	+57	+82	+95	+14	+1.0	-9.1	+15	-0.5	+4.3	+2.8	-0.1	+1.2	+0.29	+22	+0.66	+1.20	+1.20	$118	$242
NZE17691003Y167	HBR	63%	91%	82%	97%	98%	98%	98%	98%	97%	97%	97%	88%	95%	94%	94%	94%	93%	94%	86%	87%	84%	84%	78%		
NZE17691195Q263		8	86	87	33	39	99	99	97	59	74	86	1	99	99	1	8	81	75	64	38	15	91	91	97	95
NXTL096	**TWYNAM L096** SV	+58	+8.9	+9.6	-8.2	+2.7	+57	+111	+158	+133	+27	+3.5	-8.8	+106	+2.5	+0.8	+0.9	-0.7	+3.0	-0.21	+10	+0.64	+0.86	+0.90	$254	$464
NXTH111	APR	66%	69%	51%	93%	93%	89%	89%	88%	82%	70%	83%	49%	85%	83%	80%	85%	78%	85%	85%	76%	74%	75%	69%		
NXTJ078		31	6	2	8	22	18	7	2	9	2	9	1	1	89	30	28	96	26	10	92	13	24	12	5	1
BSCF73	**WAITARA PIO FEDERAL F73** SV	+50	+5.1	+5.7	-4.4	+1.6	+55	+103	+134	+90	+27	+2.5	-3.8	+90	+5.1	-0.5	-0.5	+0.3	+1.3	+0.33	+15	+1.40	+1.24	+0.94	$219	$367
USA15688392	HBR	76%	88%	73%	98%	98%	97%	97%	97%	96%	96%	97%	68%	95%	93%	93%	94%	89%	93%	86%	96%	95%	95%	92%		
BSCZ66		44	30	22	56	9	26	16	17	67	2	33	74	4	64	60	53	59	72	69	72	99	94	20	29	33
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

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
QKBP29	**WARRAWEE PATROL P29** PV	+58	+10.4	+11.7	-13.5	+2.4	+55	+107	+144	+127	+22	+2.5	-6.9	+104	+8.7	+3.3	+1.8	+0.0	+1.8	+0.50	+27	+0.80	+1.26	+0.98	$248	$450
SMPG357	HBR	64%	71%	59%	94%	91%	88%	86%	85%	82%	73%	80%	56%	81%	80%	81%	81%	75%	82%	71%	79%	77%	77%	73%		
QKBM01		31	2	1	1	17	27	11	8	13	16	33	6	1	22	3	16	76	58	85	21	40	95	32	7	2
NWPG188	**WATTLETOP FRANKLIN G188** SV	+49	+4.6	+7.0	-4.6	+2.2	+65	+110	+141	+118	+25	+3.7	-3.2	+87	+1.2	-1.5	-1.8	-0.3	+0.8	-1.14	+33	+1.02	+0.94	+0.94	$194	$360
USA15462648	HBR	65%	95%	84%	99%	99%	98%	98%	98%	97%	97%	98%	73%	96%	94%	94%	94%	92%	93%	86%	97%	95%	95%	92%		
NWPE295		46	35	12	52	15	5	8	10	23	5	7	85	6	95	81	76	88	84	1	8	82	42	20	57	38
CWDJ17	**WEATHERLY JAMES J17** SV	+36	-2.5	-3.8	-4.2	+6.5	+49	+84	+109	+109	+3	+1.7	-5.3	+65	+10.1	+1.6	+2.4	+1.1	+3.2	+0.08	+14	+0.86	+1.20	+1.00	$215	$351
BNAD145	HBR	74%	76%	67%	93%	93%	91%	90%	91%	87%	84%	82%	65%	89%	88%	88%	88%	84%	90%	82%	83%	87%	86%	80%		
CWDF14		68	84	94	59	92	53	67	66	34	99	64	33	54	13	16	11	14	22	36	79	53	91	38	34	45
CWDM5	**WEATHERLY MOXY M5** SV	+44	+7.6	+8.0	-6.8	+3.2	+52	+91	+126	+111	+30	+2.4	-6.3	+86	+6.3	+3.2	+0.8	+0.1	+2.5	+0.27	+26	+0.96	+1.08	+0.96	$223	$396
SMPG357	HBR	52%	75%	63%	81%	94%	92%	92%	92%	90%	83%	84%	57%	81%	78%	80%	80%	75%	78%	65%	81%	88%	88%	74%		
CWDJ15		55	12	7	20	31	39	48	31	31	1	36	13	7	48	4	30	71	38	62	24	73	75	26	25	14
	Breed Average EBVs	**+47**	**+2.2**	**+2.6**	**-4.8**	**+4.0**	**+50**	**+90**	**+117**	**+100**	**+17**	**+2.1**	**-4.7**	**+66**	**+6.3**	**+0.0**	**-0.3**	**+0.5**	**+2.2**	**+0.19**	**+20**	**+0.84**	**+0.97**	**+1.03**	**+197**	**+340**

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