



Sire Alliance progeny test data for feed efficiency and tenderness is a definitive step beyond DNA Markers





Tenderness Evaluation



Progeny testing is a definitive step beyond DNA markers

ABS Angus Sire Alliance Shear Force Data (ranked by Tenderness EPD)

Name	Shear Force EPD (lb)	Shear Force Rank	Progeny	Progeny Mean Shear Force		GeneStar Tenderness					Igenity Tenderness Score
				(lb)	(kg)	T1	T2	T3	Total Stars	Shear GPD	
29AN1589 FORESIGHT	-0.46	Top 1%	29	5.88	2.67	2	1	2	5	-1.8	9
29AN1524 TRAVELER 234D	-0.42	Top 2%	16	5.92	2.69	2	0	2	4	-1.5	7
29AN1619 MORGANS DIRECTION	-0.40	Top 3%	35	6.03	2.74	2	1	2	5	-1.8	7
29AN1551 DESTINATION 928	-0.37	Top 5%	40	6.21	2.82	2	2	2	6	-2.2	10
29AN1627 CONNECTION X15	-0.35	Top 10%	30	5.99	2.72	2	0	1	3	-1.1	4
29AN1606 EXCEED	-0.35	Top 10%	43	6.01	2.73	2	1	1	4	-1.4	
29AN1633 SHEAR FORCE	-0.33	Top 15%	36	6.01	2.73	2	2	2	6	-2.2	
29AN1567 MODERN DESIGN	-0.33	Top 15%	39	6.12	2.78	2	1	1	4	-1.4	7
29AN1608 ANALYST	-0.33	Top 15%	37	6.34	2.88	1	0	1	2	-0.7	4
29AN1569 BANDWIDTH	-0.26		39	6.06	2.75	2	1	1	4	-1.4	7
29AN1607 NO FAULT	-0.26		22	6.17	2.80		1				
29AN1574 OBJECTIVE	-0.24		31	6.28	2.85	2	0	1	3	-1.1	4
29AN1616 NEW LEVEL	-0.24		84	6.21	2.82	2	0	1	3	-1.1	6
29AN1644 EXTRA K205	-0.22		26	6.28	2.85	2	0	1	3	-1.1	6
29AN1597 RITO PRIME	-0.22		38	6.37	2.89	1	1	1	3	-1.1	5
29AN1634 INNOVATOR	-0.18		37	6.14	2.79	2	0	0	2	-0.7	4
29AN1646 POUNDMAKER	-0.18		23	6.28	2.85	1	0	2	3	-1.1	6
29AN1642 IMAGE MAKER	-0.18		37	6.32	2.87	2	2	2	6	-2.2	10
29AN1639 OPEN RANGE	-0.18		32	6.30	2.86	2	1	1	4	-1.4	7
29AN1640 IN FOCUS	-0.15		37	6.30	2.86	2	1	1	4	-1.4	7
29AN1610 MAJOR DESIGN	-0.13		37	6.21	2.82		1				
29AN1621 COALITION	-0.13		29	6.32	2.87	2	1	2	5	-1.8	9
29AN1625 SAFE LEAD	-0.13		38	6.37	2.89	1	1	2	4	-1.5	7
29AN1596 IDEAL 7451	-0.11		33	6.39	2.90	2	1	2	5	-1.8	9
29AN1530 POWER DESIGN	-0.09		23	6.54	2.97	2	0	0	2	-0.7	3
29AN1620 4 POINT 8	-0.09		31	6.63	3.01	2	0	0	2	-0.7	4
29AN1593 NEW DESIGN 9150	+0.02		60	6.45	2.93	2	1	2	5	-1.8	7
29AN1587 EXACTLY	+0.02		32	6.63	3.01	2	0	1	3	-1.1	
29AN1618 PRIME CUT 0145	+0.09		42	6.74	3.06	2	0	1	3	-1.1	4
29AN1623 ALLIANCE I87	+0.09		26	6.78	3.08	2	1	2	5	-1.8	9

In this data set GeneStar tenderness GDPs have a positive correlation of only +.17 with tenderness EPDs calculated from actual progeny shear force measurements.

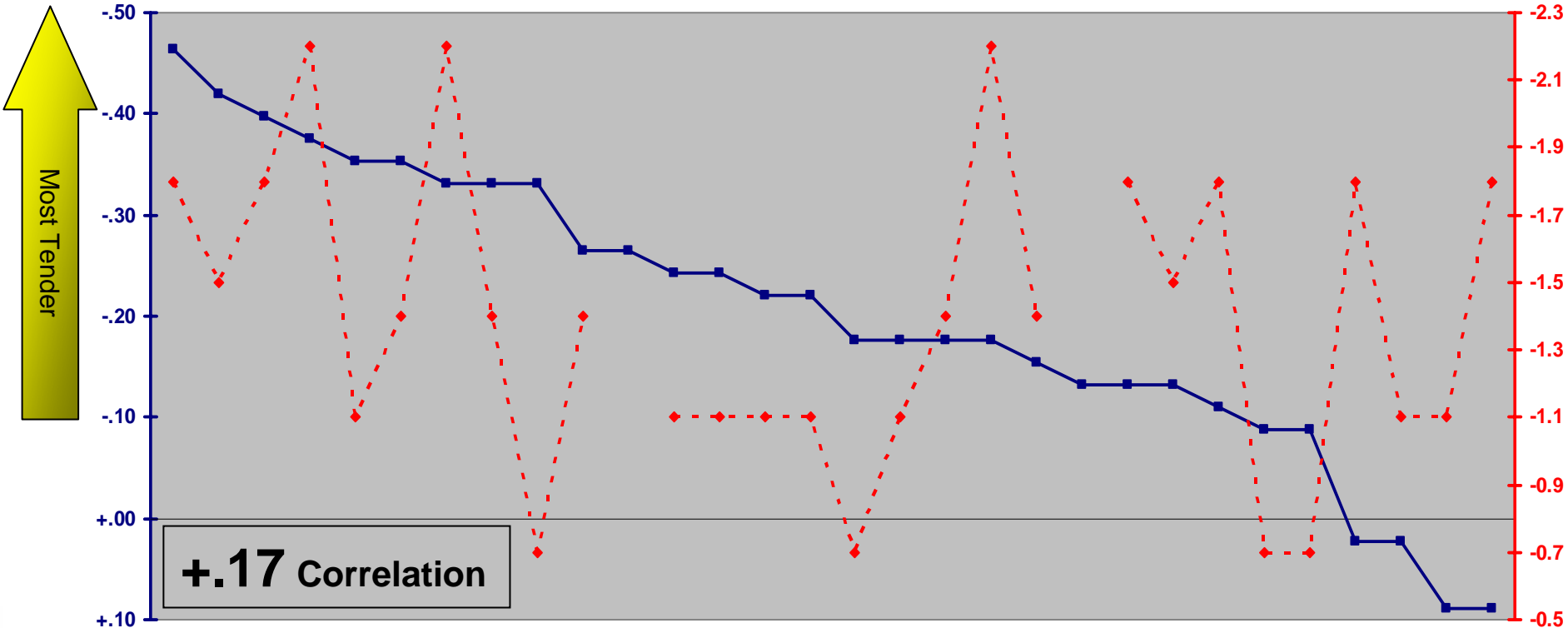
Igenity tenderness scores have a positive correlation of +.11.

The bulls with the best progeny shear force data and worst progeny shear force have identical Igenity Tenderness Scores and Genestar DNA profiles.



Do markers accurately predict progeny performance?

Shear Force EPD vs GeneStar Tenderness Markers



+.17 Correlation

Shear Force EPDs expressed in lbs.
30 Sires tested with an average of 35 progeny per sire

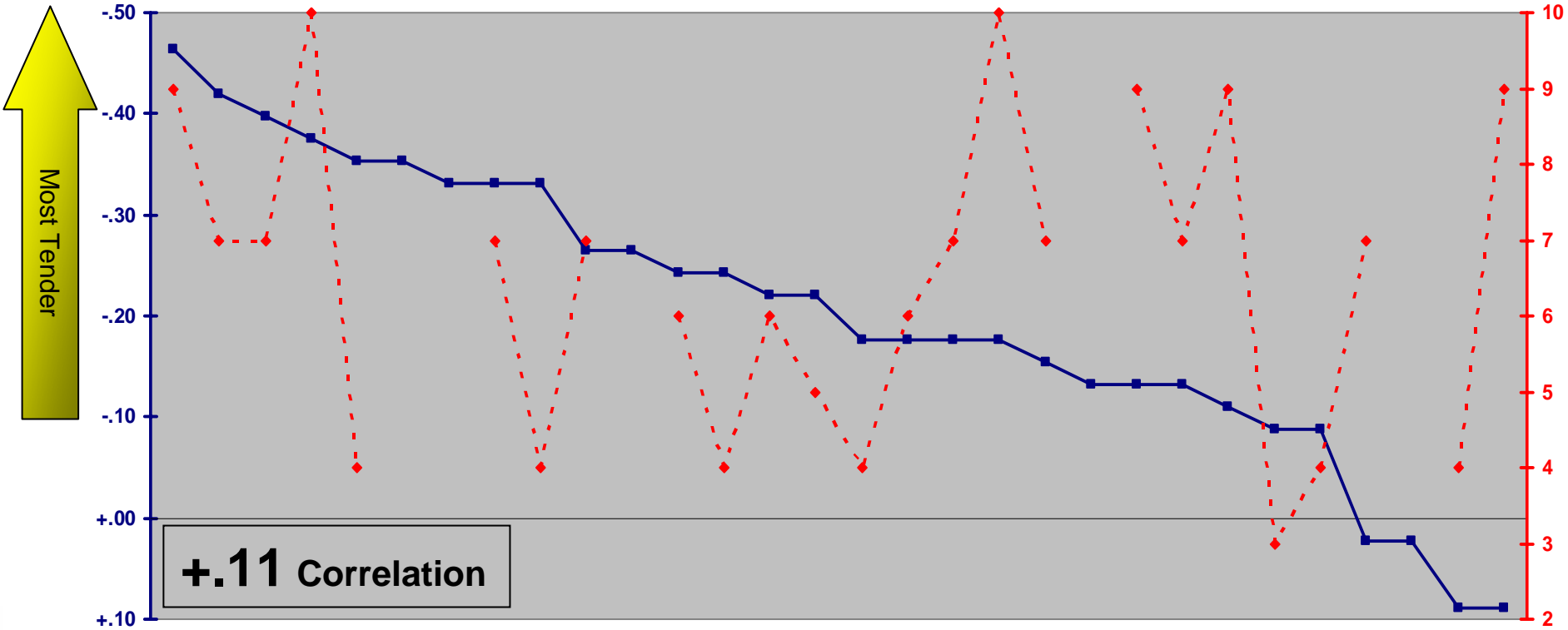
—■— Shear Force EPD (lb) - -◆- GeneStar Tenderness GPD

GeneStar Tenderness GPDs



Do markers accurately predict progeny performance?

Shear Force EPDs vs Igenity Tenderness Markers



+.11 Correlation

Shear Force EPDs expressed in lbs.
30 Sires tested with an average of 35 progeny per sire

—■— Shear Force EPD (lb) - -◆- Igenity Tenderness Score

Igenity Tenderness Scores



Feed Efficiency Evaluation



Progeny testing is a definitive step beyond DNA markers

Angus Sire Alliance Efficiency Data

Name	Feed Efficiency Index	Feed Efficiency Rank	ADG (lb/day)	Intake EPD (lb/day)	GeneStar Efficiency Markers					
					FE1	FE2	FE3	FE4	Total Stars	FE GPD
29AN1569 BANDWIDTH	\$ 9.75	Top 1%	+0.21	-0.06	1	2	2	1	6	-3.15
29AN1618 PRIME CUT 0145	\$ 6.94	Top 1%	-0.10	-1.13	2	1	0	1	4	-2.33
29AN1610 MAJOR DESIGN	\$ 6.43	Top 1%	+0.15	+0.01	2	2	2	1	7	-3.74
29AN1524 TRAVELER 234D	\$ 5.97	Top 2%	+0.02	-0.51	2	2	1	0	5	-3.28
29AN1623 ALLIANCE I87	\$ 5.89	Top 2%	+0.11	-0.11	2	1	1	2	6	-2.79
29AN1646 POUNDMAKER	\$ 5.69	Top 2%	+0.11	-0.09	2	2	0	2	6	-3.48
29AN1530 POWER DESIGN	\$ 5.38	Top 3%	+0.22	+0.42	2	2	1	0	5	-3.28
29AN1634 INNOVATOR	\$ 4.51	Top 5%	+0.03	+0.32	2	1	1	0	4	-2.35
29AN1616 NEW LEVEL	\$ 4.46	Top 10%	+0.13	+0.12	2	2	0	1	5	-3.26
29AN1620 4 POINT 8	\$ 3.94	Top 15%	+0.04	-0.22	2	2	1	0	5	-3.28
29AN1606 EXCEED	\$ 3.75	Top 15%	+0.07	-0.07	2	2	1	1	6	-3.50
29AN1608 ANALYST	\$ 2.83	Top 20%	+0.12	+0.24	2	1	0	2	5	-2.55
29AN1619 MORGANS DIRECTION	\$ 2.80	Top 20%	+0.14	+0.33	1	1	2	0	4	-2.00
29AN1589 FORESIGHT	\$ 2.77	Top 20%	+0.02	-0.19	2	1	2	1	6	-2.82
29AN1633 SHEAR FORCE	\$ 2.62	Top 20%	+0.09	+0.13	2	1	2	1	6	-2.82
29AN1574 OBJECTIVE	\$ 2.52	Top 25%	+0.09	+0.14	1	1	2	0	4	-2.00
29AN1627 CONNECTION X15	\$ 2.34	Top 25%	+0.01	-0.19	1	1	2	1	5	-2.22
29AN1644 EXTRA K205	\$ 1.69		+0.11	+0.31	1	2	1	2	6	-3.13
29AN1597 RITO PRIME	\$ 1.04		+0.04	+0.07	2	2	1	0	5	-3.28
29AN1621 COALITION	\$ 0.46		-0.01	-0.09	1	2	0	1	4	-2.66
29AN1640 IN FOCUS	\$ 0.21		+0.06	+0.24	2	2	1	1	6	-3.50
Reference Sire A	\$ 0.13	Low 44%	+0.12	+0.51	2	2	2	1	7	-3.74
29AN1639 OPEN RANGE	\$ (0.06)		+0.04	+0.18	2	2	2	0	6	-3.52
29AN1551 DESTINATION 928	\$ (0.32)		+0.05	+0.25	2	0	1	0	3	-1.43
29AN1587 EXACTLY	\$ (0.36)	Low 33%	+0.04	+0.21	2	2	2	2	8	-3.96
29AN1567 MODERN DESIGN	\$ (0.55)		-0.07	-0.25	1	2	1	1	5	-2.91
29AN1593 NEW DESIGN 9150	\$ (1.17)		-0.02	+0.03	2	1	1	1	5	-2.57
Reference Sire B	\$ (3.17)	Low 3%	+0.12	+0.84	2	2	2	0	6	-3.52

In this data set, the DNA markers have a correlation of +.00 with measured progeny efficiency.

Two of the three best bulls in this data set for DNA efficiency markers actually rank near the bottom when progeny efficiency is measured.

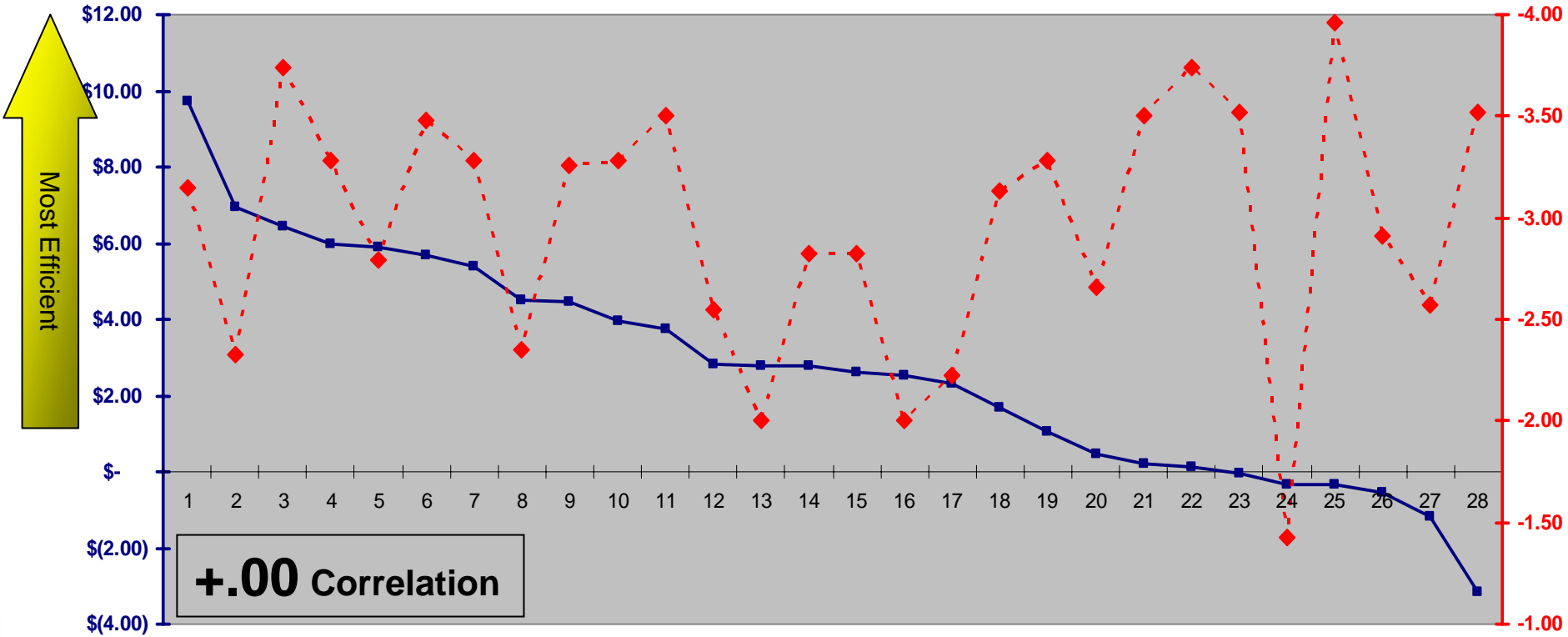
The poorest bull for actual progeny efficiency scores favorably according to the DNA markers

ABS sires currently range from a high of +\$9.74 to a low of -\$11.82



Do markers accurately predict progeny performance?

Efficiency Index vs GeneStar DNA Markers



Efficiency Index expressed in \$ Savings

Measured Progeny Efficiency Index

GeneStar Efficiency GPD

GeneStar Efficiency Markers



The Bottom Line

- Today DNA Markers are limited in their scope – At best they only describe a small portion of the genetic variability for a given trait
- DNA Markers may have value for young unproven animals for traits where no progeny data are available
- Progeny testing remains the “Gold Standard”
- EPDs based on progeny test data are the most powerful tool available and are highly recommended as the best choice for genetic improvement
- Pedigree estimates based on progeny testing are likely still more powerful as a selection tool compared to currently available DNA Markers
- DNA Markers will be most useful when they have been fully validated and incorporated into EPDs



BIF Commission on DNA Markers

Position Statement (11-07):

“BIF believes that information from DNA tests only has value in selection when incorporated with all other forms of performance information for economically important traits in National Cattle Evaluation, and when communicated in the form of an EPD with a corresponding accuracy. For some economically important traits, information other than DNA may not be available. Selection tools based on these tests should still be expressed as EPDs within the normal parameters of National Cattle Evaluation.”